Unique & patented: Improved mechanical properties thanks to innovative **elastomeric micelle technology**

Good fillings feel good.

DeltaFil
Glass ionomer filling material

Reliable care
even in challenging treatment scenarios

Tailored range of shades
suitable for deciduous teeth and age-related discolouration

DMG

For effective treatment: **Something for every patient**

Everyday dental practice can be **challenging:**

- Vulnerable patient groups such as the elderly and children present special challenges as they can be less cooperative.
- High-risk patients who are particularly vulnerable to caries are a therapeutic challenge and require restoratives with a preventive effect.
- With the EU banning amalgam, a suitable alternative needs to be found.
- Tailored filling treatment must be affordable for all patients – regardless of their individual budget limits.

DeltaFil can support you in your challenging everyday dental practice – for care that meets the needs of all your patients!

Reliable in all situations
Good restorations for everyone

DeltaFil can make your everyday dental practice flexible and reliable, with a high level of quality.
Its special material properties enable satisfying treatment – even in patients that have special requirements.
Unlike cost-intensive filling materials like composites, DeltaFil also offers financial advantages for patients.

Simple care
even in challenging scenarios

Remineralising
thanks to fluoride release[1]

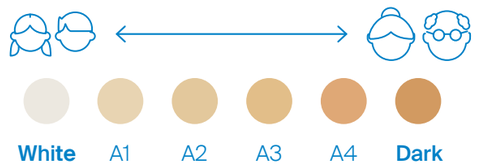
Biocompatible
thanks to zero monomer content

Efficient treatment plan implementation
- Self-adhesive material
- Bulk application – no layers
- No light curing
- High moisture tolerance – therefore ideal for applications with difficult isolation conditions.

DeltaFil can do even more!
Read more about the patented technology innovation in this brochure.

Tailored shade range

The extended range of shades was developed especially for deciduous teeth and teeth with age-related discolouration. The White shade is also ideal for bleached teeth.



Versatile in use

Permanent indications:
Suitable for Class I, II* and V restorations and for the sandwich technique. Can also be used for extended fissure sealing and as a base/liner.

Temporary indications:
Suitable for Class I, II, III and V temporary restorations and deciduous teeth. Offers flexible application options in various clinical scenarios.

*Suitable for areas subject to occlusal load, provided the isthmus measures less than half of the intercuspal area.

Good fillings feel good.
Indicated for every stage of life

- **From the beginning:** Suitable for deciduous teeth
- **Support for vulnerable patients:** During and after tooth development
- **Targeted indications in advanced age:** Treatment in advanced age

Treatment of deciduous teeth

For the treatment of carious deciduous teeth, glass ionomer cements like DeltaFil are particularly popular with patients and parents, especially under difficult treatment conditions.[2] Your young patients benefit from DeltaFil's broad spectrum of shades, including White, in the treatment of their deciduous teeth.

Treatment of teeth during and after the development phase

DeltaFil is suitable as a minimally invasive treatment method for the temporary restoration of "chalky teeth", or molar-incisor hypomineralisation (MIH).

Treatment of adult teeth

Whether for patients with special requirements or those without any special risk factors, DeltaFil offers a flexible solution for patient-friendly permanent teeth treatment.

Treatment in advanced age

Those of advanced age often have limited oral hygiene – for reasons such as restricted movement or difficulties in accessing dental care. Furthermore, comorbidities and medication can often cause dryness in the mouth and reduce the buffering capacity of saliva. This makes the ability of glass ionomer cements to release fluoride especially important. Elderly patients are also more likely to suffer from root caries and non-caries-related cervical lesions; in the restorative care of these conditions, glass ionomer cements offer advantages in terms of cost-effectiveness and suitability for patients with limited cooperation and difficult isolation conditions.[3]

DeltaFil can be used with a vast range of indications and in different patient groups.

DeltaFil and chalky teeth (MIH)

MIH affects roughly one child in seven in Europe.[4] This means that MIH is not an uncommon condition, and is part of everyday dental practice. Hypersensitive porous molars and limited cooperation in children call for a treatment that is fast, gentle and reliable.

This is precisely where DeltaFil excels as a stable glass ionomer cement

Glass ionomer cements are a key component in minimally invasive, patient-friendly MIH treatment.[5]
DeltaFil supports the following indications in a targeted manner and has impressive properties compared with conventional glass ionomer cements:[6]

Enjoy the benefits of DeltaFil in your MIH treatment

- **For molars that are not fully erupted[5]**
  DeltaFil is moisture-tolerant and self-adhesive, enabling reliable use even in the case of limited access. For ideal temporary restoration during tooth development.
- **For post-eruptive loss of substance[5]**
  DeltaFil's elastomeric micelle technology reduces crack propagation and contributes to the mechanical stability of the temporary restoration.[6] Thanks to its high flexural strength and optimised abrasion properties, DeltaFil overcomes the classic limitations of glass ionomer cements.[7,8]
- **For severe hypersensitivity[5]**
  DeltaFil enables fast, minimally invasive application without any complicated steps. Ideal for the treatment of nervous and pain-sensitive children.
- **For limited patient cooperation[5]**
  Its highly viscous, non-sticky consistency and efficient properties help to keep treatment times short and enable controlled work.
  For less stress during treatment.
- **For increased caries risk because of MIH[9]**
  DeltaFil releases fluoride, promoting remineralisation of the dental enamel.[1]
  For supportive secondary caries prevention.

