

THE DENTAL ADVISOR™

"Improved Patient Care Through Research"



Photography by John W. Farah, D.D.S., Ph.D., Ann Arbor, Michigan

Update: 6th- and 7th-generation Bonding Agents

Reliable bonding agents for enamel and dentin have been available since 1987. Currently, there are five categories of bonding agents – 4th-generation, 5th-generation, 6th-generation (Type I), 6th-generation (Type II), and 7th-generation. The latest bonding agents (6th- and 7th-generation) use self-etching primers and adhesives instead of phosphoric acid for etching of prepared tooth structure and do not require rinsing.

This issue of THE DENTAL ADVISOR compares and rates 23 6th- and 7th-generation bonding agents. Clinical tips are given for a number of clinical techniques requiring bonding. Effects of contamination on bond strengths to dentin are also discussed.

2005

Vol. 22, No. 9
November

**UPDATE: 6th- AND 7th-GENERATION
BONDING AGENTS** 2

EDITORS' EVALUATION

StructurPremium 6
(Provisional material)

CLINICAL EVALUATIONS

FRC Postec Plus 6
(Glass fiber post)

smartprotect 7
(Desensitizer)

Prelude 8
(Bonding agent)

Liberator 8
(Endodontic file system)

HurriSept Antiseptic Hand Gel 9

Calset 10
(Heating unit)

Systemp.link 11
(Temporary resin cement)

EDITORS' CHOICE

MultiCore 12
(Core material)

EDITORIAL

THE DENTAL ADVISOR Vision 10

Ratings

Excellent	+++++
Very Good	++++
Good	+++

All-ceramic Restorations

- Bonding agents with acetone should be used soon after dispensing.
- Be sure the bonding agent is compatible with the resin cement used.

Porcelain Veneers

- Use one-step light-curing technique for veneers less than 1.0-mm thick (apply bonding agent and resin cement, then light cure).
- For veneers more than 1.0-mm thick, use a two-step light-curing technique (apply bonding agent and light cure, then apply resin cement and light cure). Be sure to thin the bonding agent before light curing.
- Instructions for some resin cements (**3M ESPE RelyX Veneer**, **Appeal**/Ivoclar Vivadent, **Variolink II**/Ivoclar Vivadent) recommend additional application of the bonding agent to the veneer without separate light curing before cementation.

Contaminants

Bleaching Agents

- Residual oxygen from home or office bleaching can lower bond strength to dentin.
- Wait one week after bleaching before a bonding procedure.
- Color of bleached teeth may rebound during this time as the teeth rehydrate.

Eugenol-containing Materials

- Use non-eugenol temporary cements or provisionals as eugenol-based materials can lower bond strength to dentin.
- If a eugenol-based material must be used, the tooth should be pumiced before bonding.

Characteristics of Bonding Agents				
Generation	Components	Phosphoric Acid Needed	Rinsing Required	Dual-cured Activator Available
4 th	Etchant, primer, adhesive (apply components separately)	Yes	Yes	Yes
5 th	Etchant, primer/adhesive (apply components separately)	Yes	Yes	Some
6 th (Type I)	Acidic primer, adhesive (apply components separately)	No	No	Some
6 th (Type II)	Acidic primer/adhesive (mix components and apply)	No	No	No
7 th	Acidic primer/adhesive (no mixing, apply)	No	No	No

THE DENTAL ADVISOR Recommends:

6th-generation – Type I: **Clearfil PROTECT BOND** (98%), **AdbeSE** (96%), **Clearfil LINER BOND 2V** (96%);
6th-generation – Type II: **Xeno III** (96%); 7th-generation: **G-BOND** (97%)



98%

Clearfil PROTECT BOND
(Kuraray America)



97%

G-BOND
(GC America)



96%

AdbeSE
(Ivoclar Vivadent)

Hemostatic Agents

- Residual chemicals from hemostatic agents containing ferric sulfate, aluminum chloride or other chemicals can lower bond strength to dentin.
- Rinse contaminated areas for at least 10 seconds with water before bonding.
- Areas contaminated with ferric sulfate should be re-etched with phosphoric acid before bonding.

Saliva, Blood and Plasma

- Contamination with these fluids can lower bond strength to dentin.
- Rinse contaminated areas for at least 10 seconds with water before bonding.

Water

- Most bonding agents with a water solvent bond well to either dry or moist dentin.
- Avoid over-wet (pooled water) or over-dry (desiccated) dentin before application of the bonding agent.

Etching with Phosphoric Acid

Most manufacturers of self-etching bonding agents recommend the use of phosphoric acid to etch uncut enamel before application of the self-etching primer or self-etching adhesive. Even so, the improvement in bond strength may not be large (see the Bond Strength table on page 5). If the phosphoric acid also etches dentin, the bond strength of the self-etching adhesive to dentin may be reduced. This reduction may occur if the self-etching adhesive fails to completely penetrate the additional demineralized dentin produced by the phosphoric acid etch. Apply extra coat(s) of bonding agent to obtain a shiny surface as needed.

- Pumice technique – Pumice can be used on uncut enamel before applying the bonding agent to improve bond strength.
- Pre-etch technique – Apply phosphoric acid to enamel before preparing the tooth. This technique eliminates the need to etch uncut enamel and avoids possible contamination of dentin with phosphoric acid.

Bond Strength (MPa) of Xeno III to Tooth Structure		
Substrate	Without Use of Phosphoric Acid	With Use of Phosphoric Acid
Enamel, cut	18	24
Enamel, uncut	17	20
Dentin	16	11

Survey of Clinical Consultants

In a recent survey of our Clinical Consultants, we asked about their preferences and usage of 4th- to 7th-generation bonding agents. The results are summarized from over 100 responses.

Preferred Bonding Agents

4th-generation

- All-Bond 2**
- 3M ESPE Adper Scotchbond Multipurpose Plus**

5th-generation

- Prime & Bond NT**
- Optibond Solo Plus**
- 3M ESPE Adper Single Bond Plus**

6th-generation (Type I)

- Clearfil SE BOND**
- Optibond Solo Plus Self-etch Adhesive System**

6th-generation (Type II)

- 3M ESPE Adper Prompt L-Pop**
- Xeno III**

7th-generation

- Clearfil S³ BOND**
- Xeno IV**
- iBond**



All-Bond 2
(Bisco)



Prime & Bond NT
(DENTSPLY Caulk)

Use of Bonding Agents					
	4 th	5 th	6 th (Type I)	6 th (Type II)	7 th
Always/Mostly	20%	41%	55%	16%	14%
Sometimes/Never	80%	59%	45%	84%	86%
Summary: A majority of clinical consultants use 5 th - and 6 th -generation (Type I) bonding agents (referenced in bold).					

Post-operative Sensitivity					
	4 th	5 th	6 th (Type I)	6 th (Type II)	7 th
Often/Sometimes	27%	25%	10%	12%	12%
Hardly Ever/Never	73%	75%	90%	88%	88%
Summary: Clinical consultants reported post-operative sensitivity more often with 4 th - and 5 th -generation bonding agents (referenced in bold).					

Use of Desensitizing Agent					
	4 th	5 th	6 th (Type I)	6 th (Type II)	7 th
Always/Mostly	20%	25%	15%	10%	10%
Sometimes/Never	80%	75%	85%	90%	90%
Summary: Clinical consultants used desensitizing agents infrequently but more often with total-etch 4 th - and 5 th -generation bonding agents (referenced in bold).					

Bonding Agents Preferred for Various Techniques					
	4 th	5 th	6 th (Type I)	6 th (Type II)	7 th
Veneers	20%	44%	23%	8%	5%
Anterior composites	13%	34%	33%	12%	8%
Posterior composites	10%	22%	39%	16%	13%
Composite cores	21%	28%	33%	11%	7%
Esthetic posts	24%	26%	29%	13%	8%
Resin cements	17%	36%	31%	11%	6%
Summary: Clinical consultants preferred 5 th - and 6 th -generation (Type I) bonding agents for the techniques indicated above (referenced in bold).					

Other Featured Products



3M ESPE Adper Prompt L-Pop Self-Etch Adhesive
(3M ESPE)



Clearfil S³ Bond
(Kuraray America)



Futurabond NR
(VOCO)



One-Up Bond F Plus
(Tokuyama Dental Corp./ J. Morita USA)

StructurPremium + + + + ½

VOCO GmbH
888.658.2584
www.voco.com/usa

Description

StructurPremium is a composite provisional material packaged in auto-mix cartridges. The material is indicated for the fabrication of temporary crowns, bridges, inlays and onlays. **StructurPremium** is designed to exhibit natural fluorescence and excellent esthetics with high strength and fracture resistance. Working time is 45 seconds. Removal of the provisional stent from the mouth may be done after one minute 45 seconds, and the material may be trimmed after five minutes. **StructurPremium** is available in shades A1, A2, A3, A3.5, B3, and BL (Bleach). The introductory kit contains one, 76-g cartridge of material; dispensing gun; and 10 mixing tips. Each refill kit contains

one cartridge and 10 mixing tips. Eleven consultants evaluated **StructurPremium** for the fabrication of over 100 provisional restorations. This product received a 92% clinical rating.

