



# THE DENTAL ADVISOR<sup>TM</sup>



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

## Elastomeric Impression Materials

In prosthodontics, impression materials are used to record intraoral structures for the fabrication of definitive restorations. The accuracy of these final restorations is highly dependent on the impression materials and techniques utilized. Elastomeric impression materials (addition silicones and polyethers) offer high elastic recovery and acceptable flexibility on removal of the impression from the mouth.

Recently, new elastomeric impression materials with very high elastic recovery

and high tear strength have been introduced. Presently, the light-body/heavy-body impression technique is the most widely used.

This issue of THE DENTAL ADVISOR reviews the properties and clinical characteristics of 36 light- and heavy-body addition silicone and polyether impression materials. Clinical tips for the entire dental team are provided. Also included in this issue is a review of impression trays.

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through Research"

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# Elastomeric Impression Materials

20  
years

## Elastomeric Impression Materials

- ▶ Addition silicones
- ▶ Polyethers

Addition silicones (polyvinylsiloxanes) have a moderately low-molecular weight silicone that contains silane groups. Since addition silicones do not produce a volatile by-product during polymerization, very small dimensional changes occur on setting. Hydroxide groups in many products produce hydrogen gas, resulting in small bubbles on the model surface if pouring is not delayed by 30-60 minutes. Many of these addition silicones contain catalysts like palladium that absorb this hydrogen. Newer addition silicones have been formulated to be more hydrophilic.

Polyethers are composed of a moderately low-molecular weight polyether, a silica filler and a plasticizer. When mixed, rubber is formed by a cationic polymerization process. Polyethers have excellent dimensional stability. They also have excellent wettability, resulting in minimal voids and excellent reproduction of detail.

## Desirable Features

- ▶ Low viscosity – injectable
- ▶ Heavy viscosity – tray
- ▶ Automix
- ▶ Easy to use
- ▶ 4-minute working/setting time
- ▶ Ability to be disinfected
- ▶ Compatible with cast/die materials
- ▶ Adequate shelf life
- ▶ Cost-effective
- ▶ Distinctive color contrast between light- and heavy-body viscosities

## Critical Properties – Clinical Significance

**Wettability.** An impression material should have intimate contact with the tooth and underlying soft tissues and should not form bubbles or voids. Wettability is best with a hydrophilic material. Material should possess ability to displace moisture.

**Flexibility.** Flexible impressions are easier to remove from the mouth when set.

**Elastic Recovery.** A set impression must be sufficiently elastic so that it will return to its original dimensions without significant distortion upon removal from the mouth.

**Tear Strength.** Adequate tear strength is important, because thin areas of material must resist tearing upon removal from the oral cavity and when separating the model from the impression in the laboratory.

**Dimensional Stability.** Minimum dimensional changes that result during polymerization and prior to casting of the impression are desired. In addition silicones, these changes are small and result in a dimensionally stable impression that is usable weeks after initial impressioning.

**Detail Reproduction.** An impression material must reproduce even the finest details of the oral tissues and be able to transfer these details accurately to gypsum, metal or polymer dies.

## Correction

THE DENTAL ADVISOR, Vol. 20, No. 8, October 2003 issue on Self-etching Bonding Agents contains incorrect information on **GC UniFil Bond** in the table on page 3. **GC UniFil Bond** (GC America, Inc., 800.323.7063) has a filler weight of 4% and does not release fluoride.



## Steps for a Flawless Impression Procedure

### Tips for the Dental Assistant

- ▶ Apply the correct adhesive to all internal surfaces and perimeter of the impression tray and let dry completely.
- ▶ Make sure the tips of automix cartridges are not blocked by expressing the smallest amount of material before placing tip.
- ▶ Load the syringe and impression tray to minimize bubbles.
- ▶ Pay strict attention to working time. Viscosity increases with time as polymerization occurs, reducing flow and detail reproduction.
- ▶ Working and setting times are shorter in higher temperature and humidity.

### Tips for the Clinician

- ▶ Select a tray of adequate size and extension. Provide occlusal stops if needed.
- ▶ Keep the tip of the syringe buried in the expressed material during loading to minimize bubbles.
- ▶ Seat the loaded tray in a timely fashion. Once the material becomes rubbery, movement of the tray will cause internal stresses leading to an inaccurate impression.
- ▶ Removal of the impression too early will cause significant distortion.
- ▶ If using a closed-bite tray, be careful to avoid burn-thru, which can create distortion of the impression and produce less than ideal final restorations.

### Evaluating the Impression

- ▶ Impression material homogeneously mixed
- ▶ Material uniformly distributed in and supported by tray
- ▶ Multi-viscosity materials blend and adhere to each other
- ▶ No major defects visible
- ▶ Fine detail clearly recorded
- ▶ No voids, tears or creases in critical areas
- ▶ Impression adhered to tray
- ▶ When appropriate, occlusal relationship registered
- ▶ Lack of burn-thru

## Clinical Notes

### ■ Sources of Impression Distortion

- ▶ Anatomical irregularities in the mouth (e.g., tori) can interfere with and distort the closed-bite tray.
- ▶ If a patient has a very strong tongue, avoid using a closed-bite tray because of an increased chance of distortion, especially for lower impressions. In this case, a quadrant tray usually works well.
- ▶ Patients with retained wisdom teeth are usually not good candidates for taking impressions with posterior closed-bite trays. Because of lack of space, proper closure is difficult, often resulting in inaccurate articulation. Anterior closed-bite trays work well for these patients.

### ■ Packing the Tissues

- ▶ Use a small diameter cord #00 followed by #0 cord (**Ultrapak**, **Ultradent**).
- ▶ Pack and keep in place for about 5 minutes.
- ▶ Keep area very dry to avoid dilution of chemicals or displacement of cords.
- ▶ Moisten the field before removal

of the #0 cord, rinse well and make the impression.

