

THE DENTAL ADVISORTM

"Improved Patient Care Through Research"



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

20-YEAR REPORT

Laboratory Composites

Laboratory composites have been used in dentistry for over 20 years. THE DENTAL ADVISOR started placing and monitoring laboratory composites in the mid 1980s.

The motivation for using laboratory composites arose primarily because of the desire to minimize polymerization shrinkage and eliminate technique sensitivity during placement. Laboratory composites are polymerized by various combinations of light, heat, vacuum and pressure. Special curing lights are sometimes required for maximum polymerization. Bench-top polymerization of laboratory composites results in a 10-20% improvement in mechanical properties. Laboratory composites can be used for inlays/onlays, crowns, veneers and some 3-unit bridges. Three-unit bridges are reinforced with polyethylene or glass fibers. Laboratory composites were last reviewed in THE DENTAL ADVISOR, Vol. 20, No. 3, April 2003.

This issue of THE DENTAL ADVISOR presents clinical and follow-up data on 605 laboratory composite restorations that were placed and monitored over a 20-year period. Emphasis is placed on the newer composites of the last 10 years.

2005

Vol. 22, No. 3
April

20-YEAR REPORT
LABORATORY COMPOSITES 2

EDITORS' EVALUATION

G-BOND 12
(Bonding agent)

CLINICAL EVALUATIONS

SENSITIVITY STUDY

Clearfil PROTECT BOND 6
(Bonding agent)

GripLite 8
(Instruments)

SafeTouch Non-Latex (PVC)
Examination Gloves 8

FibreFill Continuous
Taper Obturator 9

Allegro LED light 10
(LED curing light)

A-dec Intraoral Camera 10

XP Technology Instruments 11

EDITORS' CHOICE

G-BOND 12
(Bonding agent)

WHAT'S NEW?

Elements Obturation Unit 7

EDITORIAL

Ask the Editor 5

Senior Clinical Consultant Profile
Keith L. Schwartz, D.M.D. 6

Lecture Schedule 12

Ratings

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

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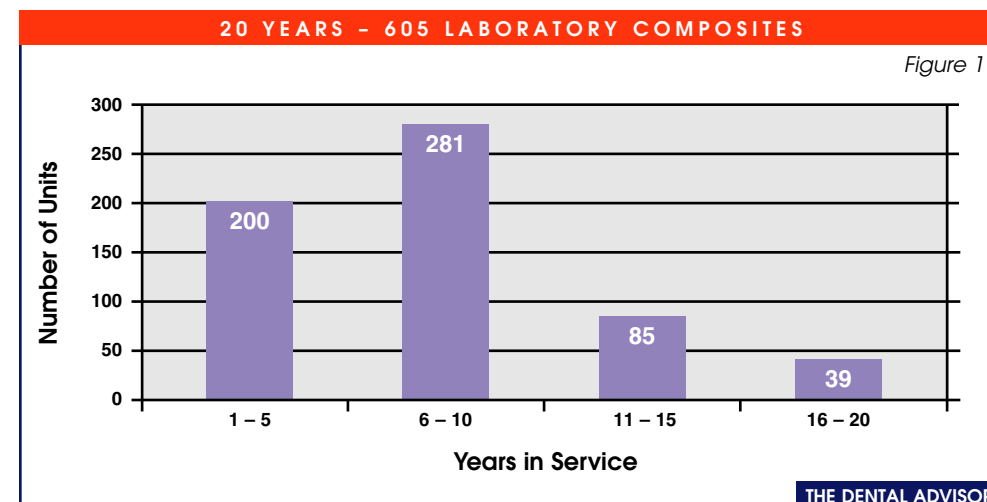
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Laboratory Composites

20-YEAR REPORT

THE DENTAL ADVISOR began placing and monitoring laboratory composites in the mid-1980s. Over the last 20 years, 605 laboratory composites have been placed (**Figure 1**); the distribution of restorations is shown in **Figure 2**.



Placed in 1980s

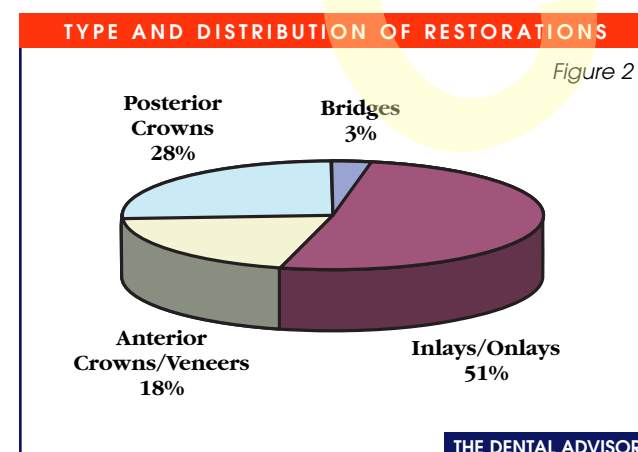
- **Concept**/Ivoclar Vivadent (now available as **Concept HP**)
- **Dentacolor**/Heraeus Kulzer (discontinued)
- **Visiogem**/3M ESPE (discontinued)

Placed in 1990s

- **Artglass**/Heraeus Kulzer
- **belleGlass HP**/SDS/Kerr
- **Sculpture**/Pentron Laboratory Technologies
- **Sinfony**/3M ESPE
- **Targis/Targis 99**/Ivoclar Vivadent (discontinued)

Placed in 2000s

- **Sculpture Plus**/Pentron Laboratory Technologies
- **Sinfony**/3M ESPE
- **TESCERA ATL**/Bisco



Indications

- Inlays/onlays
- Veneers
- Anterior crowns
- Anterior 3-unit bridges
- Select posterior crowns

Clinical Evaluation Protocol

- Restorations were evaluated at placement as well as at one-year intervals.
- Each of these categories is rated on a scale of 1-5 as follows: 1 = poor, 2 = fair, 3 = good, 4 = very good, 5 = excellent.

Categories evaluated at placement

- Laboratory product
- Shade match
- Vitality
- Fit of restoration

Categories evaluated at recall

- Fracture/chipping
- Shade match
- Vitality
- Marginal discoloration/microleakage
- Wear resistance

Resin Cements Most Often Used	
Resin Cements	Percentage of Use
Lute-III /Pentron Clinical Technologies	33%
3M ESPE RelyX Unicem /3M ESPE	21%
Variolink & Variolink II /Ivoclar Vivadent	15%
Panavia 21 & Panavia F /Kuraray America	13%
Choice /Bisco	9%
Nexus /SDS/Kerr	5%
Calibra /DENTSPLY Caulk	4%

Comparing Laboratory Composites

Product	Company	Active Units	Recalled Units	Years in Service	Fracture % Crowns, Inlays/Onlays
Artglass	Heraeus Kulzer	56	31	8	3.8%
belleGlass HP	SDS/Kerr	29	14	9	0.0%
Concept	Ivoclar Vivadent	39	20	17	5.3%
Sculpture	Pentron Laboratory Technologies	138	104	8	1.0%
Sculpture Plus	Pentron Laboratory Technologies	80	62	1	0.0%
Sinfony	3M ESPE	140	86	6	2.1%
Targis/Targis 99	Ivoclar Vivadent	63	42	8	4.1%
TESCERA ATL	Bisco	60	57	2	0.0%

Areas of Interest

Fracture/chipping

Fracture rates for crowns, inlays and onlays have been low, ranging from 0.4% at one year to 3.6% at 10 years. Failure rates at 20 years were almost double those at 10 years (7.0%). In general, fracture rates increase with time. This may be due to fatigue.

	Failure Rates		
	1 year	5 years	10 years
Fracture/chipping	0.4%	2.1%	3.6%
Marginal discoloration/microleakage	2.8%	5.3%	12.0%
Debonding	2.0%	6.0%	12.5%

Fracture rates of posterior bridges were very high. None of the 3-unit posterior bridges remained clinically viable at 10 years. Posterior 3-unit bridges, regardless of which reinforcement is used, are not recommended. However, 3-unit anterior bridges experienced no failures.

Shade match and vitality

The initial shade match was very good for the majority of cases. The vitality was excellent as well. After seven to 10 years, the restorations tended to become more opaque and lose vitality, presumably due to water sorption; however, very few of these restorations required replacement at 10 years.

Marginal discoloration/microleakage

Approximately 12% of restorations, mainly crowns, exhibited some degree of microleakage at the margin. This leakage may be related to the debonding rate of 12.5%. Presumably, many of the restorations with microleakage eventually debond. Compared to ceramic restorations, where debonding was found to be 2.5%, laboratory composites debonded at a rate that was five times higher.

continued on page 4



Sculpture Plus
(Pentron Laboratory Technologies)

20-YEAR REPORT

Wear resistance

Laboratory composites exhibited little clinically-evident wear at or near 10 years of service. On average, the restorations exhibited 1.5 µm of occlusal wear. Very few of the restorations required replacement because of excessive wear, regardless of which material was used. Excessive wear was evident in only a handful of cases when the patients were heavy bruxers. More noticeable breakdown, including chipping, crazing and surface deterioration, was evident at 12-15 years of service.

Debonding

The debonding rate of crowns from the preparation was 12.5% at 10 years. Debonding did not appear to be dependent upon the brand of cement used and ranged from 8% for *Sculpture* to 13.2% for *Artglass*.

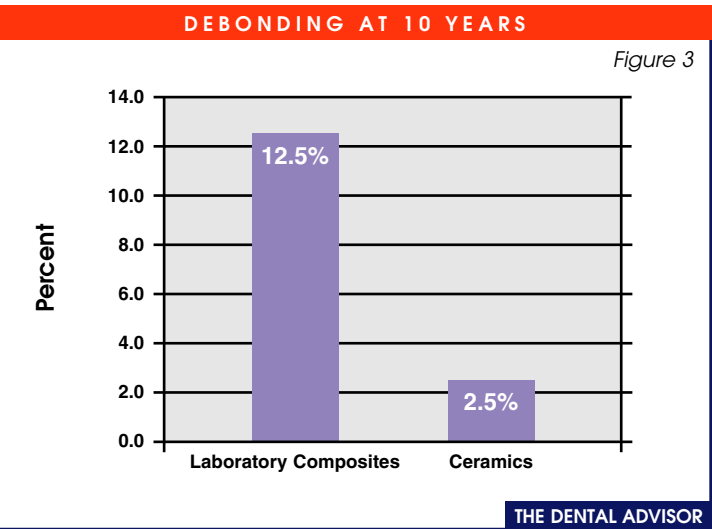
Laboratory composite crowns debonded at a rate five times greater than ceramic crowns (Figure 3). The debonding rate of inlays is less than 1%.

Reasons for Debonding

- Lower rigidity of laboratory composite crowns, when compared to ceramic crowns or ceramic-metal crowns, leads to flexure and high stress at the cement/composite/tooth interface resulting in eventual debonding.
- Since laboratory composites are more completely cured, there is less unpolymerized composite available to achieve a strong bond to the resin cement/crown interface.
- Improper bonding to the tooth results in microleakage and subsequent debonding.

How do new laboratory composites compare to older ones?

- Improvements have taken place in the last 5-10 years. Among these are:
- Smaller filler particles and higher filler load result in better properties and less wear.
 - Newer materials wear less than their older counterparts. For example, *Sculpture Plus* and *belleGlass HP* wear at about 1-1.5 µm/year compared to 3-4 µm/year for materials of 15 years ago like *Dentacolor* or *Visiogem*.
 - Recent products retain their polish longer and are less subject to surface crazing.
 - Decreased water sorption results in less discoloration and staining and better esthetics.
 - Bench-top curing results in no in-vivo shrinkage, which practically eliminates post-operative sensitivity.



Summary

- The fracture rate of laboratory composites was 3.6% at 10 years and was similar to all-ceramic restorations and ceramic-metal restorations.
- Microleakage at the margin was four times higher than that of ceramic restorations.
- Debonding of laboratory composites was five times higher than that of all-ceramic restorations.
- Laboratory composites are recommended for inlays, onlays and anterior crowns. They are not recommended for posterior bridges or inlay bridges.
- Posterior crowns can be used selectively. ■

How do laboratory composites compare to ceramics?

- Since laboratory composites are less rigid, the potential for fracture is less than ceramics. The fracture/chipping rate of laboratory composites for inlays and onlays is slightly below that of ceramics at 10 years, 2.8% for laboratory composites and 3.1% for ceramics.
- Laboratory composites are more giving than ceramics and will result in less wear on the opposing dentition.
- New polymers such as *Sculpture Plus* and *belleGlass HP* are excellent for restoring implants due to their shock-absorbing potential.
- Geriatric patients often appreciated the “feel” of laboratory composites. Comments like “it is great,” and “it feels softer for biting” were not unusual.

Ask the Editor: John M. Powers, Ph.D.



Q Dr. Powers, are the bond strengths of 6th- and 7th-generation bonding agents comparable to those of 4th- and 5th-generation bonding agents?

A Yes, current bonding agents, when used correctly, bond well to cut enamel and superficial dentin.

