

TECHNIQUE CLINIC

A Modified Visible-Light-Cured Dimethacrylate Resin for Direct Bonding

Triad VLC,* a visible-light-cured resin, can be used as an alternative to composite resins for direct bonding of orthodontic brackets. Similar to light-cured composite restorative materials, Triad is composed of a matrix of urethane dimethacrylate that contains a small amount of colloidal silica to control handling. It contains no methyl methacrylate. Triad is distributed in the form of rods in light-shielded plastic envelopes to prevent premature polymerization.

We recommend the following technique for bonding brackets:

1. To facilitate clinical manipulation, mix a small amount of Heliobond** (a diluent monomer) with clear Triad VLC (A). This will reduce the viscosity of the material, eliminating excess adhesive from under the bracket base and thus allowing the bracket to be easily moved into a precise position. Do not dilute the Triad so much that the bracket slides off the tooth.
2. Store the mixture in a dark place to avoid premature polymerization.
3. Prepare the tooth surface as usual to provide the best possible

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**Ivoclar North America, 175 Pineview Drive, Amherst, NY 14228.



area for bonding.

4. Place a small amount of the Triad-Heliobond mixture on the bracket base (B). Seat the bracket on the tooth (C), using enough pressure to squeeze out excess adhesive. Remove the adhesive flash with a scaler (D).
5. Cure the adhesive from the occlusal and gingival sides for 40 seconds each, using a standard light-curing unit (E). The latest generation of light-curing units reduce curing time to about



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three seconds.

6. Archwires can be bent and fitted immediately after bonding.

This technique has the usual advantages associated with light-curing systems, such as adequate working time to assure precise bracket placement and the ability to insert archwires immediately after bonding. No resin or primer is needed on the etched enamel surface prior to bracket placement, and debond-

ing is relatively easy due to the adhesive's lower bond strength and hardness. The modified Triad adhesive is considerably less expensive than conventional light-cured composite resins.

Visible-light-cured resins are a fairly recent innovation and still await full evaluation of their clinical efficacy. We have successfully used the modified Triad in more than 30 patients, including orthognathic surgery



cases (F), with fixed appliances in both arches. The bond failure rate has been less than 3% in these cases.



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