- ▶ Remove the #00 cord before temporization.

### ■ Alternatives to Packing Tissue

- ▶ Isolate the prepared tooth.
- ▶ Inject impression material containing expansive and hemostatic properties around sulcus (**Retrac**, **Centrix**; **EXPASYL**, **SDS/Kerr**).
- ▶ Have patient bite on dry cotton or into previously fabricated and hardened bite registration.
- ▶ Keep in place for 5 minutes.
- ▶ Remove immediately prior to taking impression.

### ■ Astringents

- ▶ To control hemostasis, an effective hemostatic agent is a ferric sulfate solution (**ViscoStat**, **Ultradent**; **Cut-Trol**, **Ichthys**).
- ▶ Pack a dry cord and then apply the ferric sulfate solution.
- ▶ Rinse the site thoroughly, since the ferric sulfate solution can interfere with the setting and accuracy of addition silicone impression materials.



**EXAFAST NDS** (GC America)



**EXAMIX NDS** (GC America)



**EXAJET** (GC Europe N.V.)



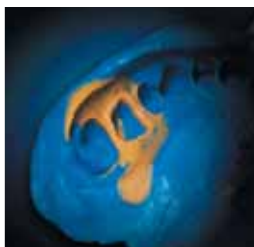
**Imprint II Penta and Garant Vinyl Polysiloxane Impression Materials** (3M ESPE)

| Product                                                                                                                  | Company            | Working Time, min | Time in Mouth, min | Elastic Recovery | Flexibility | Tear Strength | Cost, \$/ml* |    |
|--------------------------------------------------------------------------------------------------------------------------|--------------------|-------------------|--------------------|------------------|-------------|---------------|--------------|----|
| <b>Addition Silicones - Light-body</b>                                                                                   |                    |                   |                    |                  |             |               |              |    |
| AFFINIS                                                                                                                  | COLTENE/WHALEDENT  | 1.0               | 2.0                | Very High        | Low         | Low-Medium    | 0.34         | 92 |
| AFFINITY (Regular Set)                                                                                                   | CLINICIAN'S CHOICE | 1.75              | 2.5                | Very High        | Low         | Medium        | 0.35         | na |
| AQUASIL ULTRA XLV                                                                                                        | DENTSPLY/CAULK     | 2.25-2.75         | 5.0                | Very High        | Low-Medium  | Very High     | 0.43         | 93 |
| AQUASIL ULTRA LV                                                                                                         | DENTSPLY/CAULK     | 2.25-2.75         | 5.0                | Very High        | Low         | Very High     | 0.43         | 93 |
| CORRECT PLUS - THICK N' THIN                                                                                             | PENTRON            | 1.5               | 3.0                | Very High        | Low         | High          | 0.17         | 91 |
| EXAFAST NDS                                                                                                              | GC AMERICA         | 1.0-1.20          | 1.5                | Very High        | Low-Medium  | Low-Medium    | 0.26         | 93 |
| EXAMIX NDS                                                                                                               | GC AMERICA         | 2.25              | 4.0                | Very High        | Low-Medium  | Low-Medium    | 0.26         | 91 |
| FLEXITIME CORRECT FLOW                                                                                                   | HERAEUS KULZER     | 2.5               | 5.0                | Very High        | Low-Medium  | Medium        | 0.31         | 97 |
| 1st IMPRESSION PVS (Fast Set)                                                                                            | DEN-MAT            | 1.25              | 2.25               | High             | Low         | Medium        | 0.27         | na |
| 1st IMPRESSION PVS (Regular Set)                                                                                         | DEN-MAT            | 2.5               | 4.5                | Very High        | Low         | Medium        | 0.27         | na |
| GENIE (Fast Set)                                                                                                         | SULTAN CHEMISTS    | 1.4               | 2.8                | Medium-High      | Low         | —             | 0.17         | 96 |
| GENIE (Regular Set)                                                                                                      | SULTAN CHEMISTS    | 2.25              | 4.5                | High             | Low         | —             | 0.17         | 96 |
| HONIGUM                                                                                                                  | ZENITH/DMG         | 2.25              | 3.5                | Very High        | Low         | Low-Medium    | 0.63         | 96 |
| IMPRINT II GARANT                                                                                                        | 3M ESPE            | 1.0               | 4.0                | Very High        | Low         | Medium        | 0.41         | ce |
| TAKE 1 WASH                                                                                                              | SDS/KERR           | 2.0               | 3.0                | Very High        | Low-Medium  | Low-Medium    | 0.30         | na |
| VIRTUAL (Fast Set)                                                                                                       | IVOCAR VIVADENT    | 1.55              | 2.5                | Very High        | Low         | Medium        | 0.34         | 96 |
| <b>Addition Silicones - Heavy-body</b>                                                                                   |                    |                   |                    |                  |             |               |              |    |
| AFFINIS                                                                                                                  | COLTENE/WHALEDENT  | 1.0               | 2.5                | Very High        | Very Low    | Medium        | 0.46         | 92 |
| AFFINITY (Regular Set)                                                                                                   | CLINICIAN'S CHOICE | 1.75              | 2.5                | Very High        | Low         | High          | 0.35         | na |
| AQUASIL ULTRA HEAVY                                                                                                      | DENTSPLY/CAULK     | 2.25-2.75         | 5.0                | Very High        | Low         | High          | 0.43         | 93 |
| AQUASIL ULTRA RIGID (Fast Set)                                                                                           | DENTSPLY/CAULK     | 1.25-1.75         | 3.0                | Very High        | Very Low    | Medium        | 0.43         | 93 |
| CORRECT PLUS - TRAY                                                                                                      | PENTRON            | 1.5               | 3.0                | Very High        | Very Low    | Medium        | 0.17         | 91 |
| EXAFAST NDS                                                                                                              | GC AMERICA         | 1.25              | 1.5                | Very High        | Low         | High          | 0.26         | 93 |
| EXAMIX NDS                                                                                                               | GC AMERICA         | 2.0               | 4.0                | Very High        | Low         | High          | 0.26         | 91 |
| EXAJET (Fast Set)                                                                                                        | GC EUROPE N.V.     | 1.5               | 2.5                | Very High        | Low         | Medium        | 0.43         | ce |
| EXAJET (Regular Set)                                                                                                     | GC EUROPE N.V.     | 2.0               | 3.0                | Very High        | Low         | Medium        | 0.43         | ce |
| FLEXITIME HEAVY TRAY                                                                                                     | HERAEUS KULZER     | 2.5               | 5.0                | Very High        | Very Low    | Medium        | 0.31         | 97 |
| 1st IMPRESSION PVS (Fast Set)                                                                                            | DEN-MAT            | 1.25              | 2.25               | Very High        | Very Low    | Medium        | 0.27         | na |
| 1st IMPRESSION PVS (Regular Set)                                                                                         | DEN-MAT            | 2.5               | 4.5                | Very High        | Very Low    | Medium        | 0.27         | na |
| GENIE (Fast Set)                                                                                                         | SULTAN CHEMISTS    | 1.4               | 2.8                | High             | Low         | —             | 0.17         | 96 |
| GENIE (Regular Set)                                                                                                      | SULTAN CHEMISTS    | 2.25              | 4.5                | Very High        | Low         | —             | 0.17         | 96 |
| HONIGUM                                                                                                                  | ZENITH/DMG         | 2.25              | 3.3                | Very High        | Very Low    | High          | 0.39         | 96 |
| IMPRINT II PENTA                                                                                                         | 3M ESPE            | 2.0               | 4.0                | Very High        | Low         | Very High     | 0.38         | ce |
| TAKE 1 TRAY                                                                                                              | SDS/KERR           | 2.0               | 3.0                | Very High        | Low         | Very High     | 0.30         | na |
| VIRTUAL (Fast Set)                                                                                                       | IVOCAR VIVADENT    | 1.25              | 2.5                | Very High        | Low         | Medium        | 0.34         | 96 |
| <b>Polyethers - Light-body and Heavy-body (respectively)</b>                                                             |                    |                   |                    |                  |             |               |              |    |
| IMPREGUM GARANT SOFT                                                                                                     | 3M ESPE            | 2.0               | 3.5                | High             | Low-Medium  | Low-Medium    | 0.50         | 93 |
| IMPREGUM PENTA SOFT                                                                                                      | 3M ESPE            | 2.5               | 3.5                | High             | Low-Medium  | High          | 0.42         | 93 |
| *Costs are listed for comparison only and are not used to calculate the ratings. ce=current evaluating; na=not available |                    |                   |                    |                  |             |               |              |    |