Examples of Bonding Agents

4th-generation (Etch + Primer + Adhesive)

- *All-Bond II*/Bisco
- *3M ESPE Adper Scotchbond Multi-Purpose Plus Adhesive System*/3M ESPE

5th-generation (Etch + Primer/Adhesive)

- *3M ESPE Adper Single Bond Plus*/3M ESPE
- *Prime & Bond NT*/DENTSPLY Caulk

6th-generation – Type I (Self-etching Primer and Adhesive)

- *AdheSE*/Ivoclar Vivadent
- *Clearfil PROTECT BOND*/Kuraray America
- *Contax*/Zenith Dental/DMG
- *ONE-STEP PLUS with TYRIAN SPE*/Bisco
- *OptiBond SOLO Plus Self-etch Adhesive System*/SDS/Kerr

6th-generation – Type II (Self-etching Adhesive)

- *3M ESPE Adper Prompt L-Pop*/3M ESPE
- *One-Up Bond F Plus*/Tokuyama Dental Corp./J. Morita USA
- *Tenure Uni-Bond with Gloss-n-Seal*/Den-Mat
- *Xeno III*/DENTSPLY Caulk

7th-generation (No Mix, Self-etching Adhesive)

- *Clearfil S³ Bond*/Kuraray America
- *G-BOND*/GC America
- *iBOND*/Heraeus Kulzer
- *Xeno IV*/DENTSPLY Caulk ■



Xeno IV
(DENTSPLY Caulk)



Tenure Uni-Bond with Gloss-n-Seal
(Den-Mat)



3M ESPE Adper Prompt L-Pop
(3M ESPE)



Clearfil S³ Bond
(Kuraray America)



G-BOND
(GC America)



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

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www.kuraraydental.com

Description

Clearfil PROTECT BOND is a self-etching, light-cured adhesive bonding system with the same physical properties and proprietary technology as **Clearfil SE Bond**. **Clearfil PROTECT BOND** offers two additional features: long-term fluoride release and the MDPB monomer with an antibacterial cavity cleansing effect. The introductory kit includes 6 ml of primer, 5 ml of bond, an outer case, and various accessories.

Suggested Retail Cost

- \$185.00/introductory kit

Purpose

A clinical evaluation of **Clearfil PROTECT BOND** was conducted to determine the level of post-operative sensitivity when used in direct and indirect restorative procedures.

Evaluation Protocol

Direct Restorations

- Seventy-eight teeth were treated with direct composite restorations using **Clearfil PROTECT BOND** as the bonding agent.
- Patients were called three days after the placement of the restoration to determine the level of sensitivity.
- The level of sensitivity was rated on a scale of 1-5.

Indirect Restorations

- Ninety teeth were prepared for crowns, inlays or onlays. **Clearfil PROTECT BOND** was applied to the

SENSITIVITY STUDY



Sensitivity Ratings

- ▶ **5 = excellent – no sensitivity**
- ▶ **4 = very good – slight sensitivity**
- ▶ **3 = good – mild sensitivity**
- ▶ **2 = fair – moderate sensitivity**
- ▶ **1 = poor – severe sensitivity**

preparation before taking the final impression. The teeth were then temporized with a provisional restoration and provisional cement.

- The patients were contacted by phone three days after the placement of the provisional restoration to determine the level of sensitivity.
- During cementation of the permanent restoration, the level of sensitivity was re-assessed, and the need for anesthetic during cementation was noted.
- The level of sensitivity was rated on a scale of 1-5.

Results

Direct Restorations

- Seventy-eight composite restorations were placed in 43 patients. These consisted of 18 one-surface, 36 two-surface and 24 three-surface restorations.
- Three days after placement 30 out of 43 patients (70%) reported no sensitivity, while 13 out of 43 patients (30%) reported slight or intermittent sensitivity. None of the restorations exhibited prolonged sensitivity.

Indirect Restorations

- Ninety teeth in 75 patients were restored with a variety of inlays, onlays, crowns, and bridges. The teeth were prepared, coated with **Clearfil PROTECT BOND** and then temporized. Each patient was called three days after the procedure to determine the level of sensitivity or lack thereof. After three days, 68 of the 75 patients (91%) experienced none to mild sensitivity (**Table 1**). At permanent cementation, 95% of patients continued to report none to mild sensitivity.
- **Table 2** reports the number of patients requesting anesthesia and those who did not, along with the level of sensitivity at the time of permanent cementation. Significantly, 50 out of 75 patients did not request anesthesia at permanent cementation. Of the 25 patients requesting anesthesia before cementation, 80% reported none to mild sensitivity during temporization.

Table 1

Level of sensitivity	None (5)	Slight (4)	Mild (3)	Moderate (2)	Severe (1)
Patients with sensitivity at three days	50	13	5	3	4
Patients with sensitivity at cementation	40	16	15	4	0

Table 2

Level of sensitivity	None (5)	Slight (4)	Mild (3)	Moderate (2)	Severe (1)
Patients with anesthesia	4	6	10	4	1
Patients without anesthesia	36	10	4	0	0

Conclusions

- When **Clearfil PROTECT BOND** was used in the placement of direct restorations, 100% of patients reported none to mild or intermittent sensitivity after three days. No restorations were replaced due to prolonged discomfort.
- When **Clearfil PROTECT BOND** was applied to a tooth after preparation for an indirect restoration, post-operative sensitivity was absent or mild in 91% of patients after three days and 95% at permanent cementation. While 25 patients (33%) requested anesthesia before cementation, 20 of these individuals (80%) reported none to mild sensitivity at that time.
- In summary the use of **Clearfil PROTECT BOND** was characterized by none to mild sensitivity in both direct and indirect restorations. ■

SENIOR CLINICAL CONSULTANT PROFILE

Keith L. Schwartz, D.M.D.

Keith L. Schwartz, D.M.D., graduated from Boston University School of Graduate Dentistry in 1988. He then attended a GPR program at Kings County Hospital until mid 1989. After completing the GPR program, Dr. Schwartz practiced privately for five years as an associate in New York and Florida before settling in his own practice in Coconut Creek, FL. In 1997 he earned his Fellowship in the AGD and continues to work toward a Mastership. Dr. Schwartz has also completed LVI Graduate programs in anterior esthetics and occlusion 1. He and his wife, Toni, have three lovely children, Matthew, Evan and Lauren. In his spare time he enjoys playing with his children, photography, martial arts and radio-controlled race cars. ■



What's New?

SybronEndo (800.346.3636) has introduced the **Elements Obturation Unit** combining the **System B** heat source with a motor-driven extruder handpiece for backfilling. The multifunctional unit is portable and requires little counter space. The front panel includes function buttons and a graphical display for each handpiece. With the touch of a button, the extruder delivers warm gutta percha or **RealSeal**, synthetic gutta percha, from disposable cartridges. The **System B** handpiece accepts tips for downpacking, hot pulp testing and heat cauterization. Look for the results of a clinical evaluation in an upcoming issue of THE DENTAL ADVISOR. ■



CLINICAL CONSULTANTS

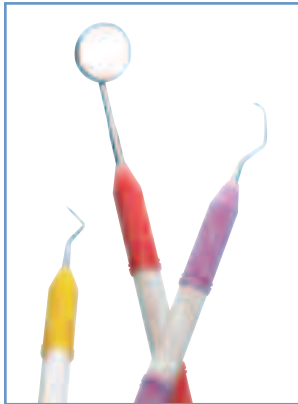
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Description

GripLite hand instruments include scalers, universal curettes, curettes, and dental mouth mirror handles. The instruments have lightweight, ergonomic, roll-resistant, resin handles with soft grips. Instrument families have handles that are color-coded. Twelve different color-coded rings can be used for personal identification of the instruments and



Consultants' Comments

- ▶ *"The blades hold an edge."*
- ▶ *"They are lightweight."*
- ▶ *"I like the color coding."*
- ▶ *"The sickle blade is thicker than my current instrument."*

further integrated with Thompson instrument cassettes for storage, organization, protection and sterilization. While an extensive variety of instruments is available, those included in the evaluation were the H6/7 Sickle, 13/14 Columbia, 11/12 Gracey, and the mirror handle. Thirty-one consultants evaluated the **GripLite** hand instruments over a five-month period.

Suggested Retail Cost

- \$24.98 each

Product Features

Consultants found **GripLite** instruments lightweight, easy to grip, and balanced. While some consultants prefer a heavier instrument, all found **GripLite** tactile grips comfortable during use. The ergonomic handles were reported to reduce hand fatigue. Eight-five percent of the consultants appreciated the performance of the scalers and curettes after repeated sterilization. The handles maintained their color after 25-30 sterilization cycles. Seventy-two percent of the consultants would recommend the instruments; fifty-three percent would switch instruments. ■

SafeTouch Non-Latex (PVC) Examination Gloves + + + + 1/2

MEDICOM, Inc.
800.361.2862 • 514.636.6262
www.medicom.com

Description

SafeTouch Non-Latex (PVC) Examination Gloves are powder-free polyvinyl chloride (PVC) alternatives to latex gloves. They are available in a pale yellow color in four sizes: small, medium, large and X-large. The ambidextrous



Consultants' Comments

- ▶ *"A very nice non-latex glove."*
- ▶ *"The surface is not slippery."*
- ▶ *"This glove fits my fingers very well."*
- ▶ *"Make this non-latex glove a different color than latex gloves for easy identification by staff and latex-sensitive patients."*
- ▶ *"The cuff is sort of baggy – I'd like it tighter."*

glove has a cuff with a rolled edge long enough to cover one's wrist. They are packaged 100 gloves to a box. Thirteen consultants and staff members evaluated **SafeTouch Non-Latex (PVC) Examination Gloves** over a three-month period.

