

THE DENTAL ADVISORTM

"Improved Patient Care Through Research"



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

In-office Tooth Whitening

The quest for a youthful and attractive smile has created a tremendous interest in esthetic dental procedures that, to a certain extent, has been driven by the patients. Numerous restorative procedures are available to meet the patient's desires including composite or porcelain veneers and all-ceramic crowns. The most conservative treatment to enhance a patient's smile and tooth color is tooth whitening.

Tooth whitening has undergone an increase in popularity in the past 12-15 years, because it is conservative and more importantly for the patient, less costly than most alternatives. The procedure can be done using many different techniques ranging from over-the-counter products to dentist-supervised home whitening and in-office whitening techniques. These techniques have different advantages and disadvantages related to the time needed for treatment, patient compliance, potential sensitivity, and cost. The effectiveness of tooth whitening is similar for all procedures when they are utilized properly.

This issue of THE DENTAL ADVISOR reviews in-office whitening techniques and materials used with and without light activation. Twenty-three in-office whitening products are compared and rated. The whitening of endodontically-treated teeth is also reviewed.

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EDITORS' CHOICE

Excite DSC 12
(Bonding agent)

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

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In-office Tooth Whitening

The resurgence of tooth whitening began in the late 1980s with the introduction of the dentist-supervised home-whitening products. Home whitening opened a new market for dentists to provide a conservative treatment for patients dissatisfied with the appearance of their teeth. The success of that procedure soon evolved into newer and better techniques for in-office tooth whitening, often referred to as “power” whitening, which does not require as much time or patient compliance. In-office whitening can be divided into the following techniques:

- whitening with and without the use of light activation, and
- whitening of endodontically-treated teeth.

Causes of Discoloration

- Extrinsic discoloration – usually limited to the enamel and caused by exposure to food, beverages and tobacco products
- Intrinsic discoloration – occurs from penetration of tooth structure by tetracycline or fluoride or by deposition of hemorrhagic by-products from pulpal trauma; also results from aging

How does whitening work? Whitening is likely caused by oxidation resulting from the breakdown of hydrogen peroxide into water and oxygen ions. The degree of whitening is related to the number of oxygen ions available and amount of time they are on tooth structure. Oxygen ions enter the enamel and dentin and are attracted to the double bonds of stain molecules. They attack and destroy the double bonds leaving shorter stain molecules that are soluble and more easily removed from the tooth by oral fluids. The key is a combination of the release of adequate numbers of oxygen ions and a carrying gel that pushes the ions into the tooth.

Which whitening technique works best for particular discolorations?

In-office whitening is more effective for gray discoloration, while yellow/brown discoloration responds well to home whitening. Tetracycline stain is best treated with a combination of in-office and home whitening over an extended period of time.

Why is in-office whitening more effective? Whitening is related to the concentration of the active whitening ingredient. Since in-office whitening products contain a much higher concentration of the oxygen ion-releasing ingredients than home whitening products, the release of oxygen ions is greater making the whitening effect more rapid. Most in-office whitening materials contain hydrogen peroxide in varying concentrations, while a few products contain different concentrations of carbamide peroxide. Carbamide peroxide breaks down into hydrogen peroxide and urea; 10% carbamide peroxide is equivalent to 3% hydrogen peroxide.

Does light activation improve the speed and efficacy of in-office whitening?

Some controversy exists regarding the effectiveness of light activation for in-office whitening. Most of the current literature does not support claims that in-office whitening with light activation is faster or more effective. Teeth that are whitened using a light source may initially appear lighter than teeth whitened without using a light. The initial lightness may be a result of additional dehydration of the teeth caused by the light. This effect is reversed once the teeth are rehydrated. The light may contribute to the activation of the hydrogen peroxide gel, but the resultant whitening effect has not been consistently shown to be significantly better than in-office whitening without light activation.

