



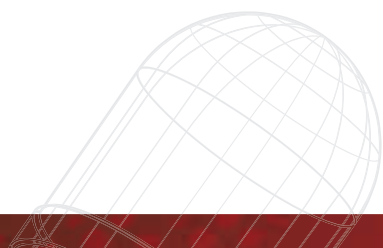
Biodentine™

The first and only dentine in a capsule



Wherever dentine is damaged, you can use Biodentine™. Now, also complete the full restoration in one session.

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

- 
- 1 Preservation of pulp vitality
 - 2 Prevention of clinical failures
 - 3 Ultimate dentine substitute



/// ACTIVE
BIOSILICATE
TECHNOLOGY

From a unique innovative technology

- **10 years** of research and development in Septodont laboratories
- Unique technological platform of **biocompatible and bioactive** materials promoting remineralisation and pulp healing
- In-house synthesised 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 in one session* -

- 1 Prepare the cavity



- 2 Replace the missing dentine 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 dentine 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 dentine by the same volume of Biodentine™

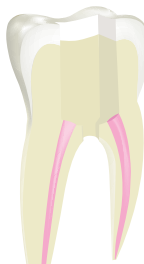


- 3 Bond the composite after 12 min from start of mix to finish the restoration

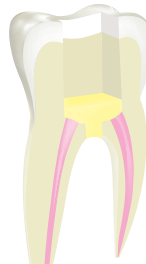


Pulp floor perforation

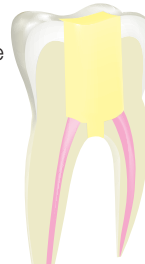
- 1 Perform your root canal filling with Gutta-Percha and endodontic sealer



- 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

① 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 dentine bridges

Pulp healing promotion in case of:

- Deep cavities
- Pulp exposure: reversible pulpitis, trauma or iatrogenic exposure

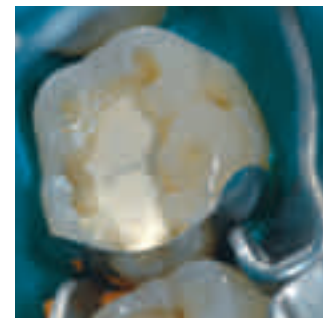
Full restoration in one session



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



Biodentine™ is applied to the cavity to replace the dentine layer



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



The composite restoration is bonded onto Biodentine™ after 12 mins from start of mix



1-year follow-up: clinical view



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

Courtesy Dr. T. Dammaschke, University of Münster, Germany
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② Prevention of clinical failures

Long lasting sealing properties:

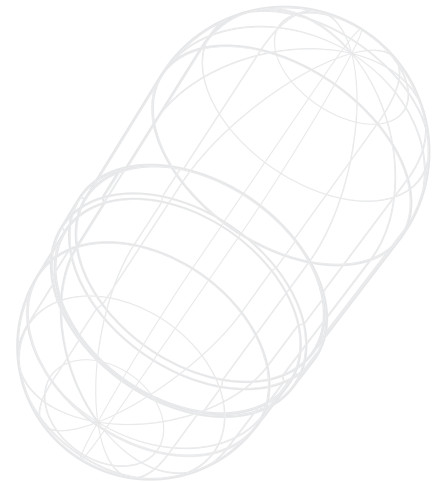
- Mineral tags in the dentine tubules
- High dimensional stability

Less risk of bacterial percolation:

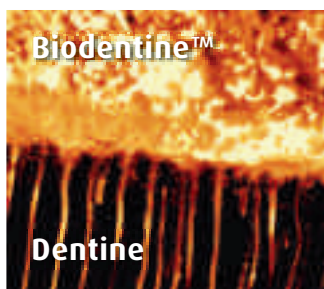
- Dynamic and biomimetic interface with dentine
- Remineralisation of interfacial dentine

No conditioning or bonding:

- Natural micro-mechanical anchorage in the dentine tubules

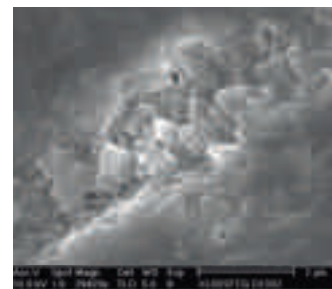


Dynamic and biomimetic interface with dentine



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

Courtesy Dr Amre Atmeh, King's College London

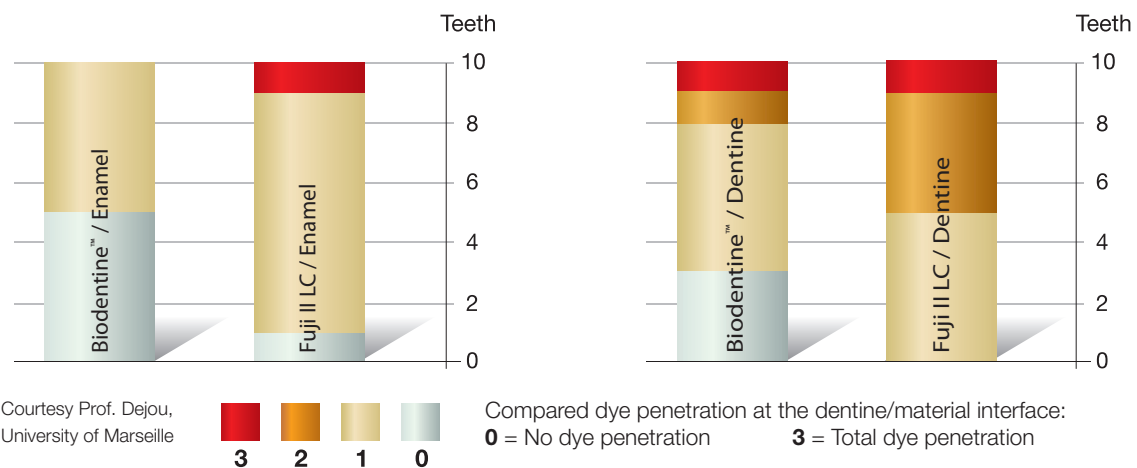


Mineral tags inside dentine tubules

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

High micro-leakage resistance

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



③ Ultimate dentine substitute



Full restoration in one session to reduce chair time

- Biodentine™ exhibits immediate physical properties as Glass-ionomers making the Biodentine™ and Composite full restoration in one session a safe procedure*
- After 12 mins 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 optimised clinical use

- Slightly model Biodentine™ during the working time, not overworking it
- Let it set for 6 mins without touching it

| Total Handling Time | |
|---------------------------|-----------------------|
| 12 mins | |
| Mixing and placement time | Setting time in mouth |
| 6 mins | 6 mins |

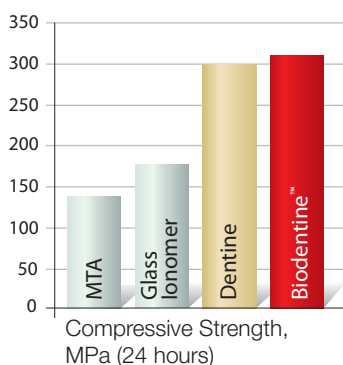
Superior radiopacity for clear short and long term follow-up

- 3.5 mm aluminium radiopacity
- Easy differentiation from tooth structure for easy short and long term follow-up

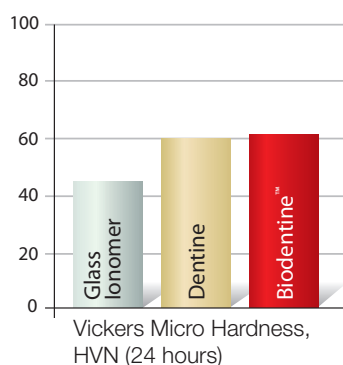


Comparable to human dentine: similar mechanical behaviour

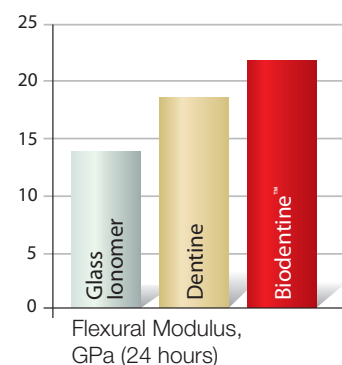
Similar strength as dentine



Biodentine™ cuts like dentine



Similar stress absorption and flexural behaviour as dentine



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



Dentine loss repair with Biodentine™ used as a dentine 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 dentine 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

| Author | Country | Title | Publication |
|---|----------------|---|---|
| T. DAMMASCHKE | Germany | Case report: Direct pulp capping with Biodentine™ - full restoration in one session | 2012 |
| L. ROUBALIKOVA | Czech Republic | Case report: Personal clinical experience with Biodentine™ | 2012 |
| G. KOUBI, P. COLON, JC FRANQUIN, A. HARTMANN, G. RICHARD, MO. FAURE, G. LAMBERT | France | Clinical evaluation of the performance and safety of a new dentine substitute, Biodentine™, in the restoration of posterior teeth - a prospective study | Clinical Oral Investigation 2012 |
| A. ATMEH, F. FESTY, C. EE ZHUAN, T. WATSON | United Kingdom | Dentine-cement interfacial interaction: calcium silicates and polyalkenoates | Journal of Dental Research 2012 |
| A. SHAYEGAN | Belgium | Biodentine™ vs. MTA in pulpotomy and direct pulp capping in pigs | Pediatric Dentistry 2012 |
| S. KOUBI, H. ELMERINI, G. KOUBI, H. TASSERY AND J. CAMPS | France | Quantitative Evaluation by Glucose Diffusion of Microleakage in Aged Calcium Silicate-Based Open-Sandwich Restorations | International Journal of Dentistry 2012 |
| T. DAMMASCHKE | Germany | Case report: Direct pulp capping with a new bioactive cement | Quintessenz Germany 2011 |
| P. LAURENT, J. CAMPS, I. ABOUT | France | Biodentine™ induces TGF-β1 release from human pulp cells and early dental pulp mineralisation | International Endodontic Journal 2011 |
| HAN L., OKIJI T. | Japan | Uptake of Calcium and Silicon released from calcium silicate based endodontic materials into root canal dentine | International Endodontic Journal 2011 |
| L. GOUPY | France | Case report: A novel dentine substitute for use in paediatric conservative dentistry | 2011 |
| M. FIRLA | Germany | Case report: Direct Pulp capping with a bioactive dentine substitute | 2011 |
| T. DAMMASCHKE | Germany | Case report: A new bioactive cement for direct pulp capping | 2011 |
| F. BRONNEC | France | Case report: A dentine substitute for the repair of root perforations, apexification and retrograde root filling | 2011 |
| C. VILLAT, V.X. TRAN, F. WENGER, N. PRADELLE-PLASSE, P. PONTIAUX, B. GROSGOGEAT, P. COLON | France | Impedance methodology: A new way to characterise the setting reaction of dental cements | Dental Materials 2010 |



Presentation

- Box of 15 capsules and 15 single-dose containers

