GrandioSO

LOOKING FOR ONLY ONE SIMPLE ANSWER?

THE SOLUTION IS GrandioSO



... the Most Tooth-Like Composite Ever!

GrandioSO

89% FILLED UNIVERSAL NANO-HYBRID COMPOSITE
THE COMBINATION OF HANDLING, ESTHETICS AND PERFORMANCE

EDITORS' CHOICE The Dental Advisor

Dental Product Shopper BEST PRODUCT 2012

REALITY Four Star Award

nanohybrid technology

VOCO THE DENTALISTS

GrandioSO

SO TOOTH-LIKE

The perfect composite filling material is characterized by a combination of it‘s material properties, user-friendliness and natural aesthetics. Aside from the shade, it is primarily the combination of a variety of physical parameters that is crucial for a composite to behave like natural tooth structure. These parameters principally determine the stability and lifespan of a restoration- and thus the continuing satisfaction of your patients.

The following properties are of particular importance here:



VOCO used these exact natural tooth properties as the model for developing a composite offering physical parameters that, in combination, perfectly mirror the natural tooth.

GrandioSO – So tooth-like!

GrandioSO

ISO-PAK INFECTION & HUMIDITY CONTROL



ISO-pak for Infection & Humidity Control

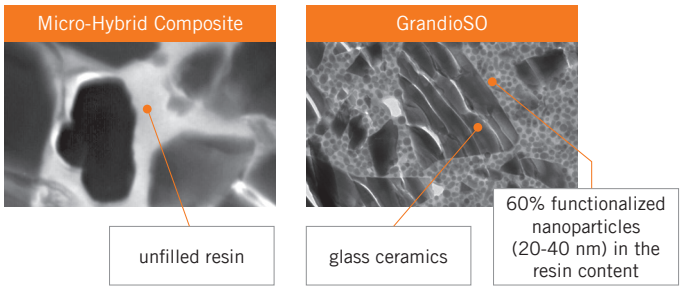
The air-tight ISO-pak maximizes product quality by reducing the risk of cross-contamination while eliminating the outside effects of various humidity levels, whether being used in the dry winter air of Canada and the Arctic Circle or the moist humid air in the tropics of Florida.