Suggested Retail Cost

- \$189.95/introductory kit
- \$119.95/refill kit

Product Features

StructurPremium was well received overall by all consultants with strength and good esthetics being the most-liked features of the material. Instructions for use were rated very good, and the overall ease of using **StructurPremium** was excellent. Viscosity of the material received high marks; consultants found it neither too runny nor too thick during injection. The fit of the temporary

FRC Postec Plus + + + + ½

Ivoclar Vivadent, Inc.
800.533.6825 • 716.691.2285
www.ivoclarvivadent.us.com

Description

FRC Postec Plus is a high-strength, prefabricated post made of a composite matrix with glass fibers. The main advantage between this post and the original **FRC Postec** is improved radiopacity. The posts have high translucency that allows light transmission and a modulus of elasticity similar to dentin. The posts are tapered and are 20 mm in length. They are available in two sizes: size 1 is 1.5 mm in diameter coronally and tapers to 0.8 mm, whereas size 3 is 2.0 mm coronally and tapers to 1.0 mm. The surface of the post is smooth and should be cleaned with phosphoric acid gel and silanated before cementation with a self- or dual-cured resin cement. This surface treatment enhances the bond to the post. The introductory pack includes five posts each of sizes 1 and 3 and the corresponding reamers. Impression posts are available separately for fabrication of temporary restorations and indirect post and cores. Twenty-four consultants evaluated **FRC Postec Plus** in 167 clinical applications. This product received a 91% clinical rating.

Suggested Retail Cost

- \$175.00/**FRC Postec Plus** Intro Pack

Product Features

The posts and reamers are neatly packaged in a small molded plastic box, but they can be dislodged easily. Both printed and graphic illustrations

are provided. The reamers are very effective in preparing the post space and are sized accurately to their corresponding posts. The tapered design of the post mimics the shape of the root canal, particularly for anterior teeth. The post is of sufficient length for any clinical case; if length adjustment is required, it can be easily accomplished with diamond burs before or after cementation. The two available diameters are adequate for many cases; however, consultants commented that additional sizes, especially smaller sizes, would be useful. No fractured or dislodged posts were reported during the evaluation period; therefore, ease of post removal was not evaluated. Seventy-one percent of the consultants rated **FRC Postec Plus** equivalent to or better than their current post system, 50% would switch to this post and 79% would recommend it.

Clinical Tips

- Posts require adhesive resin cementation.
- Shorten post from the coronal end after cementation.
- Do not use rotary instruments to roughen, grind or create retention grooves in the posts. ■

Consultants' Comments

- ▶ "Only need to use one reamer to prepare the post space."
- ▶ "Color a big plus for esthetic cases."
- ▶ "Good fit and easy to adjust."
- ▶ "Definitely need more sizes, especially smaller ones."
- ▶ "Improve packaging to prevent posts from spilling out."

EDITORS' EVALUATION

Consultants' Comments

- ▶ "Good for multiple-unit temporaries."
- ▶ "Nice esthetics with strength for long spans."
- ▶ "I prefer a shorter setting time."



Exclusive Review

was also highly rated, as was the ease of trimming and polishing. No problems with chipping or fracture of the provisional restorations were noted during the evaluation period. A primary concern of consultants was the setting time, which was longer than most would have preferred. Ninety-one percent of evaluators rated **StructurPremium** to

be equivalent to or better than the product they currently use. Ninety percent of consultants would recommend **StructurPremium** to a colleague and 82% indicated they would switch from their current provisional material. ■

smartprotect + + + +

DETAX GmbH & Co. KG
00-49-(0)7243-510-0
post@detax.de • www.detax.de

Description

smartprotect is a desensitizer recommended for the treatment of hypersensitive dentin, enamel, cervical areas and post-operative sensitivity associated with temporary restorations, restorative procedures and cemented restorations. The HEMA-free solution contains three active ingredients: glutaraldehyde to seal the open dentinal tubules upon contact, triclosan to reduce bacteria locally, and amino-fluoride to enhance mineralization. **smartprotect** is packaged in a 7-ml bottle with 20 **smartbrush** applicators and instructions. The desensitizer is scrubbed onto the tooth surface with a **smartbrush** for 10-20 seconds followed by air drying. **smartprotect** does not adversely affect the bonding of restorative materials or cements. Twenty-three consultants used **smartprotect** in 350 restorative procedures. This product received an 86% clinical rating.

Suggested Retail Cost

- \$60.00/standard pack

Editors' Note – Hydroxyethylmethacrylate (HEMA) is a hydrophilic monomer that has been reported to cause an adverse reaction in some patients.

Consultants' Comments

- ▶ "Fast and effective."
- ▶ "HEMA-free solution."
- ▶ "Make the solution more viscous."
- ▶ "Provide single-dose packaging."



