BEAUTIFIL-Bulk

One bulk-fill composite – two viscosities

PRG Technology
Giomer

SHOFU

Practical, quick and reliable

Incremental placement is the method of choice to offset the shrinkage stress developed by conventional composite materials. Excessive stress may lead to debonding of the restoration especially at the margins and the floor of the cavity. The resulting problems include discolouration, recurrent caries and postoperative sensitivity.

For this reason, the material-specific parameters of polymerisation shrinkage and shrinkage stress and their control are critically important to the use of restoratives in the bulk-filling technique.

With the development of the Beautifil-Bulk system clinicians can place increments up to 4 mm in thickness, SHOFU has even gone one step further. This system features not only low shrinkage stress, but also effective optical diffusion processes for superior shade matching and aesthetics. Moreover, acid-neutralisation and anti-plaque properties contribute to caries prevention.

Photos: Dr Markus Th. Firla, Hasbergen-Gaste, Germany

1. Cavity after preparation and conditioning
2. Initial thick increment of BEAUTIFIL-Bulk Flowable, used as a base
3. Final occlusal capping with BEAUTIFIL-Bulk Restorative

One bulk-fill composite – two viscosities

The system consists of two materials with different viscosities and the same filler structure. BEAUTIFIL-Bulk Flowable is particularly suitable for use as a cavity base, thanks to its good self-levelling and handling characteristics. BEAUTIFIL-Bulk Restorative is a pasty, excellent sculptable material designed for direct posterior restorations and resistant to occlusal stress.

BEAUTIFIL-Bulk Flowable

- Base for Class I and II restorations
- Liner under direct restorative materials
- Restorative for small posterior cavities

BEAUTIFIL-Bulk Restorative

- Direct posterior restorations

Preventive effects of Giomer materials

All Beautifil-Bulk products are multifunctional Giomer composites, characterised by bioactive filler particles. In the manufacturing process, these fillers are coated with a durable glass ionomer phase (“S-PRG”) before being embedded in the matrix.
This technology allows the composites to recharge and release fluoride and other ions.

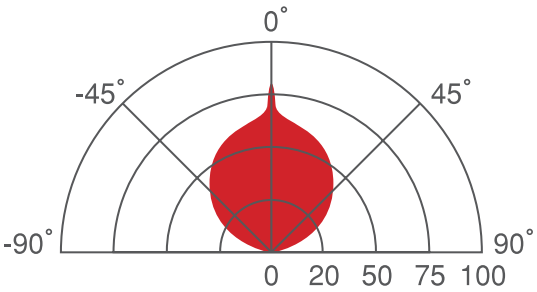
PRG Technology
Giomer

In numerous studies conducted at leading universities, this class of materials has been shown to effectively remineralise the tooth structure, inhibit plaque formation and neutralise acids.

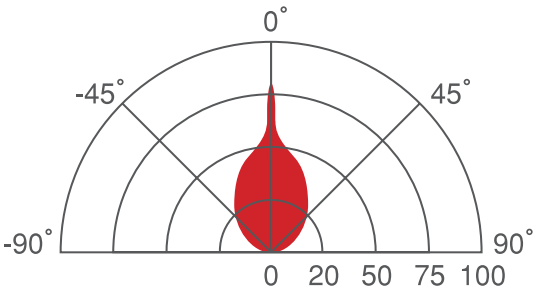
Aesthetic results

Aesthetic restorations and user-friendly handling properties are not incompatible!

Conventional bulk-fill composites have to be highly translucent to ensure a depth of cure of 4 mm. However, highly translucent materials will hardly match the shade of the surrounding natural tooth structure. The Beautifil-Bulk system in contrast is optically balanced thanks to its filler structure and therefore opaque enough to optimally harmonise with natural teeth.



BEAUTIFIL-Bulk Flowable



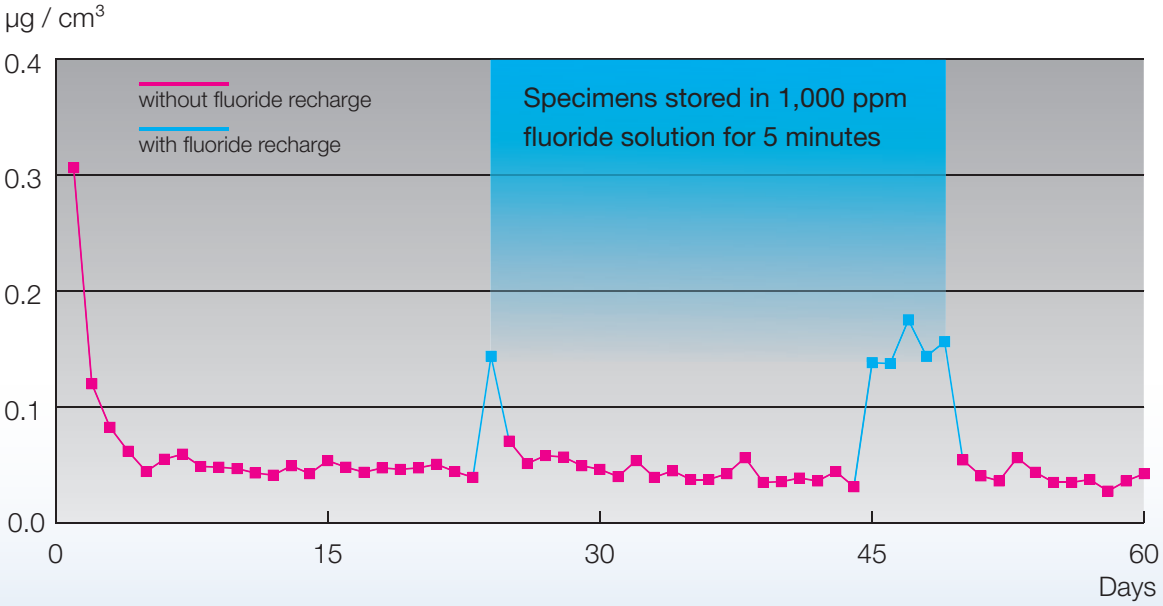
BEAUTIFIL-Bulk Restorative

Incident light is both diffused by the glass ionomer phase and transmitted straight through the multifunctional glass core of the filler particles. The fillers of the flowable material imitate the light diffusion effects of dentine, while the fillers of the packable material combine the diffusion effects of the enamel-dentine complex.

Fluoride recharge and release

The following illustration shows how much fluoride is released in a period of 60 days. To recharge fluoride, specimens were stored in a 1,000 ppm sodium fluoride solution for five minutes. The test indicates that the amount of fluoride released directly after recharge is approximately three times higher than the amounts released at other times (see blue lines). So the use of fluoride-containing toothpaste can be expected to lead to a sustained increase in the fluoride release of the restorative.

