

MerFill Bulk

HIGHLY FILLED COMPOSITE FOR POSTERIOR TEETH

MerFill Bulk is a light-cured, radiopaque fluoride-containing composite restorative material. It is intended for sealing of I and II class cavities. The material MerFill Bulk possesses high degree of transparency and very low shrinkage at polymerization (1.63%) which makes it possible to draw it by layers up to 5 mm thick with the minimum polymerization stress. The material is very soft, can be perfectly modelled and it also adapts in a cavity, filling all roughnesses. It doesn't stick to a dental instrument.

F&A MEDICAL

Vintergata 19, 3048, Drammen, Norway
 info@famedical.net
 www.famedical.net



•• MAIN ADVANTAGES

- The high filler content of material (82%) provided by a new formula of a bimodal filler with an average size of particles: the main X-ray contrast phase – up to 8 microns; a nanophase – 10– 30 nanometers.
- It can be perfectly combined with all types the opaque and the enamel composite materials based on methacrylate intended for esthetic modeling of enamel surfaces.
- Low polymerization shrinkage (less than 1.63%) is especially important when a dentist seals big cavities in one visit.
- Good manual qualities – the material is very soft and plastic and doesn't stick to the tool.
- The Coefficient of Thermal Expansion (CTE) is very close to tooth tissue – $24 \times 10^{-6} \text{ cm} / \text{cm}^{\circ}\text{C}$ that provides the absence of thermal stresses in the restored tooth, which can appear during the meal [«hot-cold»].
- High physical characteristics of the material, in particular:
 - Flexural Power – 140 MPa / Compression Power – 340 MPa
- It is manufactured in a universal transparent shade – U for ensuring the maximum depth of polymerization.
- Not cured material has the increased resistance to natural and artificial lighting that allows to carry out long modeling without risk of premature polymerization of the material.
- The material is radiopaque and contains fluorine.

•• INDICATIONS

- As a replacing dentin basic layer of a composite material in I and II classes direct restorations.
- In "sandwich" technique.
- For crown buildup.

•• PROPERTIES OF THE MATERIAL

MerFill Bulk is developed for using first of all at restorations of posterior teeth. MerFill Bulk contains a mix of hydrophobized fluoride-containing radiopaque glass of a special grinding and synthetic oxide of silicon of the submicronic size, placed in a patent matrix of low-shrinkable hydrophobic resins of methacrylate type. Such structure was developed for the purpose of minimization of sorption of water, polymerization shrinkage and coefficient of thermal expansion that leads to strengthening of mechanical durability and creates opportunity to bring and polymerize a material in the portions up to 5 mm thick. Such characteristics of the material let the dentist considerably reduce the time for carrying out restorations of posterior teeth. At the same time the special attention was paid to creation of a special consistence of the material which provides ease of manipulations, especially in restorations of I and the II classes.

MerFill Bulk is the unique material that combines high filler content with excellent handling characteristics: softness and absence of sticking to the working tool.

•• MAIN CHARACTERISTICS OF MERFILL BULK:

Properties	Results of tests
Compression power	340 Mpa
Flexural power	140 Mpa
Modulus of elasticity	11 000 Mpa
Water sorption	< 0.32 Mg/cm ²
Filler content	82% (weight)
X-ray contrast	Excellent
Coefficient of thermal expansion	$24 \times 10^{-6} \text{ cm/cm}^{\circ}\text{C}$
Volume polymerization shrinkage	1.63 %
C70 (optimum value: 0,45 – 0,50)	0,48
Color stability	There is no visible discoloration

Time of curing of the material with a qualitative curing light – is about 30 – 40 sec. (up to the depth 5 mm).

