

REALITY

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2017

The Ratings | BONDING AGENTS – UNIVERSAL

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Prime & Bond Elect

INTRODUCTION/MANUFACTURER'S CLAIMS

The original Prime & Bond made its debut in 1995 – that's an amazing 21 years ago. Now it jumps on the universal bonding agent bandwagon, but instead of copying several competitors, Dentsply has chosen the Elect moniker to give it at least a nomenclature differential from its rivals. Elect basically means you get to choose how to use it – etch & rinse, self-etch or the newest buzz term (but not really new at all), selective etch.

The evaluators used all modes, with 31% mainly using etch & rinse, 31% mainly using self-etch, 15% mainly using selective etch, and 23% using all three protocols depending on the situation.

USES

All types of restorations.

COMPOSITION

Adhesive PENTA (dipentaerythritol penta acrylate monophosphate), which is Dentsply's main adhesive monomer and that which has formed the backbone of P&B from the beginning. It also contains mono-, di-, and trimethacrylate resins, organic phosphine oxide, and cetylamine hydrofluoride in acetone and water.

Self-Cure Activator (SCA) UDMA, di- and trimethacrylate resins, and arylborate salt in acetone and water.

pH

2.5

RAVES & RANTS

- + Works with self-etch and etch & rinse
- + Bond strength with self-cured materials is acceptable
- Bond strength to dentin in self-etch mode is on low end
- Needs two applications to optimize performance

MANUFACTURER

Dentsply Caulk
www.caulk.com

PRICES

Kits	<i>Unidose (50)</i>
<i>Dual Cure</i>	\$169.75/6.25ml
<i>Introductory Kit</i>	(\$27.16/ml or \$3.40 ea)
\$303.10/9.5ml	<i>Self Cure Activator</i>
(\$31.91/ml)	\$193.35/4.5ml
Refills	(\$42.97/ml)
Bottles	
\$157.50/5ml	SHELF LIFE
(\$31.50/ml)	2 years

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VISCOSITY

Adhesive Most (77%) evaluators considered it to be acceptable, while the other 23% thought it was too runny.

Adhesive + SCA Most (75%) evaluators considered it to be acceptable, while the other 25% thought it was too runny.

ODOR

Adhesive All evaluators except one considered it about the same as other adhesives, while the lone holdout thought it was too strong.

Adhesive + SCA All evaluators considered it about the same as other adhesives.

APPLICATION TECHNIQUE FOR LIGHT-CURED RESTORATIONS

1 In the etch & rinse mode, etch as usual for 15 seconds and rinse. Leave preparation **MOIST**. In the self-etch mode, clean and leave preparation **MOIST**. In the etch & rinse mode, all evaluators except one used moist, while the lone holdout preferred dry. In the self-etch mode, most (73%) evaluators used moist, while the other 27% used dry. One evaluator when bonding a post used alcohol to clean the prep of smeared root canal sealer and then used an EndoVac apical negative pressure (macro cannula) to remove the excess alcohol.

2 In the etch & rinse mode, apply the adhesive for **20s using GENTLE AGITATION**. Most (58%) evaluators stuck with 20 seconds, while 25% used 15s and 17% felt 10 seconds was acceptable.

Most (69%) evaluators chose to use gentle agitation, while rubbing was used by the remaining 31%. One evaluator described the application technique “gentle rubbing”.

3 Suction most of the excess and apply **GENTLE AIR** to evaporate the solvent.

4 In the self-etch mode, apply the adhesive again for **20s using GENTLE AGITATION**. Then suction most of the excess and apply **GENTLE AIR** to evaporate the solvent. We found applying the adhesive for 20 sec-

onds, evaporating the solvent, and then applying it a second time gave us a more consistent shiny layer on dentin compared to the single application.

5 Light-cure for 10s.

Using this technique, the bond strengths (MPa) with light-cured composite were:

Substrate	Etch & Rinse	Self-Etch
Enamel	34.2	23.6
Dentin	22.2	20.6

These results indicate Prime & Bond Elect can effectively be used with both protocols. It was especially effective on enamel with the etch & rinse method, while the self-etch method on dentin produced somewhat lower values than the competition.

APPLICATION TECHNIQUE FOR DUAL-CURED/SELF-CURED RESTORATIONS

1 In the etch & rinse mode, etch as usual for 15 seconds and rinse. Leave preparation **MOIST**. In the self-etch mode, clean and leave preparation **MOIST**.