Figure 1: MIH lesions on the maxillary first molars (from the Icon Vestibular Casebook, case 4.2: Deep infiltration of MIH lesions: the use of transillumination as a diagnostic tool, Associate Prof. Carlos Rocha Gomes Torres, Associate Prof. Alessandra Bühler Borges, Figure 1, available as download from:https://de.dmg-dental.com/loesungen/praevention-und-fruehe-intervention/infiltration/icon-vestibular)

Thanks to its unique properties, DeltaFil has better mechanical stability than conventional glass ionomer cements.[7]
As a minimally invasive measure, restorative treatment with glass ionomer cements aims to protect the dental enamel, reduce pain and hypersensitivity and, thanks to its remineralising effect, bridge the gap until a permanent restoration can be provided.[10]

DeltaFil.
Your conventional glass ionomer filling material for treating MIH.

Elastomeric micelle technology

Unique through innovation

When do conventional glass ionomer cements reach their limits?

In conventional glass ionomer cements (GICs), increased pressure from chewing can cause crack initiation and propagation within the GIC matrix.[11] The mechanical properties are limited here, as the flexural strength and fracture toughness are comparatively low.[12,13] Microfractures caused by repeated flexural and tensile stresses increase the risk of crack propagation within the cement matrix and damage to the cervical area.[14,15]

DeltaFil: **the unique and patented solution**

Unlike conventional GICs, the elastomeric micelle technology (EMT) developed and patented by DMG makes DeltaFil an innovative filling material with unique improved mechanical properties that have been verified in a large number of preclinical studies. Unlike light-curing GICs, EMT deliberately avoids the use of additional resin components, in order to preserve the material's biocompatibility.

- **High mechanical stability and increased resilience[6,8]**
- **Crack propagation minimised by micelles[6]**
- **Chewing stability and abrasion resistance verified in preclinical tests[7]**
- **Surface with very good initial and long-term stability – regardless of the finishing method used[16]**

DeltaFil compared with conventional glass ionomer cements

34 %
greater fracture toughness*[17]

80 %
greater flexural strength*[18]

64 %
lower abrasion volume*[7]

Cross-section of the GIC matrix without EMT
Crack propagation progresses

Cross-section of the GIC matrix with EMT
Crack propagation minimised

The difference? Elastomeric micelles in the GIC matrix to **minimise crack propagation**

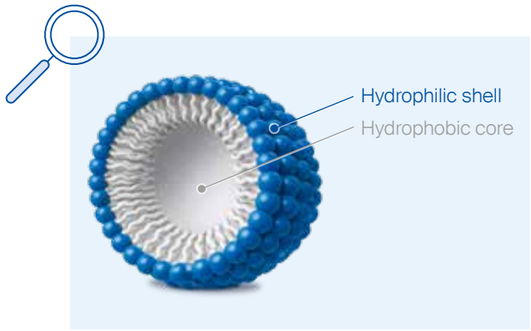
The micelles embedded in the material act like a shock absorber in the GIC matrix. They absorb tension, distribute it within the material and thus reduce local tension concentrations. This minimises crack propagation, which increases the material's structural stability.[6]

Find out what makes DeltaFil more stable and what this means for your restorations.

Scan here for the video

What are **micelles?**

Micelles are amphiphilic nanostructures. This means that they have both a water-loving (hydrophilic) component and a water-repelling (hydrophobic) component, which causes them to arrange themselves in a spherical formation in an aqueous environment. This property enables the micelles to be integrated into the GIC matrix optimally, which reduces crack propagation and increases the material's mechanical stability.[6]



DeltaFil's use of innovative EMT and its versatility make it a unique glass ionomer cement – for intelligently designed fillings in everyday dental practice.

* The factors stated are based on the mean values for DeltaFil compared with the average values for standard glass ionomer filling materials in each test category. The comparison group is made up as follows: Fracture toughness: Fuji IX GP, Ketac Universal, Chemfil Rock (mean = 0.29 MPa*m^0.5). Flexural strength: Riva SC HV, EQUIA Forte HT, Ketac Universal (mean = 21.47 MPa) Abrasion: Ketac Universal, Fuji IX GP (mean = 13.47 mm^3). The factors were calculated as ratios of mean_DeltaFil to mean_competitor. These comparisons are descriptive and not inferential statistical comparisons. Standard deviations were not taken into account in the calculation of the factor values.

Intelligently designed
for time-saving treatments

DeltaFil is THE solution for greater efficiency during treatment. When a situation calls for a fast and reliable restoration, complex aesthetic restoration options are often not the main priority. Thanks to its unique properties, DeltaFil can tackle various challenges and patient requirements and enable time-saving treatment.