Suggested Retail Cost

- \$4.15-4.90/box of 100 gloves

Product Features

SafeTouch Non-Latex (PVC) Examination Gloves are easy to remove from the box. The gloves are easy to put on and take off and do not discolor during use. Consultants liked the thickness of the gloves because they did not tear easily, but some commented that the tactile sense was decreased. The sizing was rated fair - some found the cuff too loose and the fingers too short. The gloves are comfortable to wear for extended periods of time. Ninety percent of consultants would recommend as well as switch to **SafeTouch Non-Latex (PVC) Examination Gloves**. ■

FibreFill™ Continuous Taper Obturator + + + +

Pentron Clinical Technologies, LLC
800.551.0283 • 203.265.7397
www.pentron.com

Description

FibreFill Continuous Taper Obturator with Resilon™ is an endodontic obturating system that fills and seals the canal while providing a resin/fiber bonded pin to aid in core retention. Each continuously-tapering obturator consists of a glass fiber post tipped with 10 mm of **Resilon**, a synthetic, polymer-based root canal filling material that handles like gutta percha, yet is bondable to dentin. Kits are available to correspond to either .02- or .04-taper canal preparation. Obturators are available in sizes 30 (available in .04 taper only), 40, 50 and 60, and are color-coded by size. Canal access and shaping may be accomplished by the dentist's standard technique. Complete illustrated instructions are included. This **FibreFill** kit contains 12 obturators, **Epiphany™** sealer, primer and accessories. **Epiphany** is a resin-based, dual-cured, calcium hydroxide-containing sealer that bonds the post to the root. Light activation for 40 seconds cures the sealer to a depth of 2 mm, allowing immediate core placement; self-curing of deeper areas occurs in about 25 minutes. The sealer is supplied in a 4-ml dual-barrel, automix syringe. Eight consultants evaluated **FibreFill** for endodontic treatment of 40 teeth.

Suggested Retail Cost

- \$139.95/kit



Consultants' Comments

- ▶ *"Increases the efficiency of root canal and post procedures."*
- ▶ *"I can use this with my current canal preparation technique."*
- ▶ *"Sealer flows well in the canal."*
- ▶ *"Color coding is helpful in identifying sizes."*
- ▶ *"The instructions recommend irrigation with EDTA, which is not included."*
- ▶ *"Supply larger sizes of obturators for anterior teeth."*

Product Features

As with many new techniques, consultants found that some time and practice were necessary to become comfortable with the **FibreFill** system. The illustrated instructions were rated excellent for explaining the procedure. The obturator itself is very easy to use, limited only by canals that are curved in the midroot and cannot receive the rigid post. The fit of the obturator into the canal is very good with appropriate apical length and lateral adaptation. Radiographic appearance was rated very good with excellent radiopacity. Consultants and assistants appreciated the automix sealer. Working time was adequate and viscosity was rated very good. With proper case selection, use of the **FibreFill** system saves time by combining two procedures into one. Overall, 100% of consultants found **FibreFill** to be equivalent to or better than their current technique and 75% would recommend it.

Clinical Tips

- Sodium hypochlorite and peroxide-containing lubricants may diminish the bond of the primer. If either is used during the procedure, subsequently irrigate the canals with EDTA and sterile water.
- Leave the obturator posts extended from the canals to aid in core retention.
- Use the enclosed thinning resin to modify the viscosity of the cement if desired.
- Insert the obturator slowly to permit excess sealer to be expressed coronally. ■

CLINICAL CONSULTANTS

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
J. Neme, MI
L. Neuberger, ND
C.J. Noe, MD
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R. Oshrain, NY
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M. Patel, MI
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S. Picazio, NJ
T. Pieper, WY
D. Pietz, NC
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D. Pitak, MI
M. Pitzen, WA
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

“Best of 2004
Preferred Product”