THE DENTAL ADVISOR Recommends: Addition Silicones –*Flexitime, Genie, Honigum, Virtual*; Polyether – *Impregum*



**Honigum and MixStar**  
(Zenith/DMG)



**Virtual**  
(Ivoclar Vivadent)



**Impregum Penta and Garant Soft**  
**Polyether Impression Materials** (3M ESPE)



**1st Impression PVS**  
(Den-Mat)



Santine E. Anderson, D.D.S.

Dr. Anderson, what types of impression trays are most ideal?

Prefabricated disposable plastic trays are commonly used for final impressions using either the closed- or open-bite technique. Closed-bite trays, which simultaneously register both arches, are best suited for use with single units where there is minimal chance of occlusal challenge. To achieve best results, 2 contacts must be present. The patient should be placed in an upright position to achieve correct centric bite closure and to minimize shifting, which often results in deformation. Full-arch trays are ideal for use with multiple units, inlays/onlays and single crowns where observing bilateral occlusal forces is important. Full-arch trays provide additional stability to the impression material, resulting in less distortion and more accurate final restorations. Alginate impressions are taken with perforated or slotted metal trays.

## Ideal Features of Disposable Trays

### Ideal Features of Metal Trays

- ▶ Can be sterilized and reused
- ▶ Perforations or slots for retention
- ▶ Smooth edges for patient comfort
- ▶ Available in several sizes
- ▶ Flared lingual of mandibular trays

### Closed-bite Trays

- ▶ Rigid frame to provide increased stability
- ▶ Tear-resistant occlusal mesh
- ▶ Available in quadrant and 3/4 arch
- ▶ Width of tray great enough to accommodate large molars
- ▶ Increased patient comfort as amount of impression material is reduced
- ▶ Eliminate need for opposing impression

### Open-bite Trays

- ▶ Perforations or slots for retention
- ▶ Rigid frame and full-arch extension maximizes stability of final impression
- ▶ Smooth edges for patient comfort
- ▶ Variety of sizes available
- ▶ Flared walls to accommodate bony protrusions
- ▶ Allow laboratory to more accurately assess the occlusion

## Impression Trays

| Product                                       | Company                | Type | Metal | Plastic | Slotted | Perforated | Fabric | Sizes, Shapes | Cost, \$/Tray† | Clinical Rating, % |
|-----------------------------------------------|------------------------|------|-------|---------|---------|------------|--------|---------------|----------------|--------------------|
| COE SIDELESS TRIPLE TRAYS                     | GC AMERICA             | Q,T  |       | •       |         |            | •      | 2             | 0.83-1.04      | 76                 |
| DENTRAY II                                    | SULTAN DENTAL PRODUCTS | F,Q  |       | •       | •       | •          |        | 10            | 0.88           | 83                 |
| DURALOCK IMPRESSION TRAYS                     | ORTHOTECHNOLOGY        | F    |       | •       | •       |            |        | 6             | 0.42-0.54      | 88                 |
| ORGINATE DISPOSABLE IMPRESSION TRAYS          | AXIS DENTAL            | F    |       | •       | •       | •          |        | 6             | 0.95           | 93                 |
| PRESIDENT TRAYS                               | COLTENE/WHALEDENT      | F,Q  |       | •       |         | •          |        | 9             | 0.90           | 88                 |
| QUAD TRAYS                                    | CLINICIAN'S CHOICE     | Q,T  | •     |         |         |            | •      | 2             | 1.28-1.60      | 91                 |
| SOFT TOUCH 3 IN 1 DISPOSABLE IMPRESSION TRAYS | BAY DENTAL DIRECT      | Q,T  |       | •       |         | •          | •      | 4             | 0.56-0.79      | 93                 |
| 3M ESPE DIRECTED FLOW IMPRESSION TRAYS*       | 3M ESPE                | F    |       | •       |         |            |        | 6             | 0.90           | ce                 |
| 3-WAY DISPOSABLE IMPRESSION TRAYS             | SULTAN DENTAL PRODUCTS | Q,T  |       | •       |         |            | •      | 5             | 0.74-1.06      | 83                 |
| WIDE BODY POSTERIOR IMPRESSION TRAYS          | PREMIER                | Q,T  |       | •       |         |            | •      | 1             | 0.95           | 92                 |

\*=self-adhesive; ce=currently evaluating; F=full-arch tray; Q=quadrant tray; T=triple tray; †Costs are listed for comparison only.

THE DENTAL ADVISOR Recommends:

**Originate Disposable Impression Trays, Soft Touch 3 in 1 Disposable Impression Trays, Wide Body Posterior Impression Trays, Quad Trays**



**Soft Touch 3 in 1 Disposable Impression Trays**  
(Bay Dental Direct)



**Quad Tray**  
(Clinician's Choice)



**COE Sideless Triple Trays**  
(GC America)



**3M ESPE Directed Flow Impression Trays**  
(3M ESPE)

An Editors' Evaluation is an exclusive review by our on-site editorial board members of some of the newest and most innovative products on the market. This new form of evaluation offers the expertise, knowledge and experience of our editors, who are opinion leaders in the field of dentistry,

academicians as well as dental practitioners. You will notice a different reporting style, featuring an in-depth product review complete with our special editors' observations and unique comments.

## ■ 4 Seasons

++++ 1/2

Ivoclar Vivadent, Inc.  
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Exclusive  
Review



## Description

**4 Seasons** is a radiopaque, fine particle microhybrid composite intended for use in all classes of restorations and direct veneering. The composite is a mixture of BIS-GMA and TEGDMA. It contains 75-77 wt% filler, which includes barium glass fillers and highly dispersed silicon dioxide. The mean particle size is 0.6 µm. **4 Seasons** is designed for use as a layering composite and is available in 12 dentin and 28 enamel shades. The enamel shades are further divided into A-D shades, translucent, effect, and value shades. The 40 available shades are represented on the shade guide as ceramic tabs matching the shade of the polymerized composite. The introductory pack that was evaluated contains 14 enamel shades, 5 dentin shades, enamel and dentin shade guides, a dispensing gun, a dispensing pad in a light-protected box, and a clinical technique guide. Sixteen editors clinically evaluated **4 Seasons** over a 6-week period.

Suggested Retail Cost: \$360.00/Cavifil introductory pack

## Editors' Observations

### ► Manufacturer's Instructions

The clinical technique guide provides step-by-step instructions for completing a restoration with ideal esthetics. Photos of actual teeth are used as illustrations to show the clinician how the use of the shades and how the layering technique affects the final restoration.

### ► Completeness of Kit

Some editors felt that the size of the introductory pack could be reduced to include a fewer number of empty wells for additional shades. Overall, the shades included in the introductory pack are adequate; however, some suggested that B1 and C2 enamel and dentin shades should be included rather than B2 and C3. The complete shade guide is easy to use and accurately represents the actual shade of the material.

### ► Ease of Using the System

The dentin and enamel shade labeling system and the corresponding color-coded capsule tips make the system very easy to use. Many editors had difficulty using the dispensing gun included in the pack, yet all found that the capsules fit nicely into their existing guns. The shade guide and the clinical technique guide facilitate shade selection using the layering technique.

### ► Lack of Stickiness

The viscosity of **4 Seasons** is excellent for use in anterior teeth. Some editors found the material to be slightly sticky and would prefer a more viscous material to establish better interproximal posterior contacts.

### ► Shade Accuracy

The enamel shades and translucent shades were useful to reduce the significant opacity of the dentin shades. Using the layering technique, the final restoration produced an accurate Vita shade.

### ► Blending of Composite with Tooth

The enamel shades blended very well with surrounding tooth structure. The enamel effect and value shades further enhance the esthetics of the restorations.

### ► Final Polish

The fine filler particles produce an excellent final polish.

## Editors' Comments

- "Very good esthetics obtained using the layering technique."
- "Excellent final polish."
- "Shade labeling and color-coded tips make this system very easy to use."
- "Dentin shades are too opaque."
- "Reduce the stickiness and increase the viscosity slightly."
- "Make the introductory pack smaller in size."

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A. Colarusso, NY  
M. Conrad, PA  
K. Dalton, AR  
K. Dancy, GA  
M. Danner, IL  
M. Deluca, MI  
J. Dingman, WI  
J. DiPonziano, NJ  
R. Donelli, NY

## Ratings

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

## ■ Tenure Uni-Bond with Gloss-N-Seal

++++ 1/2

Den-Mat Corp.  
800.433.6628  
805.922.8491  
www.denmat.com



### Description

**Tenure Uni-Bond** is a 6<sup>th</sup>-generation-Type II self-etching bonding system. Parts A and B are mixed and applied to the dentin and enamel. **Gloss-N-Seal**, a light-cured resin, is then applied to the tooth surface before placing a restorative composite. **Tenure Uni-Bond** with **Gloss-N-Seal** may also be used for sealing completed composite restorations, glazing provisional restorations and resurfacing old composite restorations. The kit contains 6 ml of **Tenure Uni-Bond A**, 6 ml of **Tenure Uni-Bond B**, 3 g of **Gloss-N-Seal** on foam sponges, 2 dappen dishes, and 100 Multibrushes. Twenty-four consultants used **Tenure Uni-Bond** with **Gloss-N-Seal** in over 610 procedures.