Product Features

The **smartprotect** kit is complete and the instructions are easy to follow. Most consultants liked the simple application. Some noted that the liquid had a thin viscosity and was too runny, especially in cervical areas. Patients noticed that **smartprotect** was effective immediately after its application. A slight odor and aftertaste were reported. The long-term effectiveness was not evaluated. Seventy-four percent of the consultants reported that they would switch to this product and 82% would recommend it.

Clinical Tip

- Apply at least two coats to the tooth. ■

SENIOR CLINICAL CONSULTANTS

E. Alpert, CT
R. Anthony, OH
K. Baker, TX
R. Ciccone, MI
P. Esmond, NY
M. Evans, TN
R. Fisher, OH
G. Franco, NY
P. Grandsire, NY
K. Hamlett, TX
G. Hart, OH
R. Kaprielian, NJ
E. Katkow, MD
L. Katkow, MD
C. Kehr, MI
E. Maitland, NJ
E. Mosso, PA
G. Mosso, PA
D. Peterson, MD
V. Plaisted, NY
W. Powell, TX
G. Poy, MI
G. Sayre, TX
K. Schwartz, FL
B. Shumaker, NJ
B. Sims, NY
A.M. Thompson, NY
R. Trushkowsky, NY
L. Wee, MI

CLINICAL CONSULTANTS

A. Abate, MI
M. Aksu, MI
A. Alexander, PA
J. Allen, MI
J. Amara, CT
R.M. Arnett, MI
R. Averbach, CO
A. Azrak, NY
M. Bannan, MI
D. Barnes, MD
F. Berman, PA
M. Beyramian, MI
L. Bishop, MI
J. Bostic, OH
D. Bowen, MI
E. Bowser, PA
H. Bowser-Sletten, PA
R. Bozell, MI
M. Braverman, NY
L. Brimhall, MT
M. Briskin, NY
C. Brown, LA
W. Brownscombe, MI
H. Buckwald, NJ
J. Bush, PA
H. Cadorette, MI
Z. Campbell, MI
P. Campo, NY
M. Chaben, MI
D. Chacko, TN
S. Cheff, TX
R. Cherry, FL
P. Chiaravalli, MI
T. Chuang, NJ
A. Colarusso, NY
M. Conrad, PA
M. Cooks, MI
K. Dancy, GA
M. Danner, IL
J. Dingman, WI
J. DiPonziano, NJ
R. Donelli, NY
R. Dost, VA
J. Doueck, NY
M. Dwoskin, MI
M. Eannaccone, NY
B. Eggart, AR
R. Engle, IL
K. Fairbanks, MI
T. Faiver, MI
R. Fay, TX
N. Fehmi, MI
M. Feinberg, NY

Prelude + + + + ½

Danville Materials
800.827.7940 • 925.973.0710
www.danvillematerials.com

Description

Prelude is a nano-hybrid, light-cured dental adhesive system with an optional dual-cured activator. The system includes a self-etching primer; alternatively, the adhesive may be used with the total-etch technique. It is indicated for use with direct or indirect procedures to bond composite to dentin, enamel and porcelain and is compatible with all composites and compomers. The self-etch technique requires the application of a primer followed by the adhesive and then light curing for 10 seconds. **Prelude Dual/Self-Cure Link** is included for bonding direct self- and dual-cured composites and indirect restorations. The self-etch kit contains one, 5-ml bottle each of primer, adhesive and dual-cured activator along with accessories. For the total-etch technique, the tooth surface is treated with phosphoric acid and rinsed; then the adhesive is applied and light cured for 10 seconds. The total-etch kit contains one, 5-ml bottle each of adhesive and desensitizer, 5 g of etchant and accessories. Twenty-four consultants evaluated **Prelude** self-etch in 461 clinical restorations. This product received a 91% clinical rating.

Suggested Retail Cost
• \$89.95/total-etch kit
• \$129.95/self-etch kit



Consultants' Comments

- ▶ *"This is a very complete system."*
- ▶ *"Effectively bonds composite cores."*
- ▶ *"It is quick to use."*
- ▶ *"The components have a strong acetone odor."*
- ▶ *"I prefer a more viscous resin."*

Bond Strength to Tooth Structure, MPa		
	Enamel	Superficial Dentin
Bond Strength	24.9	27.4

Product Features

Prelude is neatly packaged in a small plastic box for easy storage, and it contains illustrated and written directions for each clinical technique. **Prelude** dispenses easily from the bottles, and application time is relatively quick. The low viscosity of the primer and adhesive makes application easy; both primer and adhesive wet the tooth surface very effectively. The inclusion of **Prelude Dual/Self-Cure Link** makes this adhesive system versatile, providing the ability to bond self-cured materials such as composite cores. The low film thickness does not interfere with the seating of indirect restorations. The lack of post-operative sensitivity was rated as excellent. Eighty-six percent of consultants rated **Prelude** equivalent to or better than their current bonding system. Seventy-five percent stated they would switch to **Prelude** and 83% would recommend it. ■

