

SCIENTIFIC REPORT

Grandio – 1-year clinical study

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The University of Mainz carried out a clinical 1-year-study of the effectiveness of Grandio and Filtek Silorane (3M ESPE) in treating class II cavities. The study was supported by 3M ESPE. ^[1]

In the study summarized here, 37 patients with at least two equivalent class II cavities participated. The cavities were restored with Grandio/Futurabond NR and with Filtek Silorane/Silorane system bond, according to the instructions of the manufacturers. After 12 months the restorations were evaluated according to specific characteristics. Here, the evaluation criteria of Hickel et al. ^[2] were used. The ratings A, B and C stand for clinically acceptable results, the ratings D and E for clinically not acceptable results.

Evaluation of the surface

Several parameters were used to evaluate the surface: surface gloss, surface discolouration and colour stability. The results are shown in Figure 1.

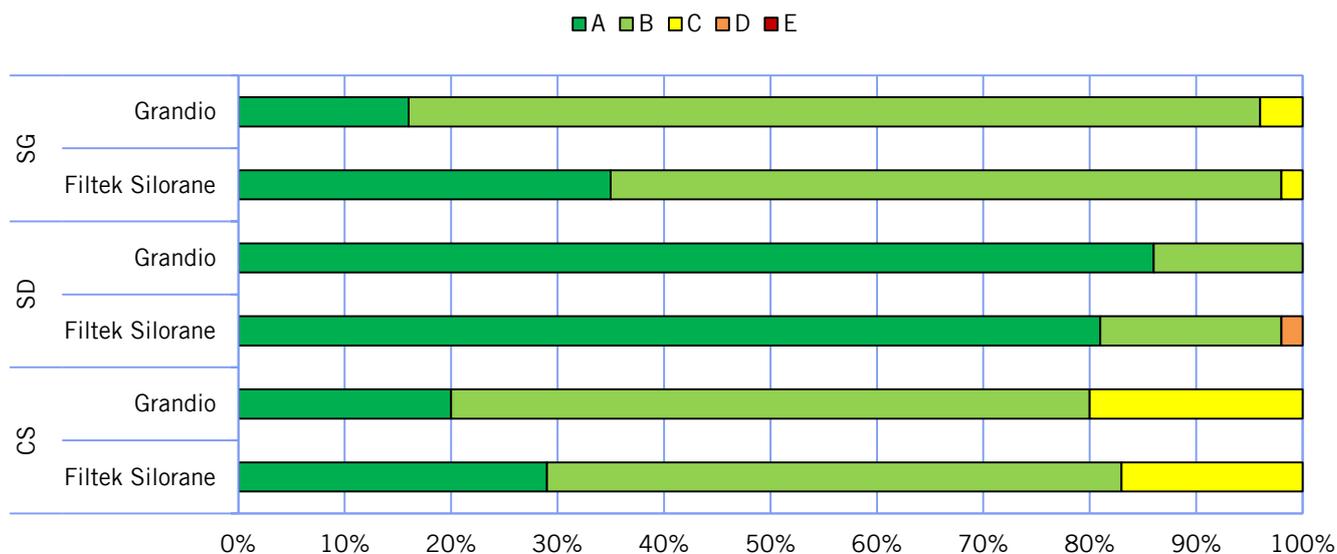


Figure 1: Surface analysis; SG = surface gloss, SD = surface discolouration, CS = colour stability

Evaluation of the filling

To evaluate the filling, further parameters were looked at: integrity of the tooth, the contact points, wear/abrasion, marginal adaptation, possible fractures / retention mistakes and the anatomical shape. The results are shown in Figure 2.

