



Restorative

**ACTIVE
BIOSILICATE
TECHNOLOGY**

Biodentine[®]

Dentin Substitute



Biodentine[®] : Biological Bulk Fill

1

Place Biodentine[®] on the pulp

- Biodentine's biocompatibility ensures high cell viability
- Biodentine is bioactive and promotes the pulp's self-healing capacity and the formation of dentin bridges
- In deep cavities, carious, iatrogenic and traumatic exposures: Biodentine helps you save the pulp of a vital tooth

2

Simply “bulk fill” the cavity

- Biodentine is placed from the pulp to the top of the cavity, regardless of how deep
- A direct composite or an inlay/onlay is then placed for enamel-like esthetics and resistance
- The enamel restoration can be completed in the same session or within 6 months if the pulp requires monitoring
- Risk of failure is reduced by the outstanding seal and Biodentine's antimicrobial properties



Vital pulp therapy often means placing layers of different materials. With Biodentine, the same material is used for direct/indirect pulp capping and bulk filling the cavity up to the occlusal surface.

Technical Insights

Proven biocompatibility and bioactivity for vital pulp therapy

- Outstanding biocompatibility assessed and evidenced through many scientific publications
- High amount of calcium and hydroxide ions released upon setting compared to similar bioactive products⁽²⁾
- Induces thick dentin bridge formation⁽²⁾ due to a high calcium surface concentration compared to similar dental materials⁽³⁾
- Shows both osteogenic and angiogenic properties to promote pulp and tissue healing⁽⁴⁾

Bulk fill placement due to dentin-like properties

- Similar mechanical properties as dentin allowing durable bulk fill procedure
- Mechanical strength increases as the Biodentine restoration sets
- Resin free formula reduces risk of failure by providing an outstanding seal

Tight consistent cavity seal allowing bulk fill placement

- Mineral tag formation in the dentin tubules ensures strong micromechanical retention⁽²⁾
- Provides excellent marginal adaptation⁽⁵⁾
- High resistance to leakage to reduce the risk of secondary caries^(6,7)
- High pH inducing antibacterial properties⁽⁸⁾

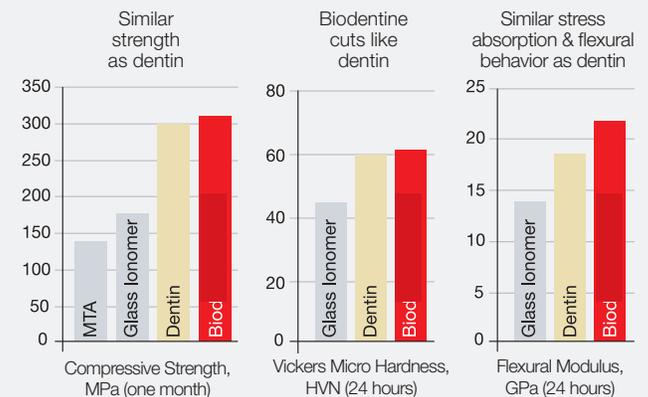


Pulp exposure before Biodentine placement.

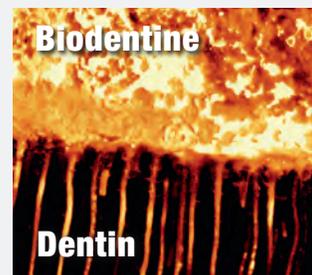


8 months after Biodentine placement, the pulp is healed.

Courtesy Prof. L. Martens & Prof. R. Cauwels, UZ Ghent, Belgium

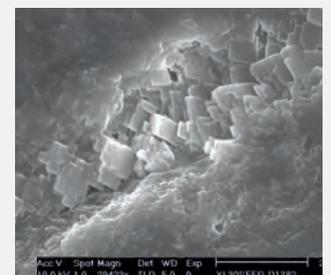


Source Biodentine Scientific File



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.

Courtesy Dr Amre Atmeh, King's College London



Mineral tags inside dentin tubules

Courtesy Prof. Franquin, Koubi, Dejou, University of Marseille

Clinical cases

Indirect pulp capping

Indirect pulp capping is indicated for a tooth with a carious lesion very close to the pulp. The pulp can be asymptomatic or showing signs or symptoms of reversible pulpitis. Biodentine's dentin-like properties offer the possibility to bulk fill the cavity and to serve as a temporary for up to 6 months, to monitor the pulp. The final composite will then be bonded as if bonded on natural dentin.



Deep carious lesion of tooth #5. Asymptomatic tooth and no periapical changes.



Caries is a cavity with

Deep caries treatment

(Single visit)

Sometimes during the excavation of caries an accidental pulp exposure may occur. Biodentine properties offer the possibility to bulk fill the cavity to replace removed dentin and to bond a composite onto it in the same appointment. The full restoration is done in only one session.



Iatrogenic pulp exposure occurred after complete caries excavation during the finishing of the cavity prep.



Biodentine is applied to the prep to replace the dentin lost

Direct pulp capping

(Two visits)

Direct exposure of the pulp during caries excavation or possibly due to trauma, is something that occurs in everyday clinical practice. Bioactive potency of the capping material is the most important factor to preserve the long-term vitality of an affected – essentially healthy pulp.⁽¹⁾ Biodentine's properties allow bulk filling of the cavity, no matter how deep. A composite will then be placed within 6 months to functionally and esthetically replace enamel.



Cavity after preparation and disinfection. Surface of the exposed pulp can be seen clearly.



Biodentine was direct pulp capping then may be



accessed and excavated. Deep without pulp exposure.



Biodentine is placed as a bulk fill material and may be left for up to 6 months. Biodentine was left as a base with a composite on top.

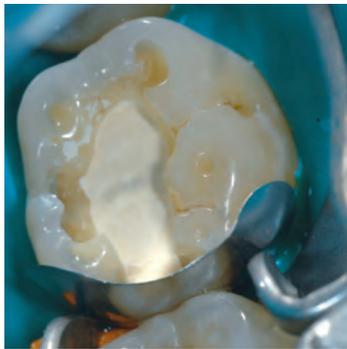


Clinical view at the 2-year recall.

Case courtesy of Dr. Subir Banerji, London, UK



cavity layer.



A matrix band and wedges are put in place to finish the restoration.



The composite restoration is bonded onto Biodentine after 12 min from start of mix.



The 1-year follow-up radiograph shows no pathological changes in the apical region.

Courtesy Dr. T. Danmashke, University of Münster, Germany. Reproduced with kind permission of Quintessenz Verlag GmbH



as placed as a bulk material for apping to restore the large cavity, left in place for up to 6 months.



Biodentine was partially removed, with a base layer serving as a dentin substitute.



Clinical view of the final restoration with N'Durance® Universal composite.

Case courtesy of Dr. Markus TFFria, Germany

Authors	Title	Journal	Year	Ref.
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Gong V, França R.	Nanoscale chemical surface characterization of four different types of dental pulp-capping materials	Journal of Dentistry	2017	3
Costa F, Sousa Gomes P, Fernandes MH.	Osteogenic and Angiogenic Response to Calcium Silicate-based Endodontic Sealers	Journal of Endodontics	2016	4
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Han L, Okiji T.	Uptake of Calcium and Silicon released from calcium silicate based endodontic materials into root canal dentin	International Endodontic Journal	2011	



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- Box of 15 capsules and 15 single-dose pipettes
- Box of 5 capsules and 5 single-dose pipettes



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