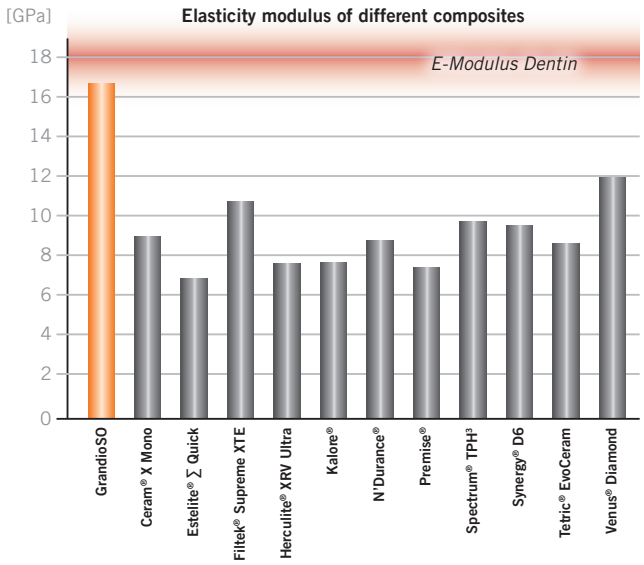
GrandioSO

FOR PERMANENTLY INTACT RESTORATIONS

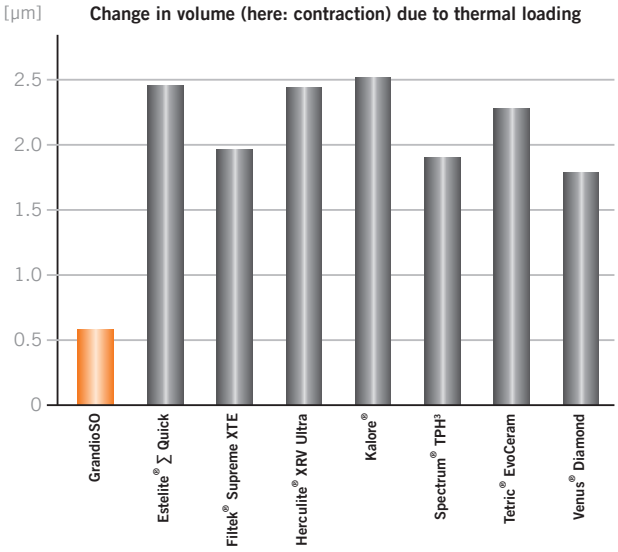
GrandioSO is the latest universal nano-hybrid restorative from VOCO. The impressive combination of the newest functionalized nanoparticles and special glass ceramics provide an enormously high filler content of 89 w/w %. The resulting low resin percentage additionally contributes to very low polymerization shrinkage. The occurring shrinkage stress is likewise minimised.

The long-term integrity of a restoration, however, is by far not determined alone by the two aforementioned, uniquely occurring factors. In particular, the dynamic loads such as chewing stress and changes in temperature, to which the restorative is permanently exposed, present a formidable challenge. Only by using a composite that possesses elastic and thermal behavior matching that of the natural tooth can these recurring factors be counterbalanced.





Source: VOCO GmbH, internal analysis



Source: VOCO GmbH, model calculation based on measured data of the thermal expansion coefficients α (ø cavity = 5mm, ΔT = 11°C)

The E-modulus is a measurement of the resistance that a material, in this case the restorative, offers against deformation. Ideally, a restorative has the same E-modulus as the natural tooth. This ranges from 16.55 to 18.62 GPa for dentin. Out of the analyzed composites, GrandioSO demonstrates elasticity behavior by far closest to that of dentin, with an E-modulus of 16.65 GPa.

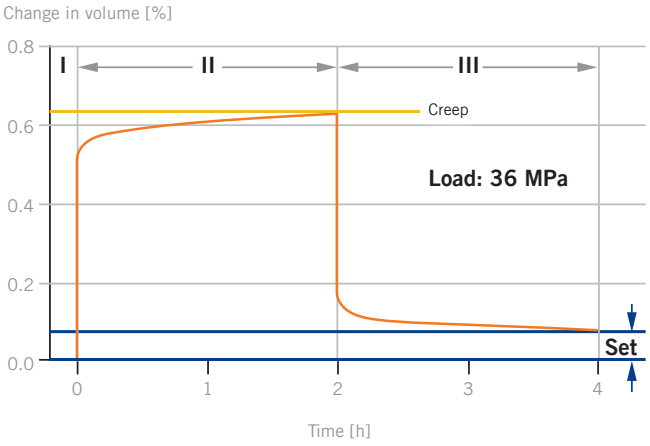
The figure shows by how many more micrometers than the surrounding enamel the respective restorative contracted. The material, naturally, cannot contract unimpeded, due to the adhesive bond. The considerably smaller change in the volume of GrandioSO, however, leads to significantly lower withdrawal force than is the case with the other analyzed materials. These values are indicative of long-lasting, intact filling margins, despite the daily occurring variation in thermal loads.

