

PREP Panel evaluation

Voco Grandio and Grandio Flow

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Products under evaluation

Voco Grandio and Grandio Flow

Description

Universal light-cured nano-hybrid restorative material, in normal and flowable versions

Manufacturer

Voco GmbH
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ELEVEN members (average time since graduation 24 years) were selected at random from the PREP Panel. Explanatory letters, questionnaires and packs of Voco Grandio and Grandio Flow were distributed in August 2004. The practitioners were asked to use the materials where indicated and return the questionnaire.

VOCO GRANDIO

Background information

Table 1 shows the number of composite restorations placed in a typical week by the evaluators. Regarding the technique used for posterior composite restorations, 82% of evaluators used a dentine bonding agent, 36% used a glass ionomer base/sandwich and 55% used a flowable composite base layer.

A wide range of anterior composite materials was used before this study by the evaluators and two of them routinely used more than one material. The principal reasons for the choice of these materials were good aesthetics, ease of use, good results and familiarity. Other reasons were ease of finishing, packability, presentation and cost.

A similar wide range of posterior composite materials was also used before this study, with just one evaluator routinely using more than one material. The principal reasons for the choice of these materials were good results, aesthetics and ease of use. Other reasons were ease of finishing, non-sticky and "contains fluoride".

Ten evaluators used their present material in compule form and three in syringe form;

two evaluators used materials in both forms.

The evaluators rated the ease of use of their current anterior composite material as follows:



They rated the ease of use of their current posterior composite material as follows:



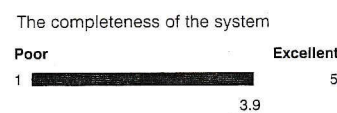
The evaluators were using a variety of dentine-bonding systems, which they rated for ease of use as follows:



The evaluators were typically using finishing burs or discs, followed by a final polishing system, for both anterior and posterior restorations. A variety of curing lights were used by the evaluators, and they all expressed a preference for composite materials to be supplied in Vita shades.

Voco Grandio in clinical use

Evaluators rated the presentation of the kit as follows:



The arrangement of the components



The ability to place on working place



Ease of cleaning of the kit

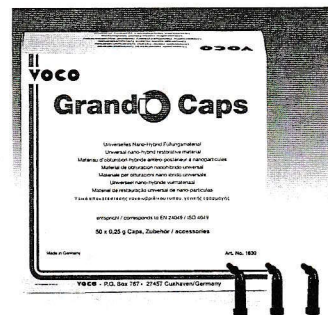
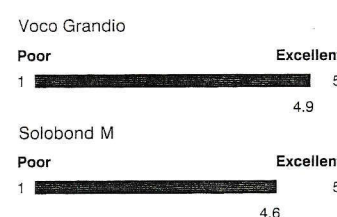


Overall presentation



Evaluators suggested that the presentation could be improved by colour coding the compules by shade and by making the storage box more robust.

The instruction cards for Grandio and the accompanying dentine bonding system, Solobond M, were rated as follows:



All the evaluators stated that the compules worked satisfactorily and rated the ease of placement of the compules into the gun as follows:



A total of 1282 Voco Grandio restorations were placed in the course of this evaluation: 169 Class I, 206 Class II, 387 Class III, 174 Class IV and 96 Class V. All the evaluators used a freehand placement technique for Class I restorations and for Class II, III and IV restorations they all used a matrix. The majority of Class V restorations were placed freehand.

The evaluators and their dental nurses assessed the dispensing and placement of Grandio and Solobond M as follows:



Three evaluators experienced difficulty with the material sticking to instruments; this was overcome by dipping the instrument in the Solobond liquid.

The evaluators were asked if the material flowed satisfactorily when a matrix was applied:



The evaluators rated the viscosity of the material as follows:



TABLE 2 – Comparison of Grandio and usual composite material

Criteria	Rating – Number of evaluators (percentage)		
	Better	Same	Worse
Handling	4 (39)	5 (45)	2 (18)
Working time	1 (9)	8 (73)	2 (18)
Aesthetics	2 (18)	5 (45)	4 (36)
Marginal quality	1 (9)	10 (91)	0

Ten evaluators said the restorations were easily finished and polished using their normal systems. One commented, "Would have liked a glossier finish". The evaluators rated the surface texture of the Grandio restorations they placed as high gloss (one evaluator), satisfactory gloss (nine) and low gloss (one).

Eight evaluators said that the shade guide (which is composed of the actual material) did provide an accurate representation of restoration colour. Comments by the remainder included: "Too translucent when cured" and "Cured material darker than expected". Eight also stated that enough shades of Grandio were provided.

Overall the aesthetic quality of the Grandio restorations was rated as follows:



Nine evaluators noticed a change in colour from uncured to cured material and four of these considered this to be important. Two evaluators commented that the nozzle on the capsule was too wide, making it difficult to get out small amounts of material.

The evaluators assessed the translucency/opacity of Voco Grandio as follows:



Eight of them said the sensitivity of Grandio to ambient light was satisfactory. The evaluators rated the ease of use of Grandio as follows:



The evaluators were asked to describe how Grandio compared to the composite material normally used (see Table 2).

Eight evaluators said that, if Voco Grandio was available at average cost, they would buy the material.

Discussion

The Voco Grandio restorative system has been subjected to an extensive evaluation in clinical practice in which 1282 restorations were placed. Based on this the following conclusions may be drawn.

Presentation

Though the kit scored satisfactorily in terms of the completeness of the components, it did not score quite so well for overall presentation, ability to position on the work place and ease of cleaning. The evaluators made suggestions for

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improvement in these areas. The instruction cards for both Grandio and Solobond M achieved excellent ratings.

Aesthetic quality

Grandio achieved a satisfactory rating for overall aesthetic quality of the restorations, with the rating for translucency/opacity just on the translucent side of the ideal median score.

Ease of use

The materials previously used scored 4.6 (anterior) and 4.3 (posterior) for ease of use. The evaluators rated Grandio at 4.5, close to the score for the previously used anterior material and an improvement on the posterior material.

Conclusion

The handling of Voco Grandio has been subjected to a vigorous practice-based assessment. That the material was well received is indicated by the fact that eight evaluators said they would buy Voco Grandio.

VOCO GRANDIO FLOW
Background information

All the evaluators had previously used a flowable composite or compomer restorative material. A variety of materials had been used. The majority (64%) had used these materials as a base under composites, with 36% using them to restore Class V cavities and 18% using them for fissure sealants and repairs to restorations.

Results

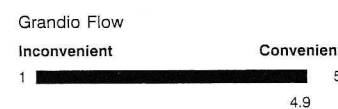
The evaluators rated the instruction card for Grandio Flow as follows:



All the evaluators said the syringes worked satisfactorily and that a larger cannula was not needed.

A total of 539 restorations were placed during the evaluation: 167 Class I base layers, 147 Class II base layers, 21 Class III and 194 Class V. Ten sealant restorations were also placed. All the evaluators used a freehand placement technique for Class I restorations, for Class IIs and IIIs a mix of matrix and freehand techniques were used and the majority of Class Vs were placed freehand.

Evaluators and their dental nurses assessed the dispensing and placement of Grandio Flow and Solobond M as follows:



Evaluators rated the viscosity of the material as follows:



They rated its ease of use as follows:



Ten evaluators said that if Grandio Flow was available at average cost they would buy it.

Discussion

The Voco Grandio Flow system has been subjected to an extensive handling evaluation in clinical practice by members of the PREP Panel in which 539 restorations were placed. Based on this the following conclusions may be drawn.

Presentation

The instruction card for Grandio Flow achieved a high rating of 4.7. No problems

were reported with the syringes and the size of the cannula.

Aesthetic quality

Grandio Flow achieved a good rating of 4.3 for overall aesthetic quality of the restorations. The rating for translucency/opacity of 3.2 assessed for Grandio Flow is a near ideal median score.

Ease of use

The material achieved an excellent score of 4.6. It was also very highly rated by the evaluators and their dental nurses for convenience of dispensing and placement.

Conclusion

The material was very well received as indicated by the ten evaluators who said they would buy it.