Full control thanks to visibility

The transparent DeltaFil capsule allows you to carefully control application in your everyday dental practice. Thanks to the clear design, you can visually check the powder inside the capsule before activation and assess the homogeneity of the powder and liquid mixture there and then. You can also see how much material is left inside the capsule at all times throughout the application. This additional visibility makes handling easier and makes dosing more reliable.

An overview of all compatible capsule dispensers is provided here.

Practical advantages
at a glance

DeltaFil enables straightforward and efficient treatment, saving time and reducing stress.

DeltaFil for efficient treatment

- ✓ **Self-adhesive material**
- ✓ **Bulk application – no layers**
- ✓ **No light curing**
- ✓ **High moisture tolerance – therefore ideal for applications with difficult isolation conditions**

Optimal processing

- ✓ Simple to mould
- ✓ Does not stick to the instrument
- ✓ Optimised consistency compared with conventional GIC materials
- ✓ Excellent setting properties

Smart capsule design

- ✓ Transparent design enables visual checks
- ✓ Precise and controlled dosing
- ✓ Reliable overview of material throughout application

Coordinated treatment

- ✓ Perfect adaptation to the cavity wall
- ✓ Convenient processing time
- ✓ Suitable for use with metal matrices

Good for your practice and good for your patients.

Custom variant selection
Equipped for practical needs

Capsule variant

The DeltaFil capsules enable precise dosing of the filling material. The predefined mixing ratio also ensures consistent, reproducible material quality.

Handmix variant

Flexible to meet your needs: For those who prefer to mix the traditional way, the handmix variant combines conventional handling with established quality. Inexpensive, with adjustable dosing to suit your individual workflow.

System components:
For optimum adhesion and durability

Coating

Not only does DeltaFil Coat prevent drying out and moisture contamination, it also seals the restoration and provides optimum surface lustre. This saves on polishing time in every restoration. Light-curing, TPO- and MMA-free. DeltaFil Coat is also odourless.

Conditioner

Optimum adhesion from the outset: The polyacrylic acid solution prepares the cavity in one single step – removing the smear layer and conditioning for the best possible retention. This is how you create the basis for long-lasting restorations.

Various packaging forms
for easy ordering

Packaging

Capsule pack: DeltaFil

50 Capsules @ 370 mg powder, 0.07 ml liquid (75 mg)

Shade White	REF 520005
Shade A1	REF 520000
Shade A2	REF 520001
Shade A3	REF 520002
Shade A4	REF 520004
Shade Dark	REF 520006

Accessories

Packaging: DeltaFil, 50 Single-use Brushes White	REF 109320
1 Mixing pad	REF 520041

DeltaFil Conditioner

1 Bottle @ 8 g	REF 520020

DeltaFil Coat

1 Bottle @ 5 g	REF 520050

Handmix starter pack: DeltaFil

Starter pack

1 Bottle @ 15 g powder, 1 Bottle @ 8 ml liquid, Mixing pad, Measuring spoon

Shade A1	REF 520030
Shade A2	REF 520031
Shade A3	REF 520032
Shade A4	REF 520034
Shade White	REF 520045
Shade Dark	REF 520046

Handmix refill pack: DeltaFil

1 Bottle @ 15 g powder, Measuring spoon

Shade White	REF 520047
Shade A1	REF 520035
Shade A2	REF 520036
Shade A3	REF 520037
Shade A4	REF 520039
Shade Dark	REF 520048
1 Bottle @ 8 ml liquid	REF 520040

DeltaFil: Good fillings feel good.
Simply strong when it matters the most.

Find out more about DeltaFil

1. Cowen M et al. Dental Advisor. 2022; 156. **2.** Araujo MP et al. BMC Oral Health. 2020; 20. **3.** Schwendicke F et al. J Dent. 2021; 110. **4.** Zhao D et al. Int J Paediatr Dent. 2018; 28: 170–9. **5.** Bekes K et al. Eur Arch Paediatr Dent. 2023; 24: 807–13. **6.** Messer-Hannemann P et al. J Funct Biomater. 2023; 14. **7.** Messer-Hannemann P et al. Materials. 2022; 15: 5440. **8.** Leenutaphong N et al. BMC Oral Health. 2024; 24. **9.** Americano GCA et al. Int J Paediatr Dent. 2017; 27: 11–21. **10.** Weber KR et al. Swiss Dent J SSO. 2021; 131: 988–97. **11.** Lohbauer U et al. Materials. 2010; 3: 76–96. **12.** Fuhrmann D et al. Oper Dent. 2020; 45: 104–10. **13.** Lile IE et al. Biomimetics. 2025; 11: 16. **14.** Fávaro Francisconi L et al. J Appl Oral Sci. 2009; 17: 364–73. **15.** Ichim I et al. Dental Materials. 2007; 23: 1553–61. **16.** Behlau A et al. J Funct Biomater. 2024; 15. **17.** Ilie et al., LMU Klinikum, March 2020. (Data not published). **18.** Attal et al University of Paris, July 2021 (Data not published).

A smile ahead
together

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