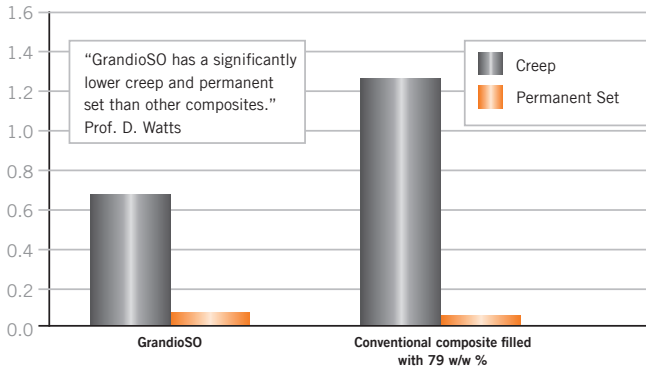
GrandioSO

FOR HIGHEST RESISTANCE AND STRONGEST HOLD

Exactly like the tooth itself, restoratives are exposed to constantly recurring and extraordinarily high chewing forces. During the development of GrandioSO, special attention was paid to the greatest possible stability and strength of the material, to ensure that it withstands these forces.

Newer research on composites addresses the deformation behavior of these materials under pressure, the so-called "creep" and "permanent set". When a force affects a body, then it is initially compressed (Chart below, I). After the initial, quick compression, further, slow compression takes place over the course of the next minutes or hours. This compression following the initial deformation is called creep within the material (II). As soon as the applied force is removed, a reverse process takes place. Within a very short period of time, expansion takes place, leading to a recovery of 80–90%. Even after the relaxation time, however, the original volume value is not reached again. This difference is called "permanent set" (III). The value describes the inelastic deformation and is of particular importance for posterior restorations: If the material does not stand up to the daily chewing load, deformation of the restoration results over time, and the occlusion is thus affected. Lowest possible "creep" is important for long-term dimensional stability and is a gauge for the quality of a composite.





Source: D.C. Watts, N. Silikas, University of Manchester, 2010

A comparison of additional physical parameters

	GrandioSO	Ceram® X Mono	Estelite® ∑ Quick	Filtek® Supreme XTE	Herculite® XRV Ultra	Kalore®	Venus® Diamond	Tetric® EvoCeram
Shrinkage [vol. %]	1.61	1.97	2.04	1.92	2.4	1.52	1.6	1.86
Compressive strength [MPa]	439	335	354	315	397	346	411	339
Tensile strength [MPa]	72	48	49	57	57	44	67	52
Transverse strength [MPa]	187	114	93	155	127	130	181	130

Source: VOCO GmbH, internal measurement, 2010

GrandioSO is continuously found in the top group, not only due to its individual values relating to strength and stability, but it also holds an outstanding position in terms of its total sum of properties.