Whitening Endodontically-treated Teeth

Discoloration of teeth after endodontic treatment may be caused by:

- hemorrhagic by-products after pulpal trauma, pulp removal or decomposition of pulp tissue following incomplete removal from the pulp chamber.
- endodontic medicaments and sealers remaining in the pulp chamber.

Walking whitening technique

- Use a mixture of 30-35% hydrogen peroxide and sodium perborate.
- Mixture is placed in the pulp chamber and sealed with temporary cement for five to seven days.
- Gels are also available.

Thermocatalytic technique

- Soak a cotton pellet with 30-35% hydrogen peroxide.
- Place pellet in the pulp chamber and heat the cotton and hydrogen peroxide with a hot instrument.
- Remove the cotton pellet and repeat process two to four times.

Both techniques can be repeated at weekly intervals until the desired result is achieved. *Caution – external root resorption is a possible consequence of these techniques.* A 2-mm thick protective base placed over the gutta percha slightly incisal to the CEJ may reduce the potential for external resorption.

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Featured Products



GC TION Tooth Whitening System
(GC America)



BioSmile
(Dreve-Dentamid)



Oral-B Rembrandt Professional Whitening Chairside Gel Kit
(Oral-B)



Niveous
(Shofu)



Sapphire PAC Light Smile Beautification Program
(Den-Mat)



ZOOM2 Whitening System
(Discus Dental)



LumaCool Whitening System
(LumaLite)



Pola Office
(Southern Dental Industries)



Pola Zing
(Southern Dental Industries)

In-office Tooth Whitening *continued*



OptraGate
(Ivoclar Vivadent)

Tips for Assistants

- **OptraGate/Ivoclar Vivadent** is effective for isolation.
- **Fluoridex Daily Defense®/Discus Dental** is an effective desensitizer before whitening.
- **PROSPEC MI Paste/GC America** is an effective desensitizer before and after whitening.

Clinical Tips

- Isolate with cheek retractors and provide gingival protection or as directed by manufacturer's instructions.
- Use pastes or gels of 35-45% hydrogen peroxide for the best results.
- Place on teeth for 30-60 minutes or as directed by manufacturer's instructions.

- Use light activation if required.
- Consumption of any food or beverage that would stain a white shirt should be avoided for 48 hours after in-office treatment; the open tubules will absorb stain and decrease the whitening effect.
- Use take-home whitening as an adjunctive treatment.
- Plan multiple appointments – acceptable result may not be accomplished with one treatment.
- Expect the peak effect to occur one to three days after treatment – time is needed for dissolution and removal of the stains.
- Expect rebound from dehydration to occur after treatment is completed.
- Expect an “end point” – when additional whitening will not change the color noticeably. ■

Product	Company	Active Ingredient	Light	Soft Tissue Isolation Required	Soft Tissue Isolation Materials Included	Trays Required	Tray Material Included	Doctor Material Included	Estimated Treatment Time	Delivery System	Take-Home Kit Included	Cost
AcquaBrite	AcquaMed Technologies	20% carbamide peroxide with catalytic accelerator	With any high quality curing light or without	No	No	Yes	No	Yes	40 min	2 part syringe – mixing tip	Yes	\$75.00/patient
ArcBrite	BIOTROL INTERNATIONAL	30% hydrogen peroxide	High intensity dental light source	Yes	Yes	No	No	Yes	4 min	Syringe – no mixing	No	\$79.95/kit
BioSmile ⁴	Dreve-Dentamid	35% hydrogen peroxide	None	Yes	Yes	No	No	Yes	30 min	Paste – mix w/activator	No	\$120.00/kit
BriteSmile	BriteSmile	15% hydrogen peroxide	BriteSmile Light Gentle Blue Spectrum	Yes	Yes	No	No	--	60 min	--	No	\$600.00/procedure
ContrastAM	Spectrum Dental	22% hydrogen peroxide	With any high quality curing light or without	Yes	Yes	No	Yes	Yes	60 min	Syringe – no mixing	Yes	\$39.50/combo pack
Cosmetic Solutions In-Office Bleaching (#8010)	Life-Like	44% carbamide peroxide	None	Lower arch only	No	Tray optional	No	N/A	20-30 min	Bottle	No	\$51.00/3 syringe kit
Cosmetic Solutions In-Office Bleaching (#8030)	Life-Like	35% hydrogen peroxide	None	Yes	No	No	No	No	25 min ¹	Syringe – mix w/activator	No	\$23.50/kit
GC TION Tooth Whitening System	GC America	20% hydrogen peroxide	Any dental light source	Yes	Yes	No	No	Yes	20 min ²	Syringe – mix w/activator	Yes	\$85.00/kit
GentleBright Single Patient Kit	LumaLite	Sodium chlorite	Most current whitening system lights or curing lights	No	No	No	No	Yes	25 min	Syringe w/auto-mixing tip	Yes	\$80.30/kit
Hi Lite	Shofu	35% hydrogen peroxide	Any dental light source	Yes	No	No	No	Yes	45 min	Liquid/powder mix	No	\$291.15/kit
Illuminé In-Office Tooth Whitening System	DENTSPLY Professional	15% hydrogen peroxide	None	No	No	Yes	With combo kit only	Yes	30-60 min	Syringe	With combo kit only	\$65.00/kit \$79.55/combo kit
LumaCool Whitening System	LumaLite	N/A	Light Emitting Diodes – 84	Yes	Yes	No	No	Yes	24 min	N/A	Yes	\$2,995.00 light and 12 kits
LumaWhite Bleaching Paste (4 patient kit)	LumaLite	35% hydrogen peroxide	Most current whitening system lights	Yes	No	No	No	Yes	24 min	Paste — mix w/activator	No	\$86.90/4-patient kit
LumaWhite Plus Single Patient Kit	LumaLite	35% hydrogen peroxide	Most current whitening system lights	Yes	Yes	No	No	Yes	24 min	Paste – mix w/activator	Yes	\$54.95/kit
Niveous	Shofu	25% hydrogen peroxide	Any dental light source	Yes	Yes	No	No	Yes	30-40 min	Ampule – no mix	No	\$192.35/kit
Opalescence Xtra BOOST	Ultradent	38% hydrogen peroxide	None	Yes	Yes	No	No	Yes	15 min	Syringe – mix w/activator	No	\$99.00/intro kit
Oral-B Rembrandt Professional Whitening Chairside Gel Kit	Oral-B	36% hydrogen peroxide with potassium nitrate and sodium fluoride	With any high quality curing light or without	Yes	Yes	No	No	Yes	60 min	Syringe – no mix	Yes	\$64.00/kit
Perfection White	Premier Dental	35% hydrogen peroxide	With any high quality curing light or without	Yes	Yes	No	No	Yes	60 min ³	Gel – mix w/activator	No	\$149.30/8-arches
Pola Office	Southern Dental Industries	35% hydrogen peroxide	With any high quality curing light or without	Yes	Yes	No	No	Yes	24 min	Syringe – mix w/activator	No	\$121.00/3-patient kit
Pola Zing	Southern Dental Industries	35% carbamide peroxide	None	No	No	Yes	No	Yes	30 min	Syringe – no mix	No	\$27.50/8-patient kit
Smile Beautification Program	Den-Mat	36% hydrogen peroxide with potassium nitrate and sodium fluoride	Sapphire PAC Light ⁴	Yes	Yes	No	No	Yes	60 min	Syringe – no mix	Yes	\$4,650.00/light, 4 kits and accessories
TPC Advanced 1500 Bleaching System	TPC ADVANCED TECHNOLOGY	N/A	TPC Advanced 1500 Light	N/A	N/A	N/A	N/A	N/A	Depends on material used	N/A	N/A	\$1,495.00/light
ZOOM2 Whitening System	Discus Dental	20% or 25% hydrogen peroxide	ZOOM2 Lamp	Yes	Yes	No	Yes	Yes	45 min	Dual-barrel syringe	Yes	\$1,795.00/light and kits

¹ Treat teeth five times for five minutes
² When using a whitening or bleaching light (UV) – expose for 20 minutes; when using a light-curing unit – expose for one minute per tooth

³ Enough time for three applications every 15-20 minutes
⁴ Dual-arch/single-tooth whitening; cures composite
⁵ Not currently available for sale in the U.S.