2 Mix equal parts of the Adhesive and SCA and apply the mixture for **20s using GENTLE AGITATION**.

3 Suction most of the excess and apply **GENTLE AIR** to evaporate the solvent.

4 Use the Adhesive/SCA mix and reapply as noted in #2.

5 Light-cure for 10s.

Using this technique, the dentin bond strength in the **self-etch** mode with **self-cured** composite was 18.6MPa after 24 hours. This shows that this product can be reliably used with dual-cured and self-cured materials. In addition, the evaluators who used it with self-cured composite reported no bond failures.

INSIDE SURFACE OF INDIRECT RESTORATION

Light-cured Adhesive, but do not cure. If you are using a low viscosity resin cement, applying the Adhesive as a wetting agent may not be necessary.

Dual-cured/Self-cured Mixture of Adhesive + SCA, but do not cure.

POST-OPERATIVE SENSITIVITY

Direct restorations Most (85%) evaluators reported no post-op sensitivity, while the other 15% stated it occurred only once or twice. No self-etch restorations were sensitive, while the few occurrence were split between etch & rinse and selective etch.

Indirect restorations None reported.

PACKAGING

Dual Cure Kit Easy to stack box with product identification on all but one side plus top and bottom. Expiration date is on a label on the top. It is plastic shrink-wrapped for security. The labels on the bottles contain the expiration date, which resists removal during disinfection procedures reasonably well. The Adhesive comes in the same type of black bottle as its brethren, while the SCA comes in a typical, screw top, black plastic squeeze bottle, but it takes considerable force to tease out the drops.

Most evaluators thought it was adequate and nicely compact, with all components visible and accessible. However, two evaluators found it to be flimsy -- all the bottles had moved out of their compartments and retrieving them was a nuisance.

Unidose Rectangular cardboard box with product identification on the top and front. It is also plastic shrink-wrapped for security and includes a drawer in the bottom section that rotates out and down to reveal a recess containing the unit doses in a Ziploc bag. We assume you are supposed to empty the bag into the recess, since there are no instructions concerning the packaging.

This makes a fairly good dispenser for the unit doses, but you still may choose to transfer these unit doses to a receptacle of your choosing. One evaluator thought it was difficult to retrieve the unidoses when the box is stored in the refrigerator. Inside the top lid of the box are two boxes of applicator tips and the instructions.

The unit dose has changed. No longer do you have to insert a cylinder into a holder — the new one is an all-in-one blue plastic design. The bottom part holding the bonding agent has a center cylindrical reservoir with two, wing-like extensions projecting outward from both sides. There is also a round bottom that allows the unit dose to stand upright on its own. (One evaluator noted that attribute but stated he rarely used it in that manner.) The top section is basically a flat plastic rectangle that includes the product name, expiration date, and lot number.

Opening the unit dose is accomplished by simply twisting the top section until it separates from the bottom. While it does take a firm twist, the wings on the bottom section give you a positive grip. Once the top section is disengaged from the bottom, you now have unimpeded access to the bonding agent through an orifice that is sufficiently large so you don't have to be searching for the bulls-eye as you do with some of these unit dose containers.

Most (69%) evaluators liked the unit dose design, but didn't think it was any better than competing products, while 23% thought it was better than competing products and 8% didn't like it at all.

DIRECTIONS

The conventional version is a typical multi-language, plain paper in the annoying foldout format printed in nano font size. The information is logically presented although the unit dose instructions are for the old style, not the new type. There is also a coated paper technique sheet with color illustrations depicting different uses. This card will probably get most of the attention from users who don't want to slog through the plain paper version.

Most evaluators felt the information was direct, clear, and straightforward. However, a few thought they were wordy and confusing.

REALITY

STRENGTHS Versatile--virtually all uses regardless of whether you etch or not with phosphoric acid. Bottle or unidose. Easy to use. Had predictable results. Works well with dual-cured or self-cured materials. Minimal to no post-op sensitivity.

WEAKNESSES Two layers may be needed, especially in self-etch mode. Bond strength to dentin in self-etch mode is on low end.

BOTTOM LINE

Allows you to use it in whatever modality you deem appropriate for the given situation, but use two layers to maximize its performance.

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