*Source: Prof Dr. Watts, University of Manchester, England, 2002

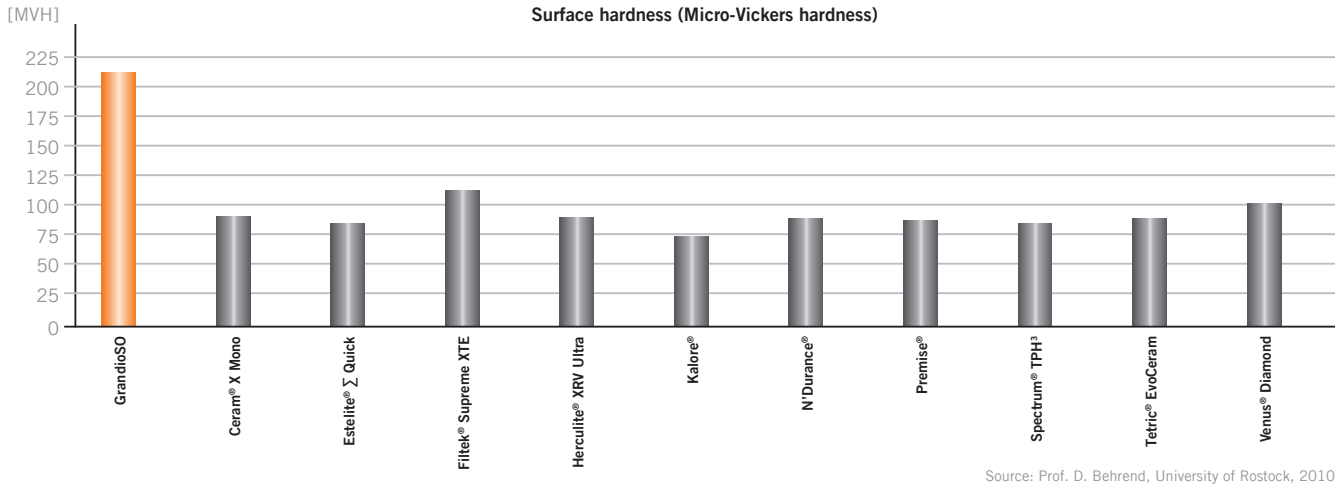
GrandioSO

FOR ENDURINGLY LUSTROUS RESTORATIONS

A restoration that can easily be polished to a high gloss is of great importance to you and your patients. The durability of a restoration, however, is determined by a high surface hardness. The ability to combine these two – fundamentally conflictive – properties together shows the high quality of a composite. GrandioSO sets new standards in this area.

Extreme surface hardness

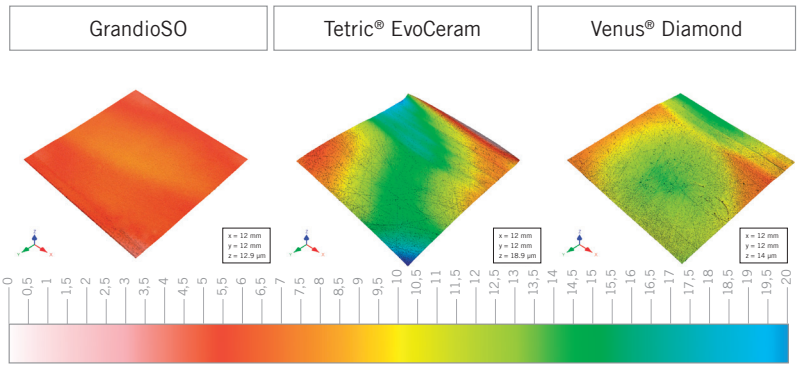
Compared to other composites, GrandioSO exhibits a surface hardness that is twice as high in part and comes closest to the hardness of natural tooth enamel (350 - 450 MHV). GrandioSO provides long-term abrasion resistance as well as high dimensional stability of your restoration.



Source: Prof. D. Behrend, University of Rostock, 2010

Permanently high gloss

The perfect restoration is completed with a high gloss polish Despite its manifestly very high surface hardness, GrandioSO polishes well and thus yields a long-lasting smooth, high gloss restoration. A large number of studies substantiate the high gloss and low surface roughness of GrandioSO after polishing. The optical analysis below show the smooth GrandioSO surface after polishing.



Source: Dr. G. Fleming, University of Dublin, 2010



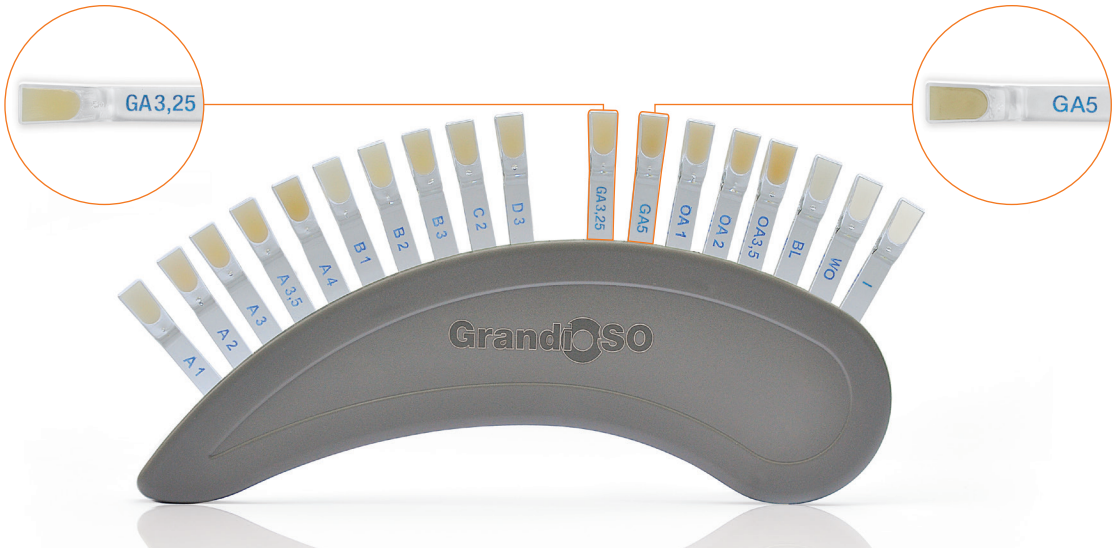
VOCO is not the holder of any mentioned trademark

