# Ecosite Bulk Fill – a universal composite for esthetic and economic restoration in the posterior tooth region

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To this day, industry and science remain eager to develop materials that can compete effectively as an alternative to amalgam in terms of their cost-effectiveness and longevity. The most important properties the materials need to have, similar to those of amalgam, are safety and fast application with comparatively low toxicity and lower loss of substance resulting from cavity shaping requirements. Patients want a long-lasting, tooth-colored and cost-effective restorations that entail minimum loss of the tooth substance and are biologically harmless. Glass ionomer cements, compomers and ormocers were potential substitutes for amalgam, but failed to meet one or more of the required quality parameters. In the end it was composites that were accepted in the market that can be processed directly, adding to an almost bewildering number of restorative materials and adhesive systems. Thanks to advances in technology, it is now possible to develop very easy-to-process, low-technique-sensitive filling materials that at least come close to amalgam fillings in terms of treatment time.
Ecosite Bulk Fill, produced by DMG, Hamburg, is a nano-hybrid composite that, according to the manufacturer, reliably cures layer thicknesses of up to 5 mm in 20 s polymerization time. Available in two shades, universal and light, it adequately covers the majority of natural tooth shades. A bluish-colored material (contrast) is also available for core build-up constructions. Ecosite Bulk Fill is a highly viscous and thixotropic composite. These properties guarantee packability and stability combined with good adaptation to the cavity walls.

**Case Study**
A 23-year-old female patient visited the outpatient clinic of the Polyclinic for Operative Dentistry and Periodontology complaining about the "loss of a filling in the upper jaw, right" (Fig. 1). Clinically, the partial loss of a glass ionomer cement restoration was observed in the mesial and occlusal region of tooth 16; in the occlusal-distal region, the restoration was still in situ. The patient was involved in the decision-making process, opting for complete renewal of the restoration with Ecosite Bulk Fill after all the advantages, disadvantages and anticipated treatment risks were discussed. As alternatives, the patient was offered the choice of treating the defect exclusively without removing the existing filling material or having a gold or ceramic indirect restoration fabricated, along with the option of no treatment at all. The patient chose the composite restoration mainly due to time and cost considerations. Esthetic perfection in the molar region was not important to her, but she favored a more tooth-like color over a metallic restoration. The patient requested the removal of the distal restoration because she was afraid of losing this part in the near future, and thus preferred treatment consisting of a single unit. Since the filling portion mainly covered the surface, the removal involved an extremely low complication risk.

Fig. 1:Detail of the first quadrant with partial loss of a restoration on tooth 16.

Fig. 2: Condition after distal restoration removal and absolute draining with rubber dam.

Fig. 3: Application of a partial matrix, cervical wedge and separating ring.

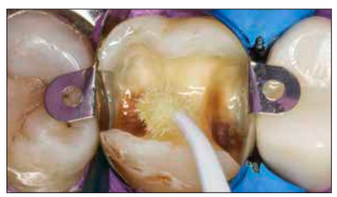

Fig. 4: Ecosite Bond being rubbed in using a Microbrush.

Fig. 5: Application of the first layer of Ecosite Bulk Fill.

**Procedure**
After treatment was discussed and the patient had consented, rotary removal was performed on the filling in the occlusal and distal region and teeth 17-14 were isolated with a rubber dam (Fig. 2). A partial matrix was then placed in the mesial and distal region (Palodent Plus, produced by Dentsply Detrey, Constance), a cervical wedge was applied using plastic wedges and a separating ring, Composi-Tight 3DXR Softface(Garrison Dental Solutions, Übach-Palenberg), (Fig. 3) was attached. After successful formwork and checking that a proximal contact point was ensured, the 1-bottle universal adhesive Ecosite Bond (Fig. 4) was applied. The material was carefully massaged into the cavity and beyond the cavity margins and photopolymerized for 20 s. Immediately afterwards, Ecosite Bulk Fill universal was applied in 2 layers (Fig. 5, 6). Each layer was photopolymerized for 20 s (Fig. 7). After matrix removal, the proximal points and the cervical margins (Fig. 8) were checked with rubber dam still in place. Occlusion and articulation were then adjusted with fine-grain diamonds and the restoration was polished using Brownies and Greenies (Shofu, Kyoto, Japan). The finished restoration showed neither functional nor esthetic deficiencies, and the patient was extremely satisfied (Fig. 9).

**Conclusions**
Ecosite Bulk Fill combines several properties of an advanced filling material for an economical standard restoration. Reliable curing of up to 5 mm layer thickness after 20 s polymerization time, in principle, makes it possible for the dentist to apply only one layer in the case of smaller or medium-sized restorations. The high-stability material enables an anatomical chewing surface modeling without any "flowing" of the composite. In the case of larger restorations, however, it may still make sense to use separate layers for buccal and oral (lingual) cusps. When it comes to the adhesive luting, the dentist has the choice of using only the 1-bottle adhesive Ecosite Bond or using a prior enamel-etching with phosphoric acid.
Ecosite Bulk Fill universal features a distinctive chameleon effect, adapting to a wide range of tooth shades. For very light teeth, for example, after cosmetic whitening or in young patients, the lighter shade "light" may be used. The material is packable and requires higher pressure when applied in comparison to more flowable composites in order to ensure perfect marginal adaptation. After layer application, an almost perfect surface appears without any porosities, which requires minimal finishing and is easily and quickly polished to high gloss.
In summary, Ecosite Bulk Fill in combination with Ecosite Bond provides the dentist with a straightforward composite system for economical standard care that covers a wide range of indications, especially in the posterior regions. Excellent processing properties, time saving and good overall esthetic results are prominent features of this composite, which will satisfy both dentists and patients.

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Fig. 6: Restoration with layers finished and matrix in situ.

Fig. 7: Photopolymerization of each layer for 20 s.

Fig. 8: Restoration after removal of matrices, wedges and separating ring.

Fig. 9: Detail of the finished restoration.