

# IDS: Immediate Dentin Sealing (IDS) for Tooth Preparations

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Do	Why
Freshly cut exposed dentin with a diamond bur (if etch-and-rinse approach) or carbide tungsten bur (if self-etching approach).	To remove all contaminants from the dentin surface
Apply dentin bonding agent according to manufacturer's instruction (3-step etch-and-rinse or 2-step self-etching recommended). Apply thick layer of adhesive resin (filled adhesive resin recommended) and light polymerize. If using unfilled adhesive, protect with layer of flowable resin and light polymerize.	To seal exposed dentin with a consistent resin coating layer
Optional: use regular restorative composite resin to correct geometry, elevate preparation, or fill in undercuts.	To reinforce remaining cusps and improve preparation design
Cover tooth preparation with glycerin gel and light polymerize for 10 s (air blocking), rinse away with air/water spray.	To reduce the thickness of the oxygen-inhibited layer
Re-finish enamel margins with a diamond bur.	To eliminate excesses of adhesive resin
Before elastomeric impression, gently pumice tooth preparation with soft rubber cup.	To eliminate debris and residues of the oxygen inhibited layer
Proceed with impression (optical CAD/CAM or elastomeric)	To fabricate inlay, onlay veneer, or crown
Cover preparation with isolating medium (petroleum jelly) before applying provisional resin.	To avoid locking of provisional restoration
At restoration delivery: 1) gently air abrade preparation and etch enamel with H3PO4 and 2) use resin-based luting agent (and adhesive resin if necessary to wet preparation).	To 1) remove/clean debris for bonding and 2) bond restoration

## IAAD WORKING INSTRUCTIONS

There is a strong body of evidence to support applying an adhesive resin coating to the freshly cut dentin according to the manufacturer's instructions<sup>1-9</sup> when a significant area of dentin has been exposed during tooth preparation for indirect restorations, such as inlays, onlays, veneers, and even crowns. Freshly cut and clean dentin is ideal for dentin bonding.<sup>11</sup> IDS enables the pre-polymerization of the dentin bonding agent, resulting in improved bond strength.<sup>5,6,8,9,12</sup> Delaying restoration placement allows the dentin bond to develop without stress during the provisional restoration stage.<sup>13</sup> When used for traditional crown preparations, IDS can result in significantly increased retention, reduced marginal leakage, improved bond strengths, and decreased postoperative sensitivity.<sup>14-16,18</sup> Practical reasons to justify IDS<sup>1,10,17</sup> include the fact that the clinician can focus on the "wet bonding" to

dentin, while dry enamel bonding can be performed at the stage of restoration luting; the sealed dentin is protected from bacterial leakage/infiltration during the provisional restoration, thus enhancing patient comfort. The potential risk of postcementation sensitivity is also reduced, and the cementation of the definitive restoration requires only limited or no anesthesia, ultimately facilitating occlusal adjustment.

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