Fluoride release of BEAUTIFIL-Bulk Restorative

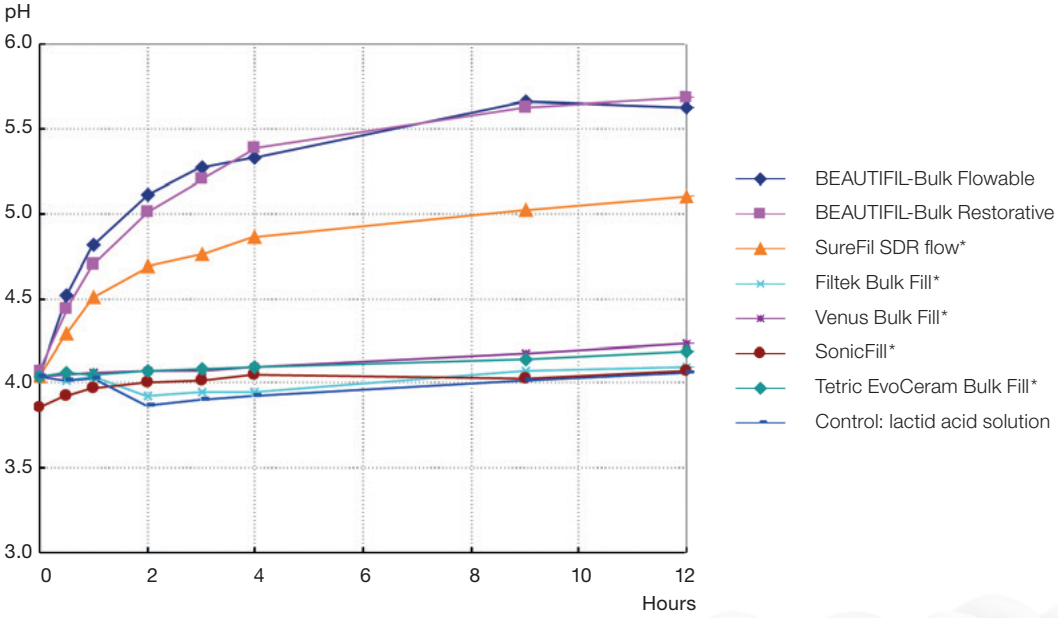


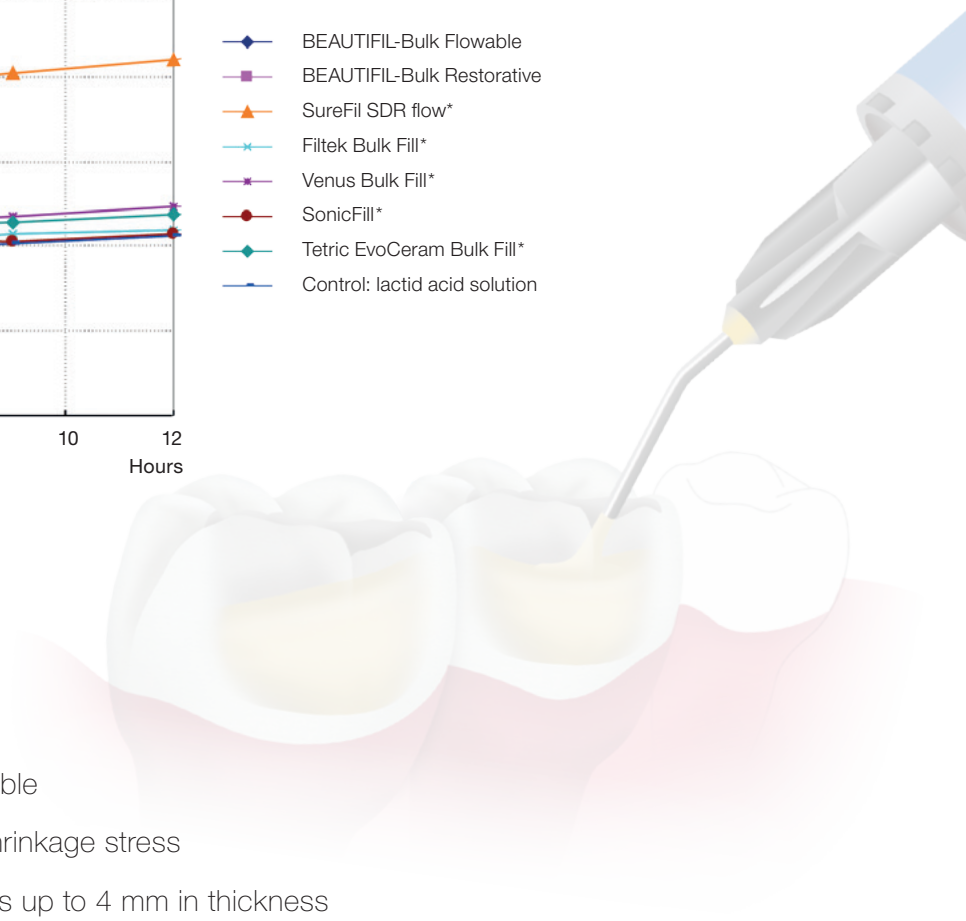
Acid neutralisation

Occlusal surfaces of posterior teeth are under continual stress, so there is an increased risk of marginal gap formation between tooth and restoration in Class I and II cavities. These marginal imperfections may easily be colonised by bacteria, e.g. Streptococcus mutans, which produce acids that may demineralise the tooth structure and, as a consequence cause recurrent caries.

To test the ability of the Beautifil-Bulk system to neutralise acids in comparison with other bulk-fill systems, cured specimens of various materials were stored in a pH 4 lactic acid solution, and changes in the pH-value over time were measured. The results shown in the following diagram confirm that both BEAUTIFIL-Bulk Flowable and BEAUTIFIL-Bulk Restorative can excellently neutralise acids.

Acid neutralisation





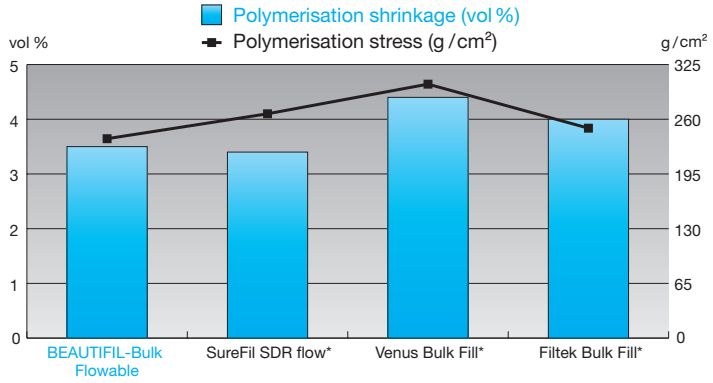
Features at a glance

- Two viscosities – packable and flowable
- Low polymerisation shrinkage and shrinkage stress
- Excellent depth of cure for increments up to 4 mm in thickness
- Acid neutralisation and dentine remineralisation
- Optimal shade match (chameleon effect)
- High radiopacity
- Easy and good polishability