EDITORS' NOTES: Table information provided by manufacturer; N/A means not applicable.

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Versa-Link + + + + +

Sultan Chemists, Inc.
800.637.8582 • 201.871.1232
www.sultanchemists.com

Description

Versa-Link is a porcelain bonding system for use in preparing porcelain restorations and teeth for resin cementation. It may also be used for intraoral repair of porcelain fractures. Each package includes 20, 0.5-ml glass ampules of porcelain primer (silane), an applicator brush and a plastic transfer pipette. The system may also be purchased with 20, 0.5-ml pipettes of 6% HF etching gel included in each unit-dose package. The silane has a clear color and has an application time of 3-5 minutes. The HF etchant is red and has an application time of 90 seconds. Shelf life of the silane is two years. Twenty-four consultants used and evaluated **Versa-Link** for cementation and intraoral repair of over 150 cases. This product received a 96% clinical rating.



Consultants' Comments

- ▶ *“Very easy to use, with fresh chemistry every time!”*
- ▶ *“Currently the best product on the market in this category.”*
- ▶ *“The porcelain etchant was slightly runny.”*
- ▶ *“There was a long wait-time with the silane (3-5 minutes).”*

Suggested Retail Cost

- \$80.00/**Versa-Link** Porcelain Repair
- \$100.00/**Versa-Link** Porcelain Repair with Etch Gel

Product Features

Versa-Link was well received by every consultant. All evaluated categories were rated very good to excellent, with no detractors noted. Both the porcelain etchant and silane were packaged in sealed ampules with inert gas, offering fresh material for each procedure. This unit-dose, sealed packaging was unanimously reported to be the most-liked feature of **Versa-Link**. The two-year shelf life of the silane was also appreciated. Ampules were easy to open and dispensing and application of material were very highly rated. Clinicians found this unit-dose system extremely easy to incorporate into their bonding and intraoral repair protocol. Initial short-term repair results have been excellent. One hundred percent of consultants rated **Versa-Link** to be equivalent to or better than their current porcelain primer. Every consultant surveyed would recommend **Versa-Link** to a colleague and all but one reported they would switch from their current product.

Clinical Tips

- Porcelain etchant (6% HF) must not contact soft tissues. Intraoral use must be done with meticulous isolation.
- Dispose of glass ampules of silane in sharps container. ■

a quick-connect coupling which easily clicks on and off to allow for interchangeable use of multiple docking stations. Docking stations are 10 x 15 cm and can be wall-mounted or placed on a countertop. Eleven consultants used **Cam-A-Lot** clinically for six months. This product received a 93% clinical rating.

Suggested Retail Cost

- \$3,440/complete unit
- \$895/docking station

Equipment Features

Consultants found the compact **Cam-A-Lot** light weight and easy to use. It provides a sharp and clear picture. The no-fog camera lens is beneficial, and the ease of switching from a single image to a quad image is convenient. All of the

Futurabond NR + + + + ½

VOCO GmbH
888.658.2584
www.voco.com/usa

Description

Futurabond NR (Nanofiller Reinforced) is a 6th-generation (Type II), light-cured, self-etching adhesive containing 20-nm particles of silica-dioxide. Equal amounts are dispensed from two bottles, mixed and applied as a single coat before light curing. No rinsing is required and the total time for all steps is 40 seconds. **Futurabond NR** is compatible with moist bonding. It is also compatible with all light-cured composites, compomers and ormocers. The kit contains 4 ml each of liquids A and B, accessories and laminated instructions. **Futurabond NR** was evaluated by 29 consultants in over 200 bonding procedures. This product received an 93% clinical rating.

Suggested Retail Cost

- \$105.95/kit

Product Features

The illustrated instructions for **Futurabond NR** are complete and clearly presented. The bottles readily dispense a single drop without squeezing. Mixing, solution viscosity, and ease of application received



Consultants' Comments

- ▶ *“Flows well into preparations.”*
- ▶ *“Make brush tip more bendable.”*
- ▶ *“Provide a catalyst for use with self-cure materials.”*
- ▶ *“Put the directions on the bottle.”*
- ▶ *“Design a holder/dispenser for the bottles.”*

high marks from consultants. The applicator tips are too large for some cavities. Air dispersal from the tooth (five seconds) and the curing time (10 seconds) provide a quick, easy procedure. There is little odor from **Futurabond NR** and there were no negative comments regarding effects on soft tissue. Consultants commented on the ease and rapidity of use of **Futurabond NR**. No post-operative sensitivity was reported. One hundred percent of consultants rated **Futurabond NR** equivalent to or better than their current bonding agent. Eighty percent would switch to **Futurabond NR** and 92% would recommend it to colleagues.

Clinical Tips

- Etch enamel that has not been instrumented during cavity preparation; do not etch dentin.
- The solutions do not have to be refrigerated.
- Don't squeeze the bottles or excess material will be dispensed. ■

Cam-A-Lot + + + + ½

Flow X-ray Corporation
800.356.9729 • 516.485.7000
www.flowxray.com

Description

Cam-A-Lot is an LED intraoral camera that can output the image directly to a television or computer monitor. It can also be connected directly to a computer (video capture card required) for the storage and viewing of images. It may be integrated into most practice management systems through the use of bridge software. **Cam-A-Lot** has four viewing options: live action, freeze frame, split screen (two images), or quad split screen (four images), which can be captured by foot pedal or the freeze button located on the handpiece. The lens has high-resolution imaging and can magnify up to 50X (from a molar to a full face view). The handpiece has

consultants found the head size was too large for easy access to posterior teeth. The dual-sided focus controls allow for adjustment from a full arch to the margin of a single tooth. During focusing, the plastic protective sheath often catches in the sliding adjustment bar. The **Cam-A-Lot** also allows

downloading and printing of images without a computer by using a standard photo printer with an optional device, **Capture Flash Pro**. Seventy-five percent of consultants would recommend **Cam-A-Lot**, while half would switch. ■

Consultants' Comments

- ▶ *“Exceptionally sharp, clear, detailed images.”*
- ▶ *“So easy to disconnect and switch rooms.”*
- ▶ *“Quiet operation – LED requires no cooling fan.”*
- ▶ *“Not easy to use one-handed – easier to capture images with foot pedal.”*
- ▶ *“Auto-focus cameras are much easier to use.”*
- ▶ *“Make the head of the camera smaller to reach posterior teeth more easily.”*

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OptraMatrix + + + +

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

Description

OptraMatrix is a matrix band especially designed to assist clinicians in creating precise, anatomically shaped, interproximal contacts in direct, Class II composite restorations. A portion of the stainless steel band in the contact area has been selectively thinned to only 10 µm in thickness to provide tighter, anatomically correct, proximal contacts. For two-surface restorations, the matrix bands feature a window on the uninvolved proximal surface side so that the contact is maintained without movement. The window and the selectively thinned contact area ensure that only a very thin layer of metal separates the adjacent tooth during the restorative procedure, thus eliminating the need for forceful separation of the teeth. The **OptraMatrix** bands can be used with a traditional Tofflemire retainer. They are available in six sizes, and each band is inscribed with the intended area of use. The **OptraMatrix** Assortment kit contains 40 each of three sizes of molar bands and three sizes of premolar bands, plus



Consultants' Comments

- ▶ **"This is probably the thinnest matrix I have ever used."**
- ▶ **"Simple to remove."**
- ▶ **"Especially useful for wide interproximal preparations for which sectional matrix bands are not indicated."**
- ▶ **"Single use only."**
- ▶ **"Handle gently and carefully since bands are thin and can rip easily."**

a matrix retainer. **OptraMatrix** was evaluated by 27 consultants in over 290 restorations. This product received an 87% clinical rating.