Liberator + + + + ½

Miltex, Inc.
866.854.8300 • 717.840.9335
www.miltex.com

Description

Liberator is a rotary, nickel-titanium endodontic file system indicated for coronal and apical shaping. The files can be used in a handpiece with or without torque control at a speed of 1500-2000 rpm. Files are triangular in cross section and have a straight flute design. **Liberator** files are available in a variety of sizes and lengths. The instruments evaluated were the Roane Gates Glidden (RGG) #1, 2, 3, and 25-mm files in the following sizes: #15-80/0.2 taper, #15-40/0.4 taper and #15-40/0.6 taper. Files are color coded and labeled with size and taper. Graduation marks in 1-mm increments and rubber stops allow for measurement of canal length. The non-cutting Roane Tip is designed to minimize ledging

Consultants' Comments

- ▶ *"Use with an electric torque-controlled handpiece for the best results."*
- ▶ *"I prefer a more aggressive cutting file."*
- ▶ *"I did not like the loss of tactile sensation."*

and transportation, while helping center the file in the canal. The files should be advanced slowly using sufficient apical pressure while irrigating between each file. **Liberator** was evaluated by 16 consultants over a three-month period. This product received an 81% clinical rating.

Suggested Retail Cost
• \$39.95/package of six files

HurriSept® Antiseptic Hand Gel + + + + ½

Beutlich Pharmaceuticals
800.238.8542 • 847.473.1100
www.beutlich.com

Description

HurriSept Antiseptic Hand Gel is a waterless hand wash intended for use by health-care personnel. It contains ethyl alcohol plus aloe vera moisturizer gel and meets CDC, OSHA and APIC guidelines. **HurriSept** is an appropriate hand hygiene agent for use before and after direct contact with patients, with or without glove use, and when in contact with patient equipment and materials or personal protective items. **HurriSept** is packaged in a plastic bottle with a pump dispenser and has a berry scent. Thirty-four consultants and their staffs evaluated **HurriSept** over a three-month period. This product received a 92% clinical rating.

Suggested Retail Cost
• \$16.00/16-oz bottle

Product Features

The ease of use and fast drying characteristics of **HurriSept** were rated highly. Sixty percent of consultants approved of the fruity scent, while 40% found the scent to be too strong. Similarly, some liked the fast drying time of **HurriSept**, while others thought it was too slow. Some consultants



Consultants' Comments

- ▶ *"This is an excellent product."*
- ▶ *"A small amount goes a long way."*
- ▶ *"Press the pump lightly to express the gel."*
- ▶ *"I think that the scent should be more neutral."*
- ▶ *"I felt a residue on my hands after use."*

found that the powder inside some latex gloves tended to "ball up" when **HurriSept** was used. The lack of stickiness and the good moisturizing effect on skin were reported as positive features. Ninety-two percent of consultants rated **HurriSept** as equivalent to or better than their usual antiseptic hand hygiene agent. Sixty-four percent of consultants would purchase **HurriSept** and 65% would recommend it to other offices.

Clinical Tips

- If hands are visibly soiled, scrub with soap and water.
- Allow **HurriSept** to dry before donning gloves. ■

Editors' Note: **HurriSept Antiseptic Hand Gel** will soon be available in a 4-oz bottle.

Product Features

The **Liberator** system provides all of the necessary instruments to prepare the canals for obturation. The labeled ISO tips and tapers are easily identified and help in streaming the sequence of the filing system according to the size and shape of the canal. The flexible files seem to work best with an electric handpiece system. Consultants found the files cut efficiently and removed debris effectively. They observed that the tactile sensation while using **Liberator** was less than that of other rotary systems. The loss of sensation prevented several consultants from using the files in curved canals. There were no problems noted with the files self-threading and no files broke during treatment. The easy-to-use system is well packaged with a good

selection of file sizes. The 1-mm graduation marks and rubber stops to maintain working length during use are easily visible. Seventy percent of consultants found **Liberator** to be equivalent to or better than their current files. Sixty-three percent of consultants would recommend **Liberator** to a colleague.