•• METHOD OF APPLICATION

The cavity is prepared according to a standard technique. In case of deep cavities it is recommended to use isolating laying. The most optimal marginal integrity is reached by an enamel and dentin etching and using of the adhesive before imposing the composite restoration material. The vast majority of cavities can be sealed up by means of one big portion of the material – up to 5 mm thick. It is recommended to leave approximately 2 mm height for the reconstruction of layers of the enamel to occlusive border. If the depth of the cavity more than 5 mm, it is recommended to bring a material in some portions – 4 mm each, and carefully polymerize every portion.

In case if the material MerFill Bulk which was earlier polymerized needs contouring - traditional rotating tools can be used for this purpose in accordance with the instructions of the manufacturer.

In most cases the best esthetic result can be reached by a right choice of shades and versions of the covering «enamel» occlusive composite material. Transparent enamel shades as well as more opaque dental shades can be used which depends on a tooth color in restoration. If the dentine is extremely colored or there are pigmentary spots it is recommended to use a thin layer of an opaque flow composite material (for example, MerFill Flo U0, etc.) which is imposed in a thin layer on the cavity bottom or between dentin-enamel border.

Attention! MerFill Bulk has to be used strictly in combination with suitable universal restorative material or restorative material for posterior teeth, in particular with those dental and/or enamel shades which are intended for replacement of occlusive vestibular enamel (for example, with enamel and dental shades of MerFill Micro). MerFill Bulk can't be used independently for replacement of occlusive vestibular enamel.

●● PHOTOPOLYMERIZATION

Use a unit for the polymerization intended for the materials containing camphoroquinone as the initiator, that is with a spectral maximum of radiation around 465 nanometers. The minimal power of unit should be not less than 550 mWatt/cm², and the time of polymerization should be in the 20-30 sec range.

●● PRECAUTIONARY MEASURES

1. During the work with the material use special glasses, gloves, clothes and mask. Goggles are recommended for the patients also.
2. Observe the security measures provided during the work with powdery, siliceous substances. Use goggles, a mask and gloves.

●● INTERACTION WITH OTHER DENTAL MATERIALS

Use of eugenol-containing materials in a combination with MerFill Bulk is contraindicated. Evgenol-containing dental materials can have negative impact on ability to a polymerization.

●● CAUTIONS

MerFill Bulk contains methacrylic resins that may cause an allergic reaction by skin contact in certain individuals. Avoid long or repeating contact of not-polymerized material with the skin (allergic contact dermatitis is possible), soft tissue of the oral cavity and eyes.

In case of contact, immediately wash thoroughly a place of contact with water and soap. If there is rash or other signs of allergic reactions on the skin stop use of the material and ask for medical care.

Use of this product in patients with known acrylic allergies is to be avoided.

●● CONTRAINDICATIONS

Allergic reactions in the anamnesis of the patient especially on methacrylic resins or on any other component of dental materials.

●● COLLATERAL REACTIONS

The product can cause irritation of eyes, skin and mucous membranes. (see. CAUTION section).

●● WARRANTY

The manufacturer warrants the quality of manufactured products. The adverse events inflicted by violation of user manual, storage conditions and other events inflicted by non-stipulated usage of the material are not the subjects of warranty. The customer is responsible for determination of suitability of this product for user's application. Warranty conditions: the product does not comply with requirements declared by manufacturer. In this case the manufacturer replaces the defective material within warranty period.

●● LIMITATION OF LIABILITY

The manufacturer's liability is limited by only cases stipulated by direct legislation of the country.

●● STORAGE

- Inappropriate storage conditions will reduce shelf life and can lead to deterioration of properties of the material. Don't expose this product to direct sunlight. Store a material in a dry place.
- Store this product at the temperature of 4 - 25 °C (39.2 - 77 °F).
- DO NOT FREEZE!
- Shelf life of MerFill Bulk is 3 years.

●● RECYCLING

Dispose of the medical device in accordance with local / regional / national / international legal requirements.

●● PACKING

MerFill Bulk is packed in syringes on 4 g.

- Shades: A1, A2, A3, U (Universal).

For professional use in dentistry only!

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