Suggested Retail Cost

- \$139.60/assortment kit

Product Features

Bands are conveniently packaged in a moderately-sized partitioned plastic box, and the instructions are easy to follow. The quality of the bands, predictability of good contacts, and the actual quality of contact obtained were highly rated. While ease of use with this new system was rated highly overall, a few consultants felt that adapting to the more fragile bands and learning to use them after using

traditional bands were challenging. A few consultants also noted that the bands could be torn more easily than the traditional thicker bands, but they highly valued the tight contacts they obtained with **OptraMatrix**. Fifty-five percent of consultants would recommend **OptraMatrix** to colleagues, while 38% would switch from their current matrix bands. ■

OptraContact + + + +

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

Description

OptraContact is a double-ended instrument with bifurcated tips used to assist in achieving tight and properly contoured proximal contacts. The instrument is used by placing it into the first increment of composite and pressing against the matrix band and adjacent tooth. The instrument is held in place while the composite is light cured to form a composite bridge at the point of contact. The instrument is removed and composite is added to complete the restoration. Two color-coded sizes of **OptraContact** are available, one for molars and one for premolars. Twenty-three consultants evaluated **OptraContact** in 218 clinical applications. This product received an 86% clinical rating.

Suggested Retail Cost

- \$72.40/set of 2 instruments



Consultants' Comments

- ▶ **"Quick, predictable results for difficult contact areas, especially wide proximal boxes."**
- ▶ **"Ability to press matrix against adjacent tooth improves the contact."**
- ▶ **"I can use it with my sectional matrix and get even better contacts."**
- ▶ **"Take care to fill voids left by OptraContact."**

Product Features

The **OptraContact** instruments have plastic handles for a lightweight, comfortable grip. The tapered bifurcated ends are smooth, well polished stainless steel that allows easy removal from the cured composite. The composite bridge that is created maintains the proper contour of the matrix band during placement of the additional increments of composite to complete the restoration. The matrix band is also stabilized to facilitate shaping the final contour and to create a tight proximal contact. The two available

sizes are sufficient for most clinical cases but are too wide for very conservative preparations. Very few consultants reported using a contact former for their composite restorations before this evaluation, choosing instead to use thin matrix bands with very good wedging. Eighty-two percent of the consultants rated **OptraContact** equivalent to or better than their current technique while 65% would switch and 75% would recommend it. ■

OptiDisc™ + + + +

SDS/Kerr
800.537.7123 • 714.516.7400
www.kerrdental.com

Description

The **OptiDisc** Finishing and Polishing System consists of translucent polyester discs for polishing composite, glass ionomer, amalgam, and semiprecious and precious metal. The discs are flexible, color-coded by grit and have a green mark around the center hub to indicate the side with abrasive. The center hub is plastic and is raised slightly above the metal mandrel to avoid contact of the metal with the surface being polished. The discs are available in diameters of 15.9, 12.6 and 9.6 mm in three grits. Latch-head mandrels are recommended for use at speeds up to 10,000 rpm. Thirty discs each in

coarse/medium, fine and extra-fine are included in the general kit. Twenty consultants evaluated **OptiDisc** during 254 procedures. This product received an 86% clinical rating.

Suggested Retail Cost

- \$85.85/general kit

Product Features

Consultants found the **OptiDisc** packaging was clearly labeled but was not spill-proof. The discs are easy to place on the mandrel and are held firmly in place by the plastic hub. The flexible discs retain their integrity during polishing and adapt well to the tooth with a light pressure. The coarse/medium discs produced a smooth surface, and the finer discs create a surface that is polished but not highly

glossy. Some consultants noted that the green abrasive-side indicator was difficult to see and that the mandrel was too long for some areas of the mouth. Forty-six percent of consultants would switch to **OptiDisc**, while 68% would recommend them to a colleague.

Clinical Tips

- Hold the mandrels up to a dark background to see the abrasive indicator.
- The medium and large diameters are the appropriate size for most uses.
- Discs may be used wet or dry.
- Use water spray to prevent dust build-up on the disc. ■

Consultants' Comments

- ▶ **"Thin discs allow good access to embrasures."**
- ▶ **"Some visibility of the tooth is possible through the translucent discs."**
- ▶ **"The center hub sometimes separates from the disc during removal from the mandrel."**
- ▶ **"The mandrel is too long."**
- ▶ **"The kit needs a more abrasive disc."**
- ▶ **"Use brighter colors to differentiate the polishing side."**
- ▶ **"Make the package spill-proof."**

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
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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
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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
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L. Walsh, MI
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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

microSystem™ MKII Dispenser + + + +

Coltène/Whaledent
800.221.3046 • 330.916.8800
www.coltenewhaledent.com

Description

microSystem MKII Dispenser is a unique dispensing system designed for use with 25-ml cartridges of **AFFINIS microSystem** light-body and regular-body addition silicone impression material and **JET BITE** bite registration material. The **MKII** dispenser is breech loading and has a low profile and low extrusion pressure for easy dispensing intraorally. The Special Evaluation Kit contained the **microSystem MKII Dispenser**; one, 25-ml cartridge each of **AFFINIS microSystem** light and regular body; two, 50-ml cartridges of **AFFINIS** heavy body; a 50/75-ml dispenser; four trays; mixing tips for each consistency; 20 intraoral tips; and instructions. Twenty-seven consultants evaluated **microSystem MKII Dispenser** in more than 180 clinical applications. This product received an 88% clinical rating.

Suggested Retail Cost

- \$39.95/dispenser



Consultants' Comments

- ▶ "Smaller and lighter than my current dispenser."
- ▶ "Easy to use for direct injection of intraoral impression material."
- ▶ "Make the intraoral tips shorter and more bendable."
- ▶ "An intraoral tip with a larger opening might reduce the extrusion pressure necessary."
- ▶ "Provide a more visible indicator for material remaining in the cartridge."

Product Features

microSystem MKII Dispenser is smaller and lighter than typical impression material dispensers. It uses a special 25-ml cartridge designed for the **AFFINIS microSystem** and **JET BITE** bite registration material. Consultants rated the weight, feel and durability of the **MKII** dispenser as very good. Instructions and ease of cleanup are good. Consultants and dental assistants had difficulty with loading the cartridge and placing the mixing tips. When a cartridge is loaded in the dispenser, it is fully enclosed, preventing visualization of the amount of material remaining; however, there are volume (ml) usage indicators on the slide. Sixty-four percent of the consultants rated **microSystem MKII Dispenser** equivalent to or better than the dispenser they were currently using; 56% would recommend it and 33% would switch from their current dispensing system. ■

Editors' Note: Standardization of dispensing guns, cartridges, mixing tips, and intraoral tips among manufacturers would help clinicians who use multiple consistencies and products for impressions.

Fill-in + + + 1/2

SDS/Kerr
800.537.7123 • 714.516.7400
www.kerrdental.com

Description

Fill-in is a 53% by weight filled composite provisional material supplied in unit-dose syringes. Each package contains 3 g of material in a dual-barrel syringe with an optional applicator tip for precise incisal edge dispensing. **Fill-in** has a working time of 35 seconds, should be removed from the mouth at 60 seconds and finished at three minutes. **Fill-in** is designed for both short- and long-term provisional restorations. The material is compatible with light-cured composites for repair and characterization. The introductory kit contains five syringes each of shades A1, A2, A3.5, and XL with a laminated instruction card. Twenty-four consultants evaluated **Fill-in** while fabricating 362 provisional restorations. This product received an 84% clinical rating.

Suggested Retail Cost

- \$88.35/Introductory kit

Consultants' Comments

- ▶ "Works fast!"
- ▶ "Fairly viscous and stacks well."
- ▶ "Very simple to use."
- ▶ "The material sets hard but is brittle."
- ▶ "It sets too fast."

Product Features

Fill-in has accurate shades, sets hard and is easy to trim. Unit-dose syringes make dispensing simple and reduce concerns of cross contamination. The amount of material contained in each unit is sufficient to fabricate two molar crowns or a small three-unit

bridge. When fabricating multiple units, it is necessary to work quickly due to the fast setting time. Removing the provisional from the prepared teeth and reseating it several times during setting is helpful in preventing locking the restoration onto the tooth. The lack of voids and durability of the provisionals received high ratings from the consultants. Thirty-six percent of the consultants would switch to **Fill-in** and 70% would recommend it.

Clinical Tip

- Avoid undercuts in the preparation to prevent locking of the provisional restoration.

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

Description

Excite DSC is a 5th-generation, dual-cured single component bonding agent for dentin and enamel. It is indicated for use with dual- and self-cured resin cements, core build-up composites and self- or light-cured restorative composites. The bonding agent is supplied in a unit-dose vessel with a pre-mounted applicator brush coated with the initiator necessary for dual curing. A 15- to 30-second etch with 37% phosphoric acid is required before application of **Excite DSC**. Activation of the dual-/self-cure mechanism occurs when the brush is inserted into the vessel, breaking the seal. One coat of bonding agent is applied to the tooth surface and gentle air is applied to thin the material and to evaporate the solvent. When a dual cure or self cure cement or composite is used, no light curing is required. When a light cured resin composite or cement is used, polymerize **Excite DSC** using a halogen or LED light according to the manufacturer's instructions. Each unit dose is packaged with an applicator, available in two sizes: regular and small/endo. The Introductory Kit contains 45, 0.1-g **Excite DSC** regular; five, 0.1-g **Excite DSC** small/endo; and a 2-g syringe of **Total Etch**. Refrigeration is not necessary. Eighty-three percent of the editors would switch to **Excite DSC** and 92% would recommend it. This product received a 91% clinical rating.

Suggested Retail Cost

- \$150.00/introductory kit

Evaluation Protocol

- Thirteen editors of THE DENTAL ADVISOR clinically evaluated **Excite DSC** over a six-week period.
- Over 160 restorations were placed.
- **Excite DSC** was evaluated on a 1-5 rating scale: 1 = poor, 2 = fair, 3 = good, 4 = very good, 5 = excellent.

Editors' Observations

Manufacturer's Instructions

The instructions for use are thorough and well written. The technique guide clearly illustrates all the steps necessary for use with direct and indirect, light- and dual-cured procedures.

Unit-dose Delivery System

The unit-dose vessel is conveniently packaged with the pre-mounted, initiator-coated applicator. Each packet is clearly marked with the brush size enclosed. The vessel requires firm pressure to break the seal to gain access to the bonding material. Each capsule contains an adequate amount of material.

Ease of Re-dipping Brush After Use

The applicator brush must be bent 3.7 cm from the head of the brush to enable the dentist to easily re-dip the brush. When the brush was bent at the location most often used by the clinicians, it was difficult to regain access to the vessel.

Viscosity

The material has an adequate viscosity to coat the preparation completely. The clear liquid is difficult to see on the tooth, and some consultants would prefer the addition of a slight yellow tint to ensure full coverage.

Ease of Thinning the Material

With gentle air pressure, the material is readily thinned and the solvent evaporates producing a slightly shiny surface before light curing.

Initial Post-operative Sensitivity

No sensitivity was reported during the six-week evaluation period.

Clinical Tips

- Agitate the brush in the vessel to ensure proper activation of the dual-cured component.
- Apply a second coat of bonding agent to large preparations for complete coverage. ■

Exclusive Review

EDITORS' EVALUATION

Editors' Comments

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