Clinical Tips

- Step back apical segment to size 30 with hand files or more flexible rotary instruments.
- On curved canals, hand-file the apical 3-5 mm to ensure patency before introducing the **Liberator**. ■

CLINICAL CONSULTANTS

- L. Feldman, NJ
- J. Fine, NJ
- K. Fischer, IN
- S. Galster, ND
- D. Garber, CA
- N. Garlisi, OH
- L. Gee, OK
- A. Giovanardi, MI
- J. Glick, MI
- B. Goldsmith, NY
- I. Goldstein, NJ
- K. Goodman, MI
- S. Graber, IL
- A. Gray, MI
- D. Griggs, OH
- J. Grover, MI
- B. Gursky, MI
- E. Gutman, NY
- D. Haas, Canada
- H. Hamerink, MI
- S. Harden, GA
- B. Herrmann, CA
- R. Herwig, KS
- M. Hewko, OH
- S. Hoekman, MI
- S. Hondrum, GA
- J. Hoste, MI
- M. Hovel, WI
- S. Hutt, NJ
- P. Indianer, MI
- G. Isaacson, NJ
- S. Isaacson, NJ
- J. Jacobs, NY
- J. Jaghab, MI
- I.F. Jarjoura, MI
- N. Johnson, MN
- T. Jowett, KS
- C. Kamin, OH
- J. Kaminski, MI
- T. Kaminsky, PA
- D. Kaplan, NY
- M. Kastner, OH
- S. Kelly, OH
- D. Keren, NY
- J. Kim, NY
- B. Klym, MI
- J. Kostohryz, TX
- J. Kotapish, OH
- J. Kotnour, WI
- M. Kruscke, MI
- M. LaMarche, WA
- F. Leal, VA
- M. LeVasseur, MI
- S. Lever, MD
- I. Levine, NY
- R. Lezell, MI
- R. Lieder, MI
- M. Livernois, FL
- J. Lockwood, MI
- M. Lodge, MI
- M. Man, NY
- B. Manne, FL
- N. Mansour, MI
- N. Markarian, CA
- D. Marsh, MI
- M. Mason, NY
- R. Mason, NY
- W. Mason, MI
- J. Mayer, OH
- J.R. Meagher, NY
- J. Mikesell, IL
- C. Miller, PA
- S. Miller, NV
- R. Mizrahi, NY
- L. Montes, NY
- D. Montgomery, CA
- P. Moratto, MD
- M. Morin, MI
- S. Munro, WI
- W. Nagy, TX
- J. Nash, MI
- A. Nazarian, MI
- N. Nealis, IL
- J. Neme, MI
- L. Neuberger, ND

AdDent, Inc.
203.778.0200
www.addent.com

Description

Calset is a heating unit designed to warm resin composites, whitening materials and anesthetics before their application. The use of **Calset** reportedly increases the flow of resin composites as much as 68%, making them easier to manipulate. In addition, the increased flowability may improve adaptation to tooth structure, decrease polymerization shrinkage and shorten curing time. **Calset** accepts composite packaged in unit-dose capsules or full-size syringes and is designed for holding a composite gun upright. The product consists of a heating unit, a basic **Calset** unit with compule holder, a dispenser gun tray, power supply, and instructions. An optional anesthetic tray (holds three carpules) is available separately. **Calset** requires about 10 minutes to reach the maximum temperature of 155 °F/68 °C. An LED light flashes to indicate that the heating cycle has begun and remains on once the desired temperature is achieved. The LED color corresponds to the desired temperature (green = 98 °F/37 °C, orange = 130 °F/54 °C, red = 155 °F/68 °C). The temperature can be changed by pushing a button. The unit is conveniently transportable and can be disinfected by wiping. Thirteen consultants used **Calset** in over 200 clinical cases. This product received an 88% clinical rating.

Suggested Retail Cost

- \$369.00 with dispensing gun tray
- \$89.00 optional anesthetic warming tray
- \$79.00 optional bleach warming tray



Consultants' Comments

- ▶ *"Using Calset gave me better margins and polish."*
- ▶ *"Really improves the flow and manipulation of composite."*
- ▶ *"Works well for anterior composites."*
- ▶ *"Extra set-up time is needed."*

Equipment Features

Consultants found the small size and straightforward design of **Calset** to be good. Composite capsules and anesthetic carpules are easy to load. Some consultants would have preferred an even greater capacity for continued use of materials throughout the day. Most consultants were able to load the composite dispensing gun into the dispensing gun tray, which is gun-specific (contact manufacturer for more information). The increase in flowability of uncured composite was found to be beneficial to most consultants, although some found that posterior restorations were more difficult to pack. About half of the consultants noted an improvement in finishing and better polishability. While the ability to warm anesthetic was appreciated by many consultants, it was not reported to be consistently beneficial to patient comfort. Sixty-seven percent of consultants would switch from their current routine to **Calset** and 80% of consultants would recommend **Calset** for use by a colleague. ■

