Biodentine™

The first and only dentin in a capsule
Wherever dentin is damaged, you can use Biodentine™. Now, also do the full restoration in one session.

Biodentine™ is the first material offering bioactivity and outstanding sealing properties to fully replace dentin, both in the crown and in the root with unique benefits:

1. Preservation of pulp vitality
2. Prevention of clinical failures
3. Ultimate dentin substitute

From a unique innovative technology

- 10 years of research and development in Septodont laboratories
- Unique technological platform of biocompatible and bioactive materials promoting remineralization and pulp healing
- In-house synthetized Tricalcium Silicate to guarantee high purity
- Strict control at each manufacturing stage to guarantee high quality of the product
Biodentine™: clinical implementation

Direct restoration in a deep cavity - Now also possible in one session*

1. Prepare the cavity
2. Replace the missing dentin by the same volume of Biodentine™
3. Bond the composite after 12 min from start of mix to finish the restoration

Inlay/Onlay

1. Prepare the cavity
2. Re-build the tooth with Biodentine™ and keep it as a temporary enamel restoration for a week
3. Reduce Biodentine™ to a dentin substitute level and take the impression
4. Bond the Inlay/Onlay onto Biodentine™ to finish the restoration

Pulp exposure - Now also possible in one session*

1. Prepare the cavity
2. Place Biodentine™ directly on the pulp and replace the missing dentin by the same volume of Biodentine™
3. Bond the composite after 12 min from start of mix to finish the restoration

Pulp floor perforation

1. Perform your root canal filling with Gutta-Percha and endodontic sealer
2. Place Biodentine™ to seal the perforation
3. Fill the cavity with Biodentine™ before placing the final restoration

* Poster #1021, AADR 2012, Tampa, Florida, USA, see page 6
Successful 1-year clinical follow-up published in Quintessenz, see page 4
Preservation of pulp vitality

Absence of post-operative sensitivity:
- High biocompatibility
- Low risk of pulp or tissue reaction

Bioactive properties:
- Pulp cells stimulation
- Optimal pulp protection through formation of dentin bridges

Pulp healing promotion in case of:
- Deep cavities
- Pulp exposure: reversible pulpitis, trauma or iatrogenic exposure

Full restoration in one session

1. Iatrogenic pulp exposure occurred after complete caries excavation during the final finishing of the cavity.
2. Biodentine™ is applied to the cavity to replace the dentin layer.
3. A matrix band and wedges are put in place to finish the restoration.
4. The composite restoration is bonded onto Biodentine™ after 12 min from start of mix.
5. 1-year follow-up: clinical view.
6. The 1-year follow-up radiograph shows no pathological changes in the apical region.

Courtesy Dr. T. Dammaschke, University of Münster, Germany. Reproduced with kind permission of Quintessenz Verlag GmbH.
Prevention of clinical failures

Long lasting sealing properties:
• Mineral tags in the dentin tubules
• High dimensional stability

Less risk of bacterial percolation:
• Dynamic and biomimetic interface with dentin
• Remineralization of interfacial dentin

No conditioning or bonding:
• Natural micro-mechanical anchorage in the dentin tubules

Dynamic and biomimetic interface with dentin

Biodentine™ cement labelled with fluorescein dye which has moved from the cement into the dentin tubules. Notice the plugs of material in the tubule openings.

Mineral tags inside dentin tubules

High micro-leakage resistance

Biodentine™ has better resistance to leakage than Fuji II LC on enamel & dentin interfaces

Compared dye penetration at the dentin/material interface:
0 = No dye penetration
3 = Total dye penetration

Courtesy Prof. Dejou, University of Marseille
**Ultimate dentin substitute**

**Full restoration in one session to reduce chair time**
- Biodentine™ exhibits immediate physical properties as Glass-ionomers making the Biodentine™ + Composite full restoration in one session a safe procedure*
- After 12 min from start of mix, you can bond the composite onto Biodentine™, preferably with a self-etch adhesive

* Source: Poster #1021, AADR 2012, Tampa, Florida, USA

**Easy handling for optimized clinical use**
- Slightly model Biodentine™ during the working time, not overworking it
- Let it set for 6 min without touching it

<table>
<thead>
<tr>
<th>Total Handling Time</th>
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<tbody>
<tr>
<td>12 min</td>
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<tr>
<td>Mixing and placement time</td>
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<tr>
<td>6 min</td>
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**Superior radiopacity for clear short and long term follow-up**
- 3.5 mm aluminum radiopacity
- Easy differentiation from tooth structure for easy short and long term follow-up

**Comparable to human dentin: similar mechanical behavior**

<table>
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<tr>
<th>Source: Biodentine™ Scientific File</th>
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![Graphs showing similar mechanical properties](source: Biodentine™ Scientific File)
Clinical cases

**Pulp floor perforation**

- Pre-op x-ray with a point inserted in a palatal fistula
- Removal of the filling material shows a pulp floor perforation
- Dentin loss repair with Biodentine™ used as a dentin substitute
- Post-op x-ray

*Courtesy Dr. F. Bronnec, Private Endodontic Practice, Paris, France*

**Indirect pulp capping**

- Pre-op x-ray: proximal caries on the upper premolar
- Deep cavity in the distal side
- Placement of Biodentine™ in the distal cavity
- Biodentine™ is reworked and kept as a dentin substitute. Mesial cavity is prepared
- Final restoration is done using N’Durance® Dimer Flow as a liner
- Clinical view of the final restoration with N’Durance®

*Courtesy Dr. M. Kaup, University of Münster, Germany*
Adopted and acknowledged by experts in the dental community

<table>
<thead>
<tr>
<th>Author</th>
<th>Country</th>
<th>Title</th>
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<tbody>
<tr>
<td>T. Dammaeschke</td>
<td>Germany</td>
<td>Case report: Direct pulp capping with Biodentine™ - full restoration in one session</td>
<td>2012</td>
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<td>Biodentine™ vs. MTA in pulpotomy and direct pulp capping in pigs</td>
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<td>Case report: Direct pulp capping with a new bioactive cement</td>
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<td>Han L., Okui T.</td>
<td>Japan</td>
<td>Uptake of Calcium and Silicon released from calcium silicate based endodontic materials into root canal dentin</td>
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<td>C. Villat, V.X. Tran, F. Wenger, N. Pinelie-Puise, P. Ponthaux, B. Grosdoguet, P. Colon</td>
<td>France</td>
<td>Impedance methodology: A new way to characterize the setting reaction of dental cements</td>
<td>Dental Materials 2010</td>
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**Presentation**

Available in:
- Box of 15 capsules and 15 single-dose containers
- Box of 5 capsules and 5 single-dose containers

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