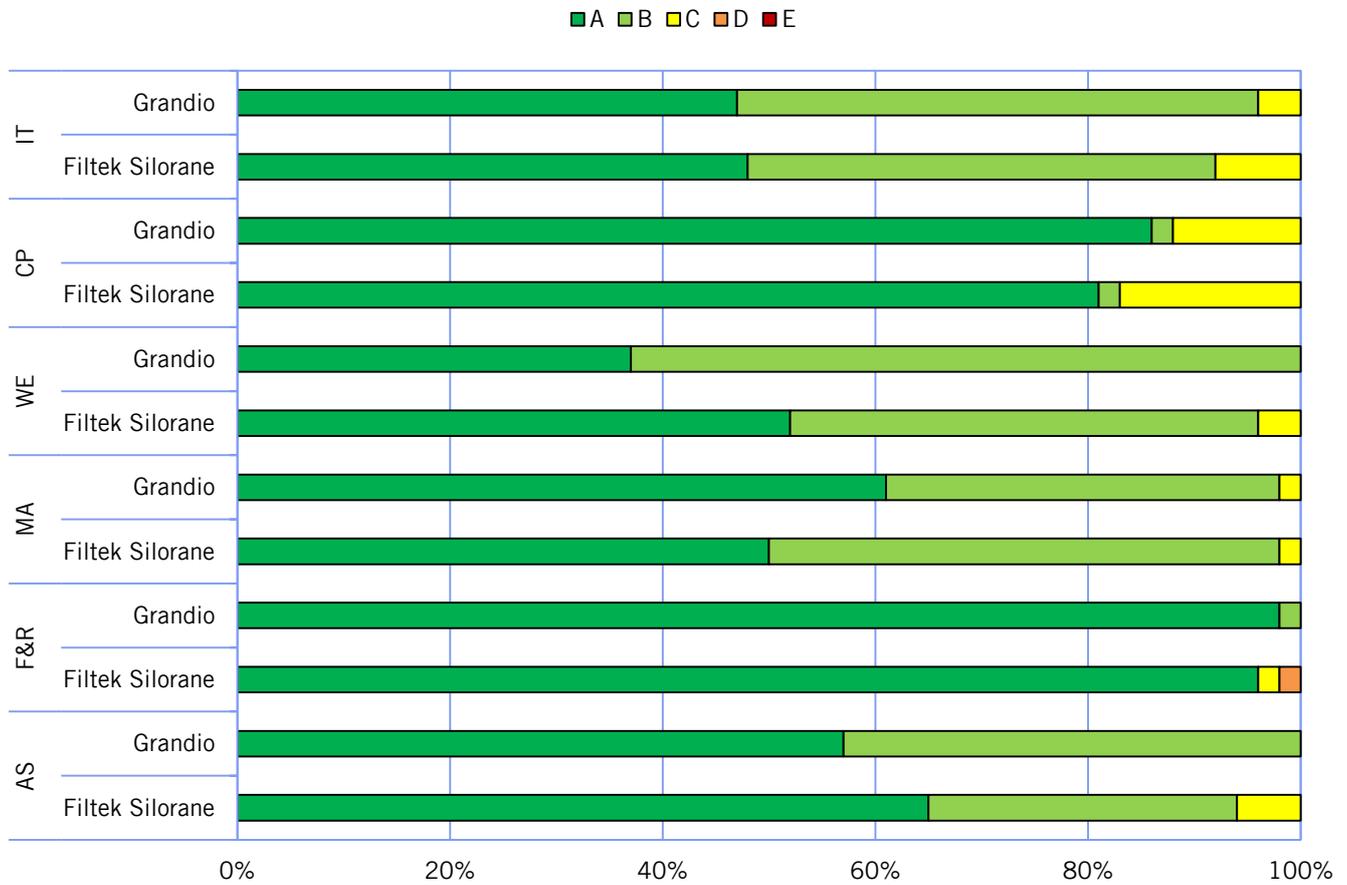


Figure 2: Analysis of the fillings; IT = integrity of the tooth, CP = contact point, WE = wear, MA = marginal adaption, F&R = fractures/retention, AS = anatomical shape

As in the evaluation of the surface, the analysis of the fillings did not show any significant differences between the materials used. All teeth treated with Grandio/Futurabond NR showed clinically acceptable results. Secondary caries was not observed in any of the cases.

Further parameters

Apart from the filling-related parameters, some environmental parameters were also considered in this study: general status of oral health, gingival reactions to the restoration, occurrence of hypersensitivity or loss of vitality of treated teeth. The final parameter was patient acceptance of the restoration. The results are shown in Figure 3.

Again, there was no statistically significant difference between the materials.