Suggested Retail Cost: \$159.00/kit

### Product Features

Consultants appreciated the packaging, ease of dispensing, time required for the bond procedure, and the mild odor of **Tenure**

**Uni-Bond** with **Gloss-N-Seal**. Many especially liked the viscosity of both **Tenure Uni-Bond** and **Gloss-N-Seal** and found that the ease of application and the wettability of tooth structure were exceptional. Many consultants felt that the foam sponges containing **Gloss-N-Seal** were too large, and they would prefer to dispense the material from a bottle. The most-liked feature was the lack of post-operative sensitivity in using **Tenure Uni-Bond** with **Gloss-N-Seal**. The least-liked feature of **Tenure Uni-Bond** was the instruction card. Most consultants expressed the desire for simplified, illustrated instructions. Seventy-seven percent of consultants thought that **Tenure Uni-Bond** with **Gloss-N-Seal** was the same as or better than the current bonding agent they were using. Fifty percent of consultants would purchase **Tenure Uni-Bond** with **Gloss-N-Seal**, and 81% would recommend it.

### Consultants' Comments

- ▶ "**Gloss-N-Seal** provided a smooth, shiny surface and left the restorations looking great!"
- ▶ "Terrific product! I had a significant reduction in post-operative sensitivity."
- ▶ "They kept my anterior temporaries looking great, and patients were impressed by the life-like restorations."
- ▶ Place **Gloss-N-Seal** in a bottle to reduce waste experienced with the foam sponges.

## ■ Ultra-Bond Plus

++++ 1/2

Den-Mat Corp.  
800.433.6628  
805.922.8491  
www.denmat.com



### Description

**Ultra-Bond Plus** is a radiopaque, multi-purpose, dual-cured resin cement. It is designed for use with ceramic veneers, inlays/onlays and crowns. The light-curing time is 30 seconds with a QTH light. The material takes 10-15 minutes to self cure. **Ultra-Bond Plus** is available in 4 shades: White, Clear, A1, and A3. Light-curing test rings come with the multi-shade kit to check

the curing depth with specific lights. The multi-shade kit evaluated includes:

- 4 dual-barrel syringes (White, Clear, A1, A3)
- **Cerinate Primer**
- Porcelain Conditioner
- **Dab-Eze Tenure S**
- 30 automix tips
- Accessories and instructions

Twenty-one consultants used **Ultra-Bond Plus** in over 226 cementation procedures.

Suggested Retail Cost: \$368.00/multi-shade kit

### Product Features

Most of the features of **Ultra-Bond Plus** were well received by consultants. All consultants rated the instructions and packaging of the

See **Ultra-Bond Plus** page 8.

CLINICAL  
CONSULTANTS

R. Dost, VA  
J. Doueck, NY  
M. Dwoskin, MI  
M. Eannaccone, NY  
R. Engle, IL  
K. Fairbanks, MI  
T. Faiver, MI  
N. Fehmi, MI  
M. Feinberg, NY  
J. Fine, NJ  
K. Fischer, IN  
S. Galster, ND  
D. Garber, IL  
A. Gray, MI  
M. Gay, MI  
N. Garlisi, OH  
A. Giovanardi, MI  
G. Girgis, 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  
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. Jaghab, MI  
N. Johnson, MN  
T. Jowett, KS  
D. Juncá, FL  
C. Kamin, OH  
J. Kaminski, MI  
D. Kaplan, NY  
M. Kastner, OH  
S. Kelly, OH  
D. Keren, NY  
B. Klym, MI  
V. Kolpakov, MI  
J. Kostohryz, TX  
J. Kotapish, OH  
J. Kotnour, WI  
K. Labadie, IL  
M. LaMarche, WA  
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

## ■ Admira Bond SD

++++

VOCO GmbH  
888.658.2584  
www.voco.com/  
usa



### Description

#### Admira Bond SD

**(SingleDose)** is a light-cured bonding agent (5<sup>th</sup>-generation) designed to be used with the “total-etch” tooth technique. This new, 0.06-ml foil package contains the same chemicals as the original 1-bottle dispensing/brush application system, which is still available. The package is about 4.4-cm long and may be readily held in a thumb-finger grasp. The kit includes 50 single-dose packages along with disposable applicators. Each applicator has a fiber-tipped head that is stiff enough to penetrate through the foil cover of the **SingleDose** package and fold the foil aside. This action also saturates the fiber tip; the tip is bendable and has minimum rebound. After a 30-second application period, any residual fluid should be dispersed by air and light cured for 20 seconds. Other applicator tips or brushes may be used to apply the bonding agent. Twenty-three consultants used **Admira Bond SD** in over 525 restorative cases.

Suggested Retail Cost: \$74.95/kit

(continued from page 7)

## Ultra-Bond Plus

++++ 1/2

system as good to excellent. The multi-shade kit is very complete, and the overall ease of use of the system was highly rated. The primer and cement viscosities were judged to be very good, and the ease of mixing and dispensing the cement with the automix tips were the most-liked features. While consultants appreciated the longer working time, many preferred a reduction in the self-cure time. Clean-up of the cement was reported to be fairly easy. While some consultants would have preferred additional shade varieties for the cementation of translucent restorations, the final esthetics of restorations was rated very good. Seventy-nine percent of consultants rated **Ultra-Bond Plus** the same as or better than their current resin cement; 50% would purchase it, and 75% would recommend it.

