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FEBRUARY 2017

NEXT-GENERATION CAD/CAM Material

for Metal-Free Restorations

CAD/CAM Materials

AVAILABLE TODAY

Exciting new technological developments are revolutionizing the laboratory industry. Specifically, in the last decade, computer-assisted design/computer-assisted manufacturing (CAD/CAM) technology has greatly contributed to the utilization of new, innovative materials.

While each development offers new functional and esthetic opportunities, laboratory managers face additional responsibilities in determining the ideal material for individual circumstances.

For example, while zirconia has been praised as esthetic and durable, its fabrication in the laboratory requires more time—sintering for about 8 hours. Titanium is biocompatible, but it can be relatively expensive, and once it is milled it cannot be relined or adjusted.

These laboratory workflow disadvantages can be costly and time consuming, impacting dentist and patient satisfaction. Many labs do not have the expensive milling system for titanium, forcing them to outsource production. Try-ins and fit-ins require multiple appointments, involving the patient, clinician, and technician. Necessary adjustments and modifications require cutting, re-taking impressions, re-pouring the models, and soldering.

For the laboratory, fabricating is more time-consuming, costly, less efficient, and prone to errors as more production steps lead to less predictability.

ALTERNATIVE TO

Titanium, Zirconia, and Other Metals

TRINIA™ is a fiber-reinforced resin composite manufactured in the United States, offering distinct advantages over other materials:

- Lightweight
- Durable and resilient
- Biocompatible
- Adjustable
- No firing required
- Unique mechanical properties with high flexural and compressive characteristics
- Available in blocks, D-shape disks and pucks, in pink and ivory shades

INDICATIONS:

- Copings
- Single crowns
- Bridges
- Partial dentures
- Bars
- Permanent and transitional structures
- Sub-structures, either cemented or uncemented
- Restorations such as telescopic restorations

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NEXT-GENERATION CAD/CAM MATERIAL FOR METAL-FREE RESTORATIONS

The Metal-Free

WORKFLOW ADVANTAGE

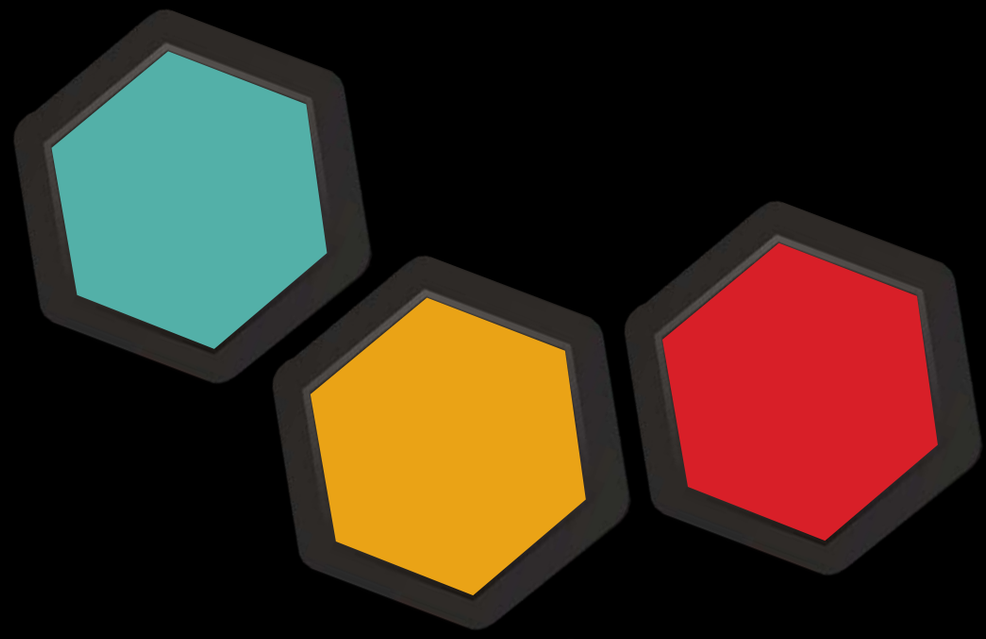
With TRINIA, laboratories can create premium, durable, and resilient products efficiently with very reasonable costs:

- More efficient fabricating, adjustment, and relining
- Cost-saving and high productivity with minimal waste (98 mm x 25 mm disks allow milling of larger structures)
- Complex cases can be achieved with fewer clinical visits (demonstrates high lab efficiency and productivity)
- Minor TRINIA adjustments can be performed by the clinician chairside (saving technician time)

TRINIA can be milled using most leading wet or dry milling machines with nano-diamond or carbide burs, including those from Roland and VHF. Nano-diamond burs are essential for successful milling to create detailed tooth anatomy, morphology, and contouring.

Fabricated TRINIA bar dentures can be easily adjusted and relined in a dental office with a lab composite such as Ceramage.

In addition, using pink-shade TRINIA helps cut down the characterization process, as the pigmentation of the material matches that of gingival sulcus. The pink color is selected to match the tissue color of the processed acrylic, therefore no masking is required to disguise substructures.



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Metal-free TRINIA

ON THE CUTTING-EDGE FOR SUBSTRUCTURES

FEATURED CASE FROM JIM COLLIS, CDT
Collis Prosthodontic Laboratory • Mount Prospect, Illinois

Tasked with fabricating a screw-retained all-on-four upper denture over an opposing cement-in All-on-4 lower denture, Collis recommended to the dentist that the substructures be fabricated with TRINIA. The models were poured with the appropriate analogs in place, soft tissue was placed around the analogs, bite rims were prepared, and records were taken. Upper and lower try-ins were fabricated and sent out for patient approval.

The next step was to scan the try-ins on the casts. Then the try-ins and the soft tissue were removed, the scan jigs attached, and the models scanned with and without the soft tissue in place. The purpose of these scans was to create files that would be used to design substructures fitting within the parameters of the try-ins (Figure 1).

Fig. 1

Fