

## Bioactive Material: Biodentine

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Biodentine is a bioactive and biocompatible dentine substitute. It is calcium silicate cement based on Active Biosilicate Technology. In this technology, metal impurities are reduced from calcium silicate based material and to improve the mechanical property of the material. It is available in capsule form that contains powder and liquid in pipette. Tricalcium silicate is the main core component of the cement. Dicalcium silicate, Calcium carbonate (as filler) and Zirconium dioxide (as radiopacifier) are other components present in powder. The liquid part of cement contains calcium chloride (as setting accelerator), water reducing agent and water.

### Clinical Applications

- Dentine substitute- It is used under permanent restorations.
- Pulp capping material – it is used in direct pulp capping, pulpotomy and partial pulpotomy.
- Retrograde root end filling material – it is used as apical end filling material after periradicular surgery.
- Apexification- it is used in teeth with open apex with necrotic pulp.
- Perforation repair- it is used as a perforation repair material.

### Unique Features

- Final setting time of biodentine is around 10-12 minutes. As compared to other calcium silicate cement like Pro Root MTA, it has less setting time.
- Compressive strength of biodentine is very similar to natural dentine after one month.
- Biodentine should have sufficient push out bond strength.
- Biodentine stimulates proliferation of cells to build dense dentinal bridge at a faster rate when compared to other calcium silicate cement.
- Biodentine also exhibits good antimicrobial property. It has alkaline pH (pH=12) which inhibit the growth of microorganism.
- It has good color stability under esthetic restorations.

### Conflict of Interest

None.

### Source of Support

None.

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