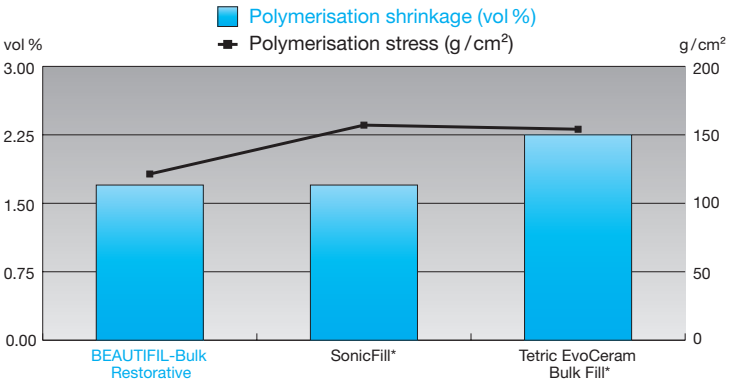
Sources: Internal data of SHOFU INC.
* Not a registered trademark of SHOFU INC.

Low polymerisation shrinkage and shrinkage stress

The diagram shows the polymerisation shrinkage and the shrinkage stress in comparison with competitive products.
BEAUTIFIL-Bulk Flowable exhibits very low volumetric shrinkage and the lowest shrinkage stress of the flowable bulk-fill materials tested.



The packable BEAUTIFIL-Bulk Restorative also shows lower polymerisation shrinkage and shrinkage stress values than the other products tested.

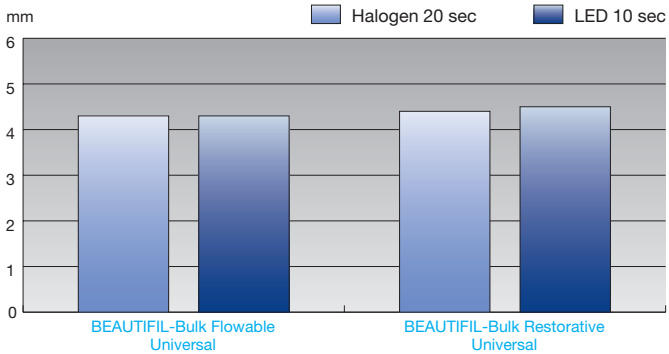


Depth of cure

The light transmission of composites varies, depending on their filler contents and shades.

The diagram on the right depicts the depth-of-cure measurements. For comparison halogen or LED light-curing units were used as light sources.
All Beautifil-Bulk materials tested showed values of more than 4 mm after light-curing.

Depth of cure in accordance with ISO 4049:2009 (E)



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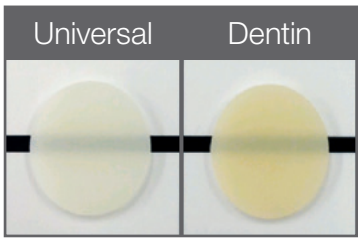
Shades and order information

The system features an uncomplicated range of shades. Both viscosities come in a Universal shade. In addition, the flowable material is available in a Dentin shade, for natural-looking cavity bases, and the pasty material in an A-shade.

BEAUTIFIL-Bulk Flowable



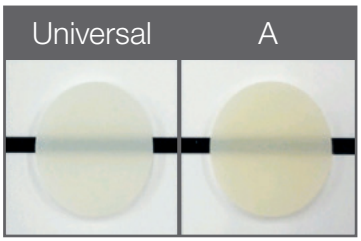
Syringes of 2.4 g in the following shades

- Universal PN 2030
- Dentin PN 2031

20 Tips of 0.23 g in the following shades

- Universal PN 2028
- Dentin PN 2029

BEAUTIFIL-Bulk Restorative



Syringes of 4.5 g in the following shades

- Universal PN 2034
- Shade A PN 2035

20 Tips of 0.25 g in the following shades

- Universal PN 2032
- Shade A PN 2033

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480202 · 06/2021