

# MARKETPLACE

# Assured pulp capping and lining

**Tony Beale** looks at a recently introduced product from Bisco



**Figure 1:** Hemostasis achieved prior to TheraCal LC direct pulp capping placement



**Figure 2:** TheraCal LC applied directly to exposed pulp and light cured in 1mm increments



**Figure 3:** Etched, rinsed and bonding applied



**Figure 4:** Continued restoration of the tooth



**Figure 5:** Final restoration



TheraCal LC syringe

Figures 1-5 illustrate a direct pulp capping procedure, and are reproduced courtesy of Dr Mark Cannon

## PHYSICAL PROPERTIES

	Shear Bond Strength* (MPa)	Radiopacity (mm Al)	Calcium Release (24h)
TheraCal LC	4.35(2.93)	2.63	213 (µg/cm <sup>2</sup> )
Prisma VLC Dycal	0.94(0.92)	0.79	NA

\*Visibly moist bonding. Prisma and Dycal are registered trademarks of Dentsply Caulk

In dealing with all dental procedures that involve the pulp chamber it is imperative that this area be protected effectively. It is the most sensitive part of the tooth and, as such, needs to be regarded as an open wound, and requires careful therapy in order to promote healing. The pulp needs to be insulated from any bacterial invasion with the creation of an effective seal that will also resist trauma from excessive occlusal forces.

Until now, there have been various materials that have in some ways accommodated these needs, but often they have fallen short of the ideal.

Now, there is a product that fulfils virtually all the requirements of a combined pulp capping and base liner. Developed by Bisco, who describes it as a 'security blanket' for pulp protection, TheraCal LC is a universal material for use in pulp root treatments, and it is now available in the UK from Optident Ltd.

### The chemistry of TheraCal LC

TheraCal LC is a light-cured RMCS (resin modified calcium silicate) filled liner. It is intended for direct and indirect pulp capping, or as a base/liner under composites and amalgam, cements and other base materials. It can be placed directly on mechanical and traumatic pulpal exposures, creating a self-sealing liner that will be bacterially resistant and durable.

TheraCal LC is designed for use in deep cavity preparations. It is flowable, yet thixotropic, offering ease of placement, with its proprietary formulation allowing for a command set with visible light curing. The material is formed of tricalcium silicate particles in a hydrophilic monomer that supplies calcium ions that facilitate a release

of calcium. This calcium release, together with its alkaline pH, promotes effective sealing of the pulp. In addition to these benefits, hydroxyl apatite formation and secondary dentine bridge formation also occurs. TheraCal LC is also moisture tolerant, and this can help in the formation of a durable seal.

The introduction of TheraCal LC means there is an alternative to RMGI (resin modified glass ionomer) materials that can prove difficult to place, and can be somewhat 'acidic' and not always well tolerated in deep dentine.

In making a comparison with conventional calcium hydroxides, TheraCal LC has the advantage of staying active long enough to stimulate healing over a period of time.

The main advantages of TheraCal LC can be summarised as follows:

- It provides an improved dentine seal and bond to deep and moist dentine
- It possesses strong physical properties
- Has a high level of radiopacity
- Exhibits significant calcium release.

TheraCal LC can truly be described as a 'must have' product as it offers many advantages when compared to other pulp capping and lining materials.

It represents a significant advance in the development of a universal material for pulpal/ root treatment procedures, and in many instances can offer the practitioner a viable and highly effective alternative to other more conventional materials.

Dr Lou Graham from Chicago, Illinois, states: 'With the biomimetic properties of this unique liner, I place this routinely in my direct and indirect restorations prior to either glass ionomer or composites.' 

### Benefits of TheraCal LC for the dental practitioner

- A 'no-mix' material that is ready to use
- Can be used for pulp capping (especially in deep preparations)
- Use to create a protective liner in large preparations, or as a base/sealer under amalgam restorations, and class I composites
- A useful alternative to calcium hydroxide, glass ionomers and zinc phosphate cements
- Can be used as an alternative to cavity varnish sealers
- A moisture tolerant material, with active calcium release to stimulate hydroxyl apatite formation and healing
- An alkaline and therefore non-acidic material that will assist in sensitivity issues
- Can help in root canal treatments by blocking out fluid movement, reducing water flow through the tubules, and acting as an insulator for nerve endings
- It is radiopaque for easy identification.

Bisco TheraCal LC is supplied in ready to use 4 x 1 gram syringes with dispensing tips, and is available from Optident Ltd, International Development Centre, Valley Drive, Ilkley, LS29 8AL. Tel: 01943 605050 Email:sales@optident.co.uk www.optident.co.uk