Manufacturer's comments

We are very pleased to hear that 91% of the testing dentists would recommend Grandio Flow, and 75% Grandio. This shows that Voco's concept of "single shade simplicity", ie easy handling without complicated shade layering, is widely accepted. To allow this, the ideal natural translucency of 3.2 was chosen. This also has the consequence that the yellow photoinitiator, camphorquinone, shines through and leads to a change of appearance from the pre- to the post-cure state, as noted by 80% of the testing dentists. However, camphorquinone was specifically chosen to allow the material to be cured by all types of curing lights, namely the new generation of LED lights. For precise shade selection Voco always provides shade guides made from original light-cured material – this also means that the change of translucency with a thin or a thick layer can be evaluated.

The PREP Panel – the first decade

Russell J Crisp

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IN 1993 two

senior clinicians in the department of restorative dentistry at the University Dental Hospital of Manchester –



Professor Nairn Wilson



Professor Trevor Burke

Professor Nairn Wilson (now dean and head of King's College London Dental Institute) and Dr Trevor Burke (now professor of primary dental care at Birmingham School of Dentistry) – understood the need for busy GDPs to have access to clear and concise independent assessments of new products. There was also pressure from the dental manufacturing and supply industry for speedy feedback on the limitations and advantages of their products when used in general practice.

A decision was made to form a group of GDPs to undertake rapid evaluations of new materials and techniques in a practice environment. This group, initially of six Manchester-based GDPs with a wide range of dental interests, was named the PREP (product research and evaluation by practitioners) Panel.

For each evaluation a protocol, including a detailed assessment form, was drawn up with the sponsor. From the outset it was established that the panel co-ordinators were free to publish the evaluation findings, subject to the sponsor being given the opportunity to respond to the reports before submission. The first report of a PREP Panel evaluation was published in *Dental Practice* in September 1994.

In the first year three evaluations were undertaken but within three years the number had doubled and it became obvious that a larger panel was needed. The number of members increased to 25 and the figure has remained around this level. Currently four of the panel are female and the average time since graduation is 21 years. At present there are members practising throughout the UK and 61 per cent of them hold postgraduate degrees or diplomas.

An innovation in the second half of the decade was to arrange an annual meeting at a central location for all the members to get

together to hear a top-class speaker, exchange views on the direction and running of the PREP panel and, perhaps most importantly, meet socially. A further innovation is the website – www.dentistry.bham.ac.uk/preppanel/ – as a source of reference for busy practitioners.

The method of evaluating a product was established from the very beginning and starts with a questionnaire agreed with the manufacturer. The detailed format of the questionnaire varies slightly depending on the subject of the evaluation. The product under investigation, with the questionnaire, is distributed to the participating GDPs (usually around 10 chosen at random from the panel) with comprehensive instructions. The questionnaires are returned to the co-ordinator for collation and analysis. A report is prepared and sent to the sponsor, whose comments are included when the evaluation is published.

In this past decade 23 restorative materials, 13 dentine bonding agents, seven impression materials, six types of gloves, two desensitising agents, one dual-arch impression tray system and one type of dental bur have been evaluated.

Co-founder Professor Trevor Burke has been the dynamic driving force behind the panel. I joined him as co-ordinator, on a part-time basis, in 1995 and we now also have a fellow co-ordinator, Lyn Malthouse, who handles all the "office" chores and provides a central contact for the members.

In 1997 the PREP Panel was asked by the manufacturer to conduct a one-year clinical trial of a new compomer material, which the panel had already evaluated before its UK launch. This new undertaking went extremely well, was reported in a peer-reviewed journal and led to a further one-year trial of a composite material. The conduct of clinical trials in general dental practice has been the subject of controversy but all involved with the PREP Panel are convinced of the necessity for GDPs to have access to "real world" data relevant to their work. The most ambitious clinical trial conducted by the panel in the last few years was a two-year trial of a condensable composite material.

The demand from manufacturers for speedy evaluations of new materials and techniques continues unabated, so that will remain the panel's core activity. The expertise gained in clinical trials is also in demand and it is planned shortly to launch EuroPREP – a PREP Panel involving dentists as far north as Sweden and as far south as Italy.

TABLE 1 – Number of restorations placed in a typical week

	Number of respondents
Anterior	
<10	2
10-16	2
16-20	3
>20	4
Posterior	
<5	1
5-10	5
>10	5

48% of posterior restorations were occlusal, 36% Class II and 16% MODs