Ivoclar Vivadent, Inc.
800.533.6825 • 716.691.0010
www.ivoclarvivadent.us.com

Description

Systemp.link is a dual-cured, temporary resin cement indicated for the cementation of esthetic provisional restorations. **Systemp.link** is composed of dimethacrylates and fillers and is eugenol-free. The delivery system is a dual-barrel syringe with automatic mixing tip. The working time is 2.5-3.0 minutes. The self-curing time is four minutes. Polymerization is accelerated by light curing for 10 seconds per surface with a high-intensity light (> 1,000 mW/cm²) otherwise, allow 20 seconds per surface. Excess may be removed after a self-curing time of three minutes or immediately following light curing. **Systemp.link** should be refrigerated for extended storage and brought to room temperature before use. Transparent and yellow shades are available. A kit contains two, 6-g syringes of **Systemp.link**, 10 mixing tips, a laminated instruction card, written directions, and an MSDS. Twenty-two consultants evaluated **Systemp.link** over a three-month period, cementing over 300 provisional restorations. This product received an 88% clinical rating.

Suggested Retail Cost

- \$75.00/refill



Consultants' Comments

- ▶ *"Excellent dispensing."*
- ▶ *"Excess is easy to remove after a flash cure of the margins."*
- ▶ *"On occasions, I noticed a black stain on the tooth at the margin of the provisional restoration."*
- ▶ *"Reduce the self-cured set time."*

Product Features

The dual-barrel syringe and automatic mixing and dispensing of **Systemp.link** received excellent ratings for packaging, ease of use and convenience. The viscosity of the material is ideal, allowing easy placement into the provisional and easy seating. The working time is more than sufficient for multiple units. Consultants appreciated the option for light curing, because the self-cured set time was longer than they preferred. After the margins are cured, excess cement is easy to remove. Excess cement

removed before setting is best achieved with a small brush. Most consultants reported retention and sensitivity equal to that of their current temporary cement. A few occurrences of marginal leakage, evidenced by a black film on the tooth beyond the margin, were noted upon removal of the provisional restorations. A weak peroxide solution effectively removed the stain. No patients reported an adverse taste or odor associated with the material. Eighty-eight percent of consultants reported **Systemp.link** as equivalent to or better than their current temporary cement. Sixty percent would switch and 82% would recommend it to a colleague. ■

The editors and staff of **THE DENTAL ADVISOR** are pleased to introduce a new publication, **THE DENTAL ADVISOR Research Report**. This report will provide dental manufacturers with rapid publication of exciting, objective research on dental products.

Research projects completed at **THE DENTAL ADVISOR Biomaterials Research Center** or at universities will be considered for publication in **THE DENTAL ADVISOR Research**

Report. The report will contain the following information: purpose, materials and methods, results with data in a table or bar graph, and conclusions. **THE DENTAL ADVISOR Research Report** will be made available to manufacturers as reprints in hard copy or electronic form and published on our website. You can view **THE DENTAL ADVISOR Research Report** at www.dentaladvisor.com.

To request further information or to discuss your research project, please contact Dr. John M. Powers at: jpowers@dentaladvisor.com.



CLINICAL CONSULTANTS

- C.J. Noe, MD
E. Odenweller, OH
R. Oshrain, NY
J. Paris, TX
D. Parris, GA
D. Parsons, NY
M. Patel, MI
T. Paumier, OH
L. Perratto, NY
S. Picazio, NJ
T. Pieper, WY
D. Pietz, NC
W. Piskorowski, MI
D. Pitak, MI
S. Pomerance, MI
D. Powers, MI
L. Pozarny, NY
C. Price, TX
D. Qualliotine, NC
G. Raichelson, Canada
S. Ratner, NY
R. Reichl, NC
G. Reskakis, NY
C. Rice, MA
J. Riggs, MI
R. Ritter, FL
J. Robison, MI
M. Rogers, PA
W. Roper, TX
F. Ross, WI
K. Ross, MI
K. Rowan, MO
R. Sambuchi, MI
A. Sandak-Albright, NY
P. Sandvick, WI
D. Schimmel, PA
G. Schultz, PA
J. Sedlock, WI
R. Shah, MI
M. Shapiro, MI
J. Shea, MO
J. Sinkwitts, MI
T. Slade, MI
R. Smith, NY
S. Smith, FL
M. Sonne, MI
J. Spingarn, FL
D. Stutman, NY
K. Swearingen, OH
M. Sylvester, CA
P. Symeonides, NY
J. Tabash, MO
H. Tetelman, OH
F. Tom, MA
R. Tonelli, WI
G. Trompeter, MI
C. Trubschenck, CA
P. Tu, CA
S. Ura, NH
J. Utess, MI
H. Vann, MS
J. Van Tiem, MI
W. Walcott, MI
L. Walsh, MI
M. Waranowicz, MI
M. Warshanna, MD
R. Wilkie, MI
S. Williams, MO
R.G. Willis, SC
K. Wilson, MI
R. Wolf, IN
F. Wood, PA
H. Yeung, CA
D. Young, MI
S. Young, NY
M. Zahn, MI
P. Zanetti, MI
G. Zann, FL
S. Zimmer, MI