## Product Features

The packaging of **Admira Bond SD** was very well received by consultants. This product was called “user-friendly” and “a good contribution to infection control procedures.” Packaging, completeness of the kit, coating of dentin, and the adaptation of the composite to the bonded surface were all rated as excellent characteristics. A few consultants would have preferred to have 2 sizes of packages – one with a greater volume of liquid for multiple preparation cases. Fifty-eight percent of consultants stated that **Admira Bond SD** was as good as or better than their current bonding agent, and 43% would both switch to and recommend **Admira Bond SD**.

|                    | Enamel | Dentin |
|--------------------|--------|--------|
| Bond strength, MPa | 28     | 24     |

### Consultants' Comments

- ▶ “No more sticky bottles to deal with.”
- ▶ “I like the unit-dose characteristic.”
- ▶ “Good micro-tip applicator.”
- ▶ “Does not evaporate rapidly.”
- ▶ “It would be great if this could be self-etching also.”
- ▶ “Make the foil a different color so the liquid is easier to see.”

## Clinical Tip

- ▶ Take the kit out of the refrigerator ahead of time so the material flows better.

### Consultants' Comments

- ▶ “Automix tips are very convenient.”
- ▶ “Good viscosity of cement makes restoration seating easy.”
- ▶ “Light-curing test rings allowed us to dial in curing light time for optimal clean-up.”
- ▶ Reduce the self-cure time to 7-10 minutes.

*Editors' Note: **Ultra-Bond Plus Try-In Paste** is now available. The shades of the resin-based, non-setting paste correspond to the shades included in the cement kit.*

CLINICAL  
CONSULTANTS

M. Mason, NY  
R. Mason, NY  
W. Mason, MI  
J. Mayer, OH  
J.R. Meagher, NY  
M. Mercer, MI  
J. Mikesell, IL  
C. Miller, PA  
S. Miller, NV  
R. Mizrahi, NY  
L. Montes, NY  
P. Moratto, MD  
M. Morin, MI  
S. Munro, WI  
W. Nagy, WI  
J. Nash, MI  
A. Nazarian, MI  
J. Neme, MI  
L. Neuberger, ND  
C.J. Noe, MD  
E. Odenweller, OH  
R. Oshrain, NY  
R. Paffenbarger, MI  
G. Pappenfus, MN  
J. Paris, TX  
D. Parris, GA  
R. Parrott, CA  
D. Parsons, NY  
M. Patel, MI  
T. Paumier, OH  
L. Perratto, NY  
S. Picazio, NJ  
T. Pieper, WY  
D. Pietz, NC  
W. Piskowski, MI  
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  
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  
J. Shea, MO  
T. Slade, MI  
R. Smith, NY  
S. Smith, FL

## ■ Binetics Putty Fast

++++ 1/2

ROYDENT Dental Products  
800.992.7767  
www.roydent.com



### Description

**Binetics Putty Fast** is an addition silicone impression material in a putty viscosity for use as a tray material. It is supplied in foil bags for dispensing from all automatic mixing and dispensing systems. The putty is compatible with all low-viscosity wash addition silicone materials. The working time is listed at 1.5 minutes with an intraoral setting time of 2.5 minutes. The introductory pack contains 300 ml of paste, 62 ml of catalyst, a cartridge body, and 10 mixing tips. Twenty-two consultants evaluated **Binetics Putty Fast** in making 152 clinical impressions.

Suggested Retail Cost: \$195.50/introductory pack

### Product Features

The foil bags of **Binetics Putty Fast** load quickly into the cartridge body, and a uniform mix is expressed when the dispenser is activated. Entrapment of air bubbles during extrusion can be avoided by keeping the mixing tip in the

material. The working and setting times were judged to be good, as was the ease of removal from the mouth. The material is patient-friendly because it is tasteless and odorless. There were no reports of separation of the putty from the various low-viscosity materials used by the consultants. Fit of crowns was excellent, regardless of the light-body material used with the putty. Fifty percent of consultants would both purchase and recommend **Binetics Putty Fast**.

### Clinical Tip

- ▶ Use a spatula to spread the material to the edges of the impression tray. Because of the high viscosity of the putty, it tends to remain where dispensed – usually in the center of the tray.

### Consultants' Comments

- ▶ "The fast set makes it great for single-tooth, dual-arch impressions."
- ▶ "Lime green color is easy to read."
- ▶ "Very viscous, but flows and adapts well to prepared teeth, resulting in excellent impressions."
- ▶ "Easily displaces moisture and soft tissue at

## ■ Tempit

++++ 1/2

Centrix, Inc.  
800.235.5862 203.929.5582  
www.centrixdental.com

### Description

**Tempit** is a temporary filling material intended for sealing endodontic access openings. This is a reformulation of the original **Tempit** with improved resistance to leakage. It is now supplied in 0.35-g unit-dose capsules for direct placement in the tooth. **Tempit** is a white-colored material that sets upon contact with moisture. The unit-dose capsules are compatible with most composite guns. Seventeen consultants used **Tempit** in over 240 procedures.

Suggested Retail Cost:  
\$34.95/40 unit-dose capsules

### Product Features

Consultants appreciated the concise instructions and packaging of **Tempit**. The unit-dose capsules were well received, and all consultants

commented on the ease of use with the new delivery system. The unit-dose packaging keeps the material soft, in contrast to similar materials supplied in jars or tubes that tend to become dry and crumbly after opening. Consultants found that 1 capsule was sufficient for filling small- to moderate-size access openings, while large areas required 2 capsules. **Tempit** becomes firm about 5 minutes after placement and sets hard in 20-30 minutes. The most-liked feature of **Tempit** was the durability of the material. Eighty-seven percent of consultants stated that **Tempit** was the same as or better than their current temporary material; 82% of consultants would purchase it, and 88% would recommend it.

### Consultants' Comments

- ▶ "This is the easiest material to use – I love it!"
- ▶ "The material is quite durable."
- ▶ "I would like a more universal shade."
- ▶ "Shorten the setting time."