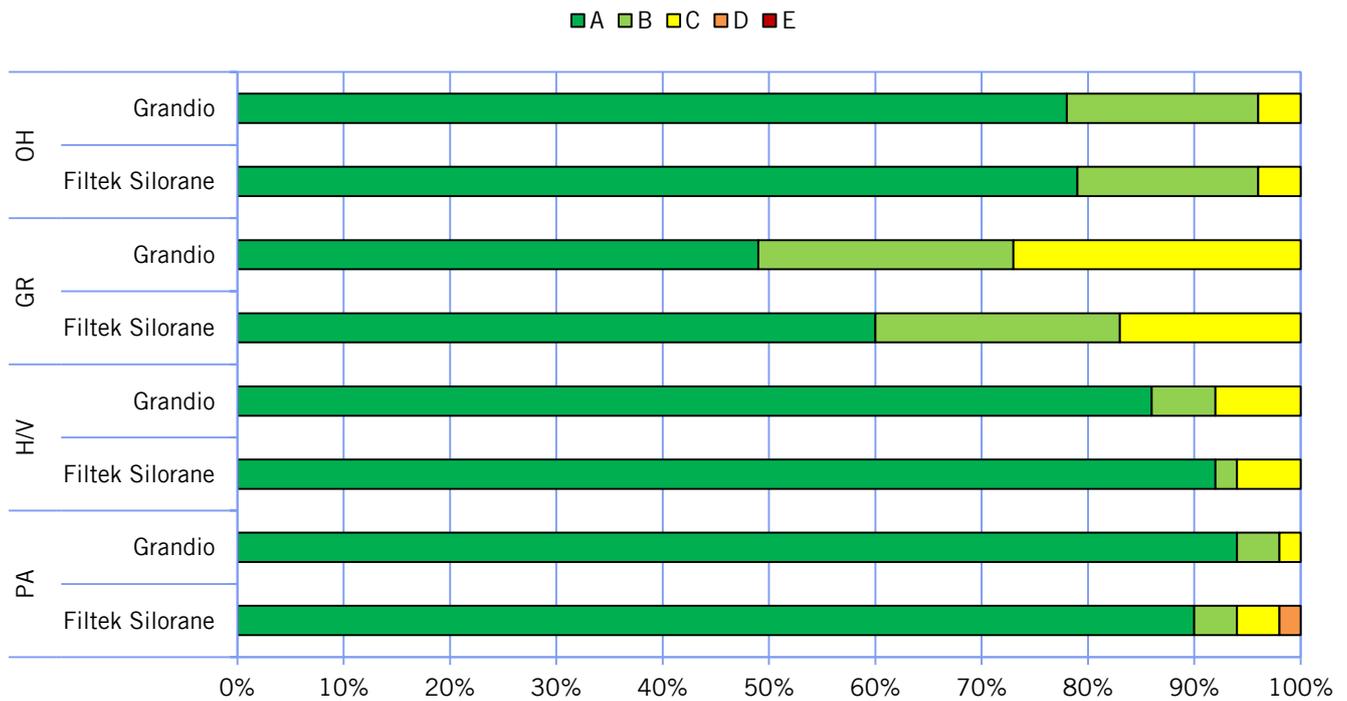


Figure 3: Other parameters: OH = oral health status, GR = gingival reaction, H/V = hypersensitivity/loss of vitality, PA = patient acceptance

Conclusions

In this clinical analysis Filtek Silorane, based on the new silorane technology, shows the same values as the nano-hybrid composite Grandio. The lower shrinkage of Filtek Silorane apparently did not have any significant influence on its clinical success, or this advantage is equalled out by other material properties. This would explain why Grandio shows significantly better values for marginal adaptation. The hallmark of the Futurabond NR / Grandio system is its versatility: it is indicated for restorations of all classes, and both materials are compatible with other composites and bonds.

Conclusion: in this clinical 1-year study, the nano-hybrid composite Grandio has excellent values; all evaluations in all categories are rated clinically acceptable.

[1] A. Schattenberg, S. Storck, I. Busemann, B. Willershausen, C.-P. Ernst, IADR 2009, Miami, USA.

[2] R. Hickel, J. F. Roulet, S. Bayne, S. D. Heintze, I. A. Mjör, M. Peters, V. Rousson, R. Randall, G. Schmalz, M. Tyas, G. Vanherle, *Clin. Oral Investig.* **2007**, *11*, 5-33.