GrandioSO

FOR THE ULTIMATE IN USER-FRIENDLINESS

All-purpose

GrandioSO is a restorative that can be used universally, both because of its physical properties and also for aesthetic aspects. Even in the anterior region, only one shade of GrandioSO is required to produce the best aesthetic results. The opacity and translucency of the material were coordinated in such a way that a restoration in the anterior region is indistinguishable from the surrounding tooth substance. The desire often expressed by dentists for a darker shade, especially for the restoration of Class V cavities, has been taken into account in the form of the shade GA5. The shade GA3.25 was additionally included to close the shade gap between A3 and A3.5 assuring an optimal shade match. The body of the new GrandioSO shade guide is produced in a grey shade, this greatly reduces the risk of reflectivity, a technique commonly used in photography. This permits the reproducible assessment of shades in varying light conditions and reduced glare ("white" teeth!) as they exist at the dentist's chair. Aesthetic work is simplified in particular by the new GrandioSO shades that make sense for everyday in office use.

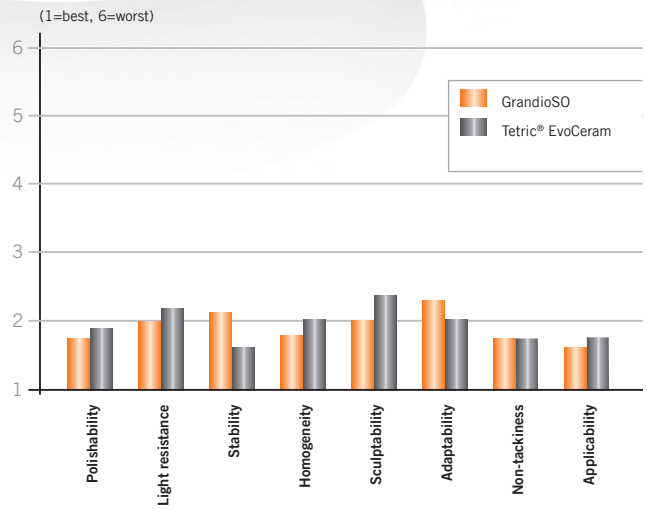


Best application properties

Quick work is aided by the handling of a material, e.g., non-sticky, smooth consistency and good packable sculptability. Multiple properties that affect handling were rated in a blind test by test dentists within the scope of a study by Frankenberger et al. (2010). GrandioSO was compared with Tetric EvoCeram in the evaluation and performed extremely well.