*Note: Centrix, Inc., is planning a reformulation of the **Tempit** product line in March 2004.*

## CLINICAL CONSULTANTS

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  
R.W. Toothaker, NE  
C. Trubschenck, CA  
P. Tu, CA  
A. Tucklaper, MI  
S. Ura, NH  
J. Utess, MI  
R. Utterback, MI  
H. Vann, MS  
J. Van Tiem, MI  
W. Walcott, MI  
L. Walsh, MI  
M. Waranowicz, MI  
M. Warshanna, MD  
L. Wee, MI  
J. Weissman, NY  
R. Wilkie, MI  
S. Williams, MO  
R.G. Willis, SC  
M. Wilson, MI  
R. Wolf, IN  
M. Wolfgang, HI  
F. Wood, PA  
H. Yeung, CA  
S. Young, NY  
M. Zahn, MI  
P. Zanetti, MI  
G. Zann, FL  
S. Zimmer, MI

## LABORATORY CONSULTANTS

Alpha Dental  
Studio, MI  
Armstrong  
Laboratory, KY  
D.H. Baker Dental  
Laboratory, MI  
Davis Dental Labora-  
tory, MI  
Dental Prosthetic  
Services, IA  
Dickerson Dental  
Studio, Inc., OH  
Edmonds Dental  
Prosthetics, MO  
Gnathodent Lab  
Corp., NY  
Harmony Dental Labo-  
ratory, MD  
Nellmar Laboratory,  
LLC, MI  
New Image Dental  
Laboratory, GA  
Noble Craft  
Prosthetics, Inc., NY  
Oral Arts Dental Labo-  
ratory, GA  
Ramsey Dental Ceram-  
ics, MI  
Scullin Dental Labora-  
tory, OH

## ■ Palfique Estelite

+++++

Tokuyama Dental Corp./J. Morita USA  
800.831.3222 949.581.9600  
www.jmoritausa.com

## Description

**Palfique Estelite** is a submicron-filled composite indicated for various restorations, including Class III, IV and V, small-sized Class I and II restorations, and veneers. It is radiopaque and filled 71% by volume with silica-zirconia spherical particles averaging 0.2 µm and composite filler. Ten Vita shades plus 2 opaque, incisal and cervical shades are available in both syringes and unit-dose capsules.

## Clinical Evaluation Protocol

- 200 restorations were placed in 109 patients.
- 75 restorations in 39 patients were available for evaluation at 1 year.
- Distribution of restorations is shown in Figure 1. Class I and II restorations were placed in areas with low occlusal forces.
- Various bonding agents and finishing/polishing methods were used.
- Restorations were evaluated on a 1-5 rating scale: 1=poor, 2=fair, 3=good, 4=very good, 5=excellent.

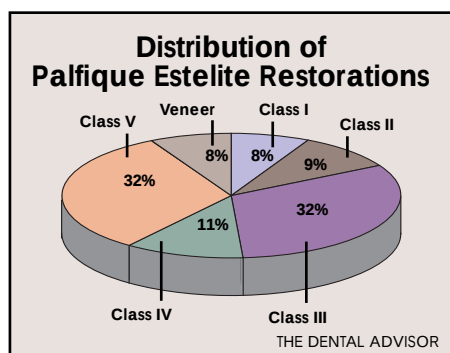


Figure 1



## Clinical Observations

### ► Resistance to Fracture/Chipping

No chips, fractures or failures of any type were noted in the **Palfique Estelite** restorations recalled.

### ► Shade Match/Esthetics

The esthetics of **Palfique Estelite** restorations was superior to other microfilled composites evaluated in the past.

Shade match was rated excellent as was blending with the tooth. Consultants noted that in most cases, the restorations were virtually undetectable. The composite provides excellent translucency. For more opacity, the opaque shades were used.

### ► Lack of Marginal Discoloration

Restorations were well sealed, showing no stain at the margin.

### ► Wear Resistance

Most restorations were rated excellent for wear resistance. Four anterior restorations showed slight wear at the margin, requiring refinishing.

### ► Patient Satisfaction

Patients reported 100% satisfaction with their **Palfique Estelite** restorations at 1 year.

## Consultants' Comments

- "Restorations look great without the need to layer composite."
- "Surface is just as smooth at 1 year as when I placed it."
- "Cervical restorations are invisible."
- "No shades available to match bleached white teeth."

## Visit THE DENTAL ADVISOR

At the Chicago Midwinter Meeting, February 20 – 22, 2004

Booth #1415

## ■ LA Axxess Bur Kit

++++ 1/2

SybronEndo  
800.346.3636  
714.516.7941  
www.sybrondental.com



### Description

**LA Axxess Bur Kit** was designed by Dr. L. Stephen Buchanan for preparing endodontic access openings. The kit comes with an autoclavable metal bur block with labeled slots containing 2 each of the 11 burs. The following burs are provided for initial access opening through restorations or crowns and for caries removal: #2 round diamond; cross-cut carbide; and #2, #4, and #6 round carbides. For refining the access, long tapered diamonds and extra-long tapered diamonds are provided. The latch-head #1, #2, and #3 line-angle (LA) access burs create an extension of the canal path, creating a straight path for files. In addition, football diamonds are provided for finishing the provisional restoration. The burs are reusable and can be purchased individually. Fifteen consultants used **LA Axxess Bur Kit** in 230 clinical cases.

Suggested Retail Cost: \$149.00/kit

### Product Features

Consultants who evaluated **LA Axxess Bur Kit** were typically using round carbides and diamonds for access openings, with a wide variety of other burs used to refine the canal orifices. They found the **LA Axxess** bur block and kit to be well organized and complete with a wide selection of burs. The carbides and diamonds cut efficiently, and the quality of the access obtained was rated very good. The parabolic tips and titanium nitride coating on the line-angle burs help to prevent ledging and irregularities. The straight file path created allows canal preparation to proceed more efficiently. One hundred percent of consultants found **LA Axxess Bur Kit** to be the same as or better than the burs they currently use. Thirty-eight percent of consultants would purchase **LA Axxess Bur Kit**, and 67% would recommend it.