LABORATORY CONSULTANTS

- Alpha Dental Studio, MI
Nellmar Laboratory, LLC, MI

Ivoclar Vivadent, Inc.
800.533.6825 • 716.691.0010
www.ivoclarvivadent.us.com

Description

MultiCore is a dual-cured composite core material indicated for tooth build-up or luting of prefabricated posts. The core material is radiopaque, contains fluoride and is available in three shades: light (A1/B1), medium (A2/A3) and blue. Two viscosities are available in separate kits: **MultiCore Flow** in a dual-barrel cartridge with auto-mix tips and **MultiCore HB** (heavy body) in base and catalyst syringes for hand mixing. Before restoring the tooth with **MultiCore**, the tooth must be treated with either etchant and dual-cured bonding agent (**Excite DSC**) or a self-etching bonding system (**AdheSE**). The working time of both **MultiCore Flow** and **MultiCore HB** is 90-120 seconds. When used as a core build-up, both materials can be light cured in 40 seconds. Sixty seconds are required to light cure **MultiCore Flow** when used to lute posts. The **MultiCore HB** Intro Pack contains two, 4-g syringes each of base and catalyst, 2.5 g each of **AdheSE** Primer and Bond plus accessories. **MultiCore Flow** Intro Pack contains one, 50-g cartridge **MultiCore Flow** with dispenser, 2.5 g each of **AdheSE** Primer and Bond plus accessories. **MultiCore** was used by 24 consultants in over 350 post and core procedures. This product received a 94% clinical rating.

Suggested Retail Cost

- \$205.00/**MultiCore HB** Intro Pack
- \$350.00/**MultiCore Flow** Intro Pack

Product Features

The technique guides for use of **MultiCore Flow** and **MultiCore HB** as a core build-up and luting agent for posts are well illustrated with clear descriptions of



Consultants' Comments

- ▶ "MultiCore Flow is easy to dispense and has excellent viscosity."
- ▶ "The dual-cured feature is ideal for cementing posts and filling deep preparations and can be light cured for use in large, difficult-to-control restorations."
- ▶ "MultiCore HB must be thoroughly mixed to prevent streaks of base and catalyst."
- ▶ "Provide the product in a secure plastic carrying case to keep all materials together."

curing times and treatment of the tooth before placement of the core material. The kits provide all materials needed to complete a restoration. The dual-cured feature provides excellent working and setting times and ensures proper setting for use in post space and bulk-fill restorations. The shades provided are adequate for all restorations. The auto-mix dispensing system of **MultiCore Flow** is easy to operate with excellent viscosity and controlled flow. **MultiCore HB** requires hand mixing, which some consultants found more difficult; however, as the material is manipulated it becomes less viscous. Minimal bubbles and voids are experienced with **MultiCore** and both viscosities adapt well to the walls and crevices of the preparation. Consultants reported ease of temporary cement removal equivalent to that of other core materials. During the six-month evaluation, no restorations placed using **AdheSE** with **MultiCore** debonded. Eighty-three percent of consultants reported **MultiCore** was equivalent to or better than their current core material. Seventy-one percent would switch to **MultiCore** and 79% would recommend it.

Clinical Tips

- If the core material is not light cured, allow 4-5 minutes for self curing.
- When using **MultiCore Flow** to lute a post, utilize etchant and a dual-cured bonding agent.
- Mix **MultiCore HB** on a pad and place it directly in the tooth with a plastic instrument or condenser. ■

Editors' Note: **MultiCore** is marketed in the United States with **Excite DSC**. For more information on **Excite DSC**, please refer to *THE DENTAL ADVISOR*, Volume 22-7, September 2005, page 12.

Chicago Midwinter Meeting February 24-26, 2006

THE DENTAL ADVISOR invites you to join us at the Chicago Dental Society's 141st Midwinter Meeting, February 24-26, 2006. Visit us in booth #1415 and take advantage of our show discount to renew your subscription at 30% off the regular price. Speak directly to our knowledgeable staff about our 2005 Preferred Product List; upcoming features; new products; and upcoming seminars, lectures and meetings. Also, learn about our new state-of-the-art facility that includes THE DENTAL ADVISOR Biomaterials Research Center, led by John M. Powers, Ph.D.; THE DENTAL ADVISOR Education Center; and new administrative offices. Our growth will increase our ability to combine results from clinical and laboratory research in order to better educate dental professionals. We are looking forward to seeing you!