- Outstanding polishability
- Excellent modeling thanks to smooth consistency
- Light resistance of 4 min 30 sec., i. e., working without time pressure
- Reduced light-curing times of only 10 sec. for shades A1, A2, A3, B1 and BL

Handling properties according to academic grades



Source: Prof. Dr. R. Frankenberger, University of Marburg, 2010

GrandioSO

CLINICAL APPLICATION

Case 1



Fillings in 4, 5 in need of renovation due to secondary caries



Excavated teeth



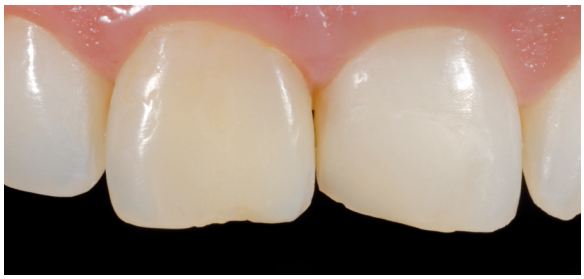
4 with the distal marginal ridge modeling complete



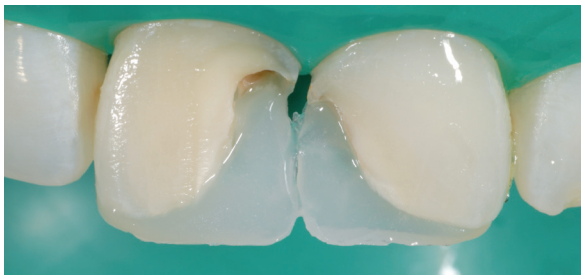
Finished restorations that cannot be distinguished from the natural tooth

Source: Dr. Walter Denner – Fulda, Germany

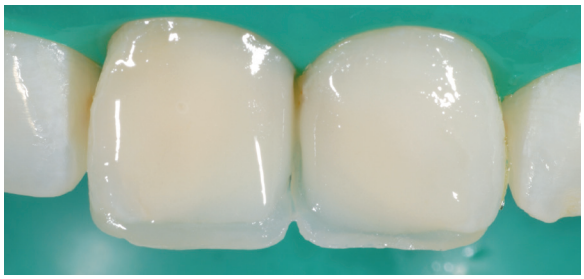
Case 2



Insufficient composite fillings of teeth 8 and 9



Completed palatal wall with GrandioSO BL



Application of increments using GrandioSO A2



Final restoration polished with Dimanto

Source: Dr. Sanzio Marques – Passos, Brazil

GrandioSO

FOR TOOTH-LIKE RESTORATIONS

Advantages

89% fillers by weight:

- Outstanding wear resistance
- Enhanced color stability

30-50% less resin compared to classic hybrid and pseudo nano composites:

- Low shrinkage of only 1.6 vol.%
- Non-sticky
- Prolonged working time under ambient light

Designer Nano particles:

- Excellent polishability and polish retention
- Tooth-like modulus of elasticity
- Tooth-like thermal expansion and flexural strength



VOCO presents its ISO-pak individual Infection & Humidity Control packaging for capsules

Presentation

Kits

REF 2600	Kit syringes 5 x 4g (A1, A2, A3, B1, GA3.25), shade guide
REF 2640	Kit Caps 80 x 0.25g (16 each of A1, A2, A3, B1, GA3.25), shade guide
REF 2646	Trial Kit 8 x 0.25 Caps (2 x A1, 2 x A2, 2 x A3, 2 x GA3.25) 1 x 2g GrandioSO Heavy Flow syringe A2, 1 x Dimanto Polisher
REF 2607	Shade guide

Individual shades

Shade	1 syringe, 4g	16 x 0.25g caps	Shade	1 syringe, 4g	16 x 0.25g caps
A1	REF 2610	REF 2650	D3	REF 2627	REF 2667
A2	REF 2611	REF 2651	Incisal	REF 2629	REF 2669
A3	REF 2612	REF 2652	OA1	REF 2630	REF 2670
A3.5	REF 2614	REF 2654	OA2	REF 2631	REF 2671
A4	REF 2615	REF 2655	OA3.5	REF 2633	REF 2673
B1	REF 2619	REF 2659	BL	REF 2635	REF 2675
B2	REF 2620	REF 2660	GA3.25	REF 2613	REF 2653
B3	REF 2621	REF 2661	GA5	REF 2616	REF 2656
C2	REF 2624	REF 2664			

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