Allegro LED Light + + + + ½

Den-Mat Corp.
800.445.0345 • 805.922.8491
www.denmat.com

Description

Allegro LED Light is a cordless LED light curing unit that is fan-cooled. Light output ranges from 415-490 nm, activating both camphorquinone (CQ) and PPD-based photo-initiators. An audible digital count-down timer with a 10-second default setting indicates curing times in 5-, 10-, 15-, and 20-second increments. The autoclavable black glass tip tapers to 8 mm in diameter and focuses the light 2 mm from the tip for increased light intensity at the tooth surface. Charged batteries can provide over 300, 10-second cures. The battery-charging bay and integrated light meter are located in the base. A display on the base indicates the battery charge status and automatically changes to the digital light-meter mode when light is shined into the sensor. A color changing indictor on the self-standing handpiece indicates the battery charge status. The unit includes the charger base plus two batteries, 200 curing test rings and two pairs of safety glasses. Ten consultants evaluated the **Allegro LED Light** over a six-month period.

Suggested Retail Cost
• \$995.00



Consultants' Comments

- ▶ “The unit is easy to use with a clear display.”
- ▶ “It is ergonomic.”
- ▶ “Good portability.”
- ▶ “The bandpiece is stable.”
- ▶ “The charger is easy to load.”
- ▶ “The built-in radiometer is convenient.”
- ▶ “Heavy but well-balanced.”
- ▶ “The unit is bulky.”

Equipment Features

Allegro LED Light successfully cured all materials tested. Curing times and the battery charge status are easily viewed on the handpiece display. The selected curing times are retained in the unit's memory during the battery saving sleep mode. Battery life was found to be excellent and the ability to charge another battery while using the light was appreciated. The flat battery acts as a foot and allows the unit to stand upright on a counter. The battery placement affects the balance of the handpiece. The light meter provides a convenient check of the light output. Eighty-two percent of the consultants liked the feel and weight of the **Allegro LED Light**. Ninety percent of the consultants recommend the **Allegro LED Light**, while 55% would switch from their current light. ■

A-dec Intraoral Camera + + +

A-dec/W&H
800.547.1883
www.a-dec.com

Description

The **A-dec Intraoral Camera** is available as a tabletop model or one that is fully integrated into an A-dec delivery system. The tabletop model includes a foot control, power supply and docking cradle. The integrated model requires dealer installation. The camera is activated by the system's foot control and docks in a handpiece bracket. The camera is approximately the size of a handpiece and has a titanium exterior. Three preset focal ranges allow switching between close-up, intra-oral and full-arch/face views. A focus-adjustment ring on the camera barrel allows for manual adjustment. A white LED provides the illumination and turns on when the camera is lifted from its cradle. Both real-time and still imaging are possible, as are multiple photos on the same screen, mirror images and slide show. Images may be displayed on an analog TV screen. With the addition of a capture card, images may be displayed digitally and saved

Consultants' Comments

- ▶ “Camera head is thin, allowing easy access to posterior teeth.”
- ▶ “Integrated camera is very handy during treatment.”
- ▶ “Correct pairing of monitor for the camera is critical for good results.”
- ▶ “The A-dec web site is a good place to get product information.”
- ▶ “System does not have a function to remove ‘sbaking’ from image.”
- ▶ “Tabletop unit is bulky.”
- ▶ “I would like to see a crisper image.”

on a computer. The integrated **A-dec Intraoral Camera** with 15” digital monitor and the tabletop camera with analog monitor were both evaluated by consultants over a six-month period.

Suggested Retail Cost
• \$6,250.00

XP Technology Instruments + + + +

American Eagle Instruments, Inc.
800.551.5172 • 406.549.7451
www.am-eagle.com

Description

XP Technology Instruments are curettes uniquely designed to eliminate the need for sharpening. They are treated with a patented process that hardens the stainless steel and then encapsulates the steel with a diamond-like layer. Since the instruments' blades do not require sharpening, extra bulk is not necessary, and the blade is thin to enhance subgingival access. **XP Technology Instruments** are to be used for fine subgingival scaling and root planing. Currently a full line of Gracey curettes is available. The 1/2, 11/12, 13/14 and 15/16 styles were evaluated. All instruments are available with either a 0.95-cm stainless steel or resin handle; both were included in the evaluation. Twenty-seven consultants and hygienists used these instruments in over 300 patient cases during a three-month period.

Suggested Retail Cost
• \$40.45/instrument

Consultants' Comments

- ▶ “Excellent for root planing and scaling.”
- ▶ “Good to have a few available for periodontal set ups.”
- ▶ “Extremely lightweight – enhances tactile sensitivity.”
- ▶ “The thin blade is effective in reaching into deep pockets.”
- ▶ “Hygienists love not having to sharpen these instruments.”

Product Features

XP Technology Instruments are easy to use, and they maintain a very sharp edge. None of the scalers became dull during the evaluation period. Consultants found

the scalers to be very effective for fine subgingival calculus removal and root planing. Both the resin and stainless steel handles are lightweight, and the wide handle diameter is comfortable to grip. Overall, **XP Technology Instruments** were rated very good. Eighty-two percent of consultants would highly recommend these instruments, and 72% would switch to them. ■

Editors' Note: Since our evaluation was conducted, the manufacturer has added Universal curettes to the **XP** line of instruments. A line of **XP** scalers will be introduced in May 2005.

Equipment Features

The **A-dec Intraoral Camera** is lightweight and easily adapts to intra-oral positions. The titanium surface and general appearance blend with other components of the dental unit. The size and shape of the camera are comfortable to use. Focus on the desired subject is easy to achieve, and the LED provides bright illumination. Resulting images on the analog display are fair, while those displayed on the digital monitor contain a significant amount of glare, obscuring the subject of the picture. The foot control provides simple activation of the camera, and the location of the integrated camera is especially convenient. Some challenges with the function of the camera were experienced by consultants. If the camera was lifted from the cradle then replaced without capturing an image, any existing images on the screen were lost. On the integrated model, a slide show display of images would begin arbitrarily. Overall, consultants rated the **A-dec Intraoral Camera** fair compared to other cameras they had used. ■

CDA Spring Session
May 13-15, 2005
THE DENTAL ADVISOR

THE DENTAL ADVISOR invites everyone to visit us at booth #245 at the CDA Spring Session in Anaheim, CA on May 13-15, 2005. We are very excited to be a part of one of the largest dental association meetings in the country. Our knowledgeable staff will be on hand to meet with you, answer your questions and provide up-to-the-minute information on the latest products, equipment, seminars, lectures and meetings. And don't forget to take advantage of the show special of 30% off the regular subscription price. Sign up or renew your subscription and receive a handy tote bag. We look forward to seeing you there!

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Noble Craft Prosthetics, Inc., NY
Oral Arts Dental Laboratory, GA
Ramsey Dental Ceramics, MI
Scullin Dental Laboratory, OH

GC America, Inc.
800.323.7063 • 708.597.0990
www.gcamerica.com

Description

G-BOND™ is a self-etching, light-cured bonding system (7th-generation) that does not include HEMA, but uses water and acetone as its solvents, and includes both the primer and adhesive in one bottle. The material must be shaken vigorously before use and then applied for 10 seconds. Strong air and high-volume suction are utilized to evaporate the solvent and **G-BOND** is then light-cured for 10 seconds. No refrigeration is necessary. **G-BOND** is available in unit dose or a 5-ml bottle. Thirteen editors evaluated **G-BOND** in over 150 restorations during a six-week period. Eighty-eight percent would both purchase and recommend **G-BOND**. Four of the thirteen editors using a 7th-generation adhesive system indicated it was better than their current material.

Suggested Retail Cost

- \$112.50/5-ml bottle
- \$160.00/50 unit dose

Editors' Observations

Manufacturer's instructions

The technique guide is well illustrated, with clear text and complete instructions. The adhesive bonding system is simple and requires a short application time. The need to shake the bottle before use and the use of strong air to thin the material are clearly noted.

Delivery system

The bottle is small and well balanced. The unit-dose vials are easy to open and are short, with a wide diameter opening to allow the brush to be easily reinserted for multiple applications.



EDITORS' EVALUATION

Editors' Comments

- ▶ "Simple system with good bond strength."
- ▶ "Does not require multiple coats."
- ▶ "The short unit dose with the wide opening is perfect. I can easily reinsert my brush."
- ▶ "Strong bond to metal matrix bands."
- ▶ "Material is more difficult to thin than other materials I have used."

Viscosity

The thick viscosity allows controlled dispensing and coats all surfaces; however, it is more difficult to disperse with air.

Ease of thinning the material

After five seconds of vigorous air drying and high volume suction, the solvent appears to have evaporated. While thinning the material requires more effort, the use of high volume suction reduces the spread of material to other surfaces and minimizes the strong odor of the material.

Initial post-operative sensitivity

No sensitivity was reported during the six-week evaluation period. **G-BOND** eliminated sensitivity in several teeth with exposed dentin. ■

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John W. Farah, D.D.S., Ph.D., Editor

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Ms. Wendy Romans at 734.665.2020 or 800.347.1330, wendy@dentalladviser.com

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