

IVOCLAR VIVADENT

innovation

CLINICAL

QUARTER 4 // 1st October - 31st December 2016

Adhese® Universal

Adhese® Universal is a single-component, light-cured adhesive for direct and indirect bonding procedures and all etching protocols. It is the only universal bonding agent available in the conventional bottle as well as the innovative VivaPen® for fast and convenient direct intraoral application.

Hydrodynamic theory of pain

Several theories have been proposed to explain the mechanism of dentin sensitivity and therefore of dentin hypersensitivity. Of these, the most widely accepted is the hydrodynamic theory of sensitivity from Dr Brännström et al. in 1967. Brännström suggests that sensation of pain (hypersensitivity) can occur from the movement of fluid within the dentin tubules. That is, when dentin tubules are exposed to external stimuli, such as cold, warmth or osmotically active substances, the dentinal fluid will flow. This flow results in the stimulation of the odontoblasts and nerve fibers leading to the pulp, which patients perceive as pain* (Fig. 1).

How does Adhese® Universal work?

Adhese® Universal is scrubbed onto the tooth surface for at least 20 seconds to maximise contact of the enamel and dentin with the acidic monomers.

During this step:

- The hydrophilic solvents (water and ethanol) and hydroxyethyl methacrylate (HEMA) optimize wetting, priming and infiltration of the hydrophilic resin monomers into dry or moist dentin tubules and collagen network to ensure the formation of a reliable dentin seal via a homogenous adhesive layer with defined resin tags.
- The acidic monomers (MDP, MCAP) precipitate as insoluble calcium salts in the dentin, facilitating mechanical blockage and sealing in the dentin tubules. This helps prevent the movement of fluid in the dentin as well as post-operative sensitivity associated with that movement.
- The formation of a stable, thin homogenous layer with a low film thickness is ensured by the optimized thickening agents - fumed silica and methacrylated carboxylic acid polymer.

This integrated “Desensitising Effect” prevents movement of dentinal fluid within the tubules minimizing the risk of micro-leakage and post-operative sensitivity (Fig. 2).



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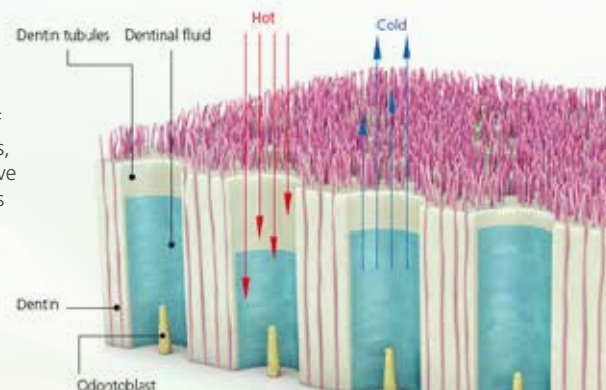


Fig 1: Diverse stimuli (heat, cold, desiccation etc.) trigger fluid flow within the dentin tubules. The subsequent activation of pulpal nerves leads to the perception of pain.

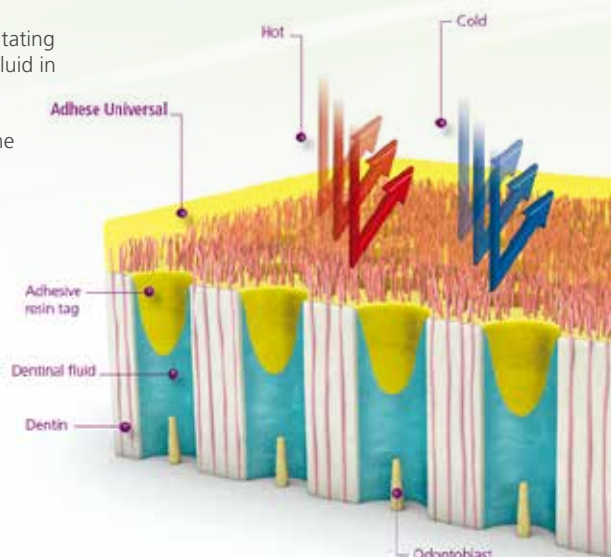


Fig 2: Application of Adhese Universal to exposed dentinal surfaces blocks dentin tubules and hence reduces fluid flow and tooth hypersensitivity

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Conventional layering can be very technique sensitive and time consuming in the restoration of large posterior cavities. Bulk-fill composites have shown to be effective in heightening work efficiency and minimising the risk of error.



Comparison of conventional¹ and efficiency-optimised² treatment protocols

Restoration type	Mean duration Conventional protocol ¹	Mean duration Efficiency-optimised protocol ²	Mean time saved	Increase in efficiency %
Class I1	4 minutes	8 minutes	6 minutes	43%
Class II (MO/OD)	37 minutes	26 minutes	11 minutes	30%
Class II (MOD)	41 minutes	30 minutes	11 minutes	27%

PRODUCT HIGHLIGHT

CAD/CAM Block Offer

A14 S & L CAD Blocks now available in
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Bluephase® Style is on an ergonomic mission. Whilst it is grounded in the proven technologies of the Bluephase range, it incorporates optimised features.

It offers a light output of 1,100 mW/cm², which is comparable to that of the existing Bluephase light. Additionally, the new Bluephase Style features a compact and ergonomic shape that fits the hands of women and men even more comfortably than its predecessor.

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