### Consultants' Comments

- ▶ "This kit improved my abilities, and I have been doing molar endodontics for 17 years."
- ▶ "Good quality components."
- ▶ "Provides almost all necessary burs."

## THE DENTAL ADVISOR Celebrates 20 Years

We recently celebrated our 20<sup>th</sup> anniversary with a spectacular Dental Conference! Dr. John Farah and Dr. John Powers, editors of THE DENTAL ADVISOR, were joined by our advisory board members, Drs. John Burgess, Karl Leinfelder, John Molinari and Frederick Rueggeberg. The conference was dedicated to our special guest speaker, Dr. Kamal Asgar, and in fond remembrance of Dr. Robert Craig. We were privileged to have this event hosted by Dr. William Gregory, associate editor of THE DENTAL ADVISOR.

Following the conference, THE DENTAL ADVISOR hosted an awards ceremony honoring the speakers, our clinical consultants and the companies that have been an integral part of our success over the years. The outstanding companies that received 'Recognition of Excellence' awards were: 3M ESPE, A-dec/W&H, Coltene/Whaledent, Den-Mat Corporation, DENTSPLY/Caulk, GC America, Heraeus Kulzer, Ivoclar Vivadent, KaVo America, Kerr Corporation, Kuraray America, Pentron Clinical and Laboratory Technologies, Tokuyama/J. Morita USA, VOCO, and Zenith/DMG. Our sincere gratitude goes to these companies for their contribution to the success of our publication.

Next year, THE DENTAL ADVISOR's annual dental conference will be held in Ann Arbor, Michigan, on November 5, 2004. This event will be a Clinician's Conference, featuring practicing dentists speaking on timely topics with an afternoon hands-on session. Please plan on joining us!



Left to Right:  
Drs. Frederick Rueggeberg, John Farah,  
Kamal Asgar, John Burgess, Karl Leinfelder,  
John Powers, John Molinari, and William Gregory

©Gregory Fox Photography

# Editors' Choice Sinfony 4-year Clinical Performance

20  
years

## ■ Sinfony

+++ + 1/2

3M ESPE

800.634.2249 651.733.1110

www.3MESPE.com

## Description

**Sinfony** is a laboratory composite light-cured under vacuum. It is indicated for anterior and posterior crowns, inlays/onlays and veneers. The composite is a microhybrid with strontium glass and silica fillers. Restorations should be bonded with resin cement.

## Clinical Evaluation Protocol

- 105 restorations have been placed.
- 62 restorations were recalled for evaluation at 4 years.
- Restorations recalled included 51 posterior crowns and 11 inlays/onlays.
- Restorations were evaluated on a 1-5 rating scale: 1=poor, 2=fair, 3=good, 4=very good, 5=excellent.
- Categories evaluated at recall are indicated below.

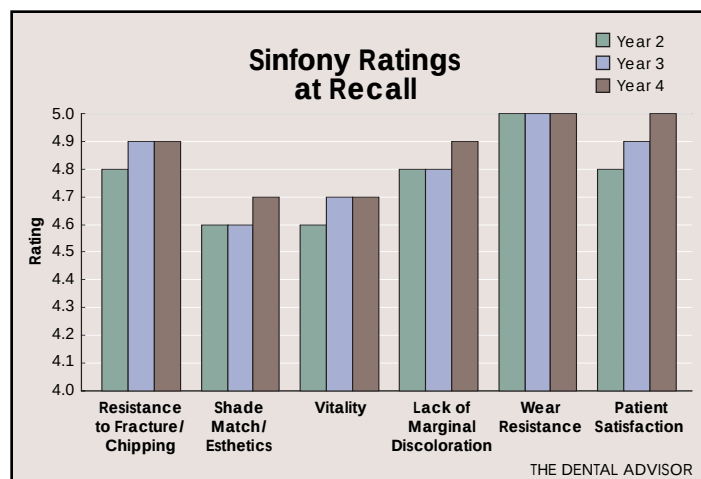
## Clinical Observations

### ► Resistance to Fracture/Chipping

During the 4<sup>th</sup> year of evaluation, one molar crown fractured, requiring replacement. Overall, one other crown has fractured and 2 have debonded during years 1 to 3. The 2% fracture rate is comparable to ceramics and better than many other indirect composites.

### ► Shade Match/Esthetics and Vitality

All restorations were rated very good to excellent for



Before restoration.



**Sinfony** (tooth #4) at 4-year recall.

Jeff J. Brucia, D.D.S., San Francisco, CA

both shade match and vitality. The colors of **Sinfony** restorations are stable, and the surfaces seem to be resistant to staining. Surfaces have remained smooth and have maintained their gloss.

### ► Lack of Marginal Discoloration

No marginal discoloration was noted in 90% of recalled restorations. They were rated excellent at 4 years. Slight staining was noted in the remaining 10% of restorations; none required replacement.

### ► Wear Resistance

Surface wear was evaluated visually on **Sinfony** restorations. Ninety-five percent of the restorations showed no wear that was apparent clinically to consultants. No visible signs of opposing wear were noted.

### ► Patient Satisfaction

Excellent ratings were given to 96% of the restorations based on patients' verbal responses regarding comfort and esthetics. The balance of translucency and opacity produces restorations that blend well with natural dentition.

## Consultants' Comments

- "My first choice for composite inlays."
- "Shades have not shown any deterioration."
- "Excellent esthetics and wear resistance; a good alternative to ceramic."
- "**Sinfony** restorations have continued to perform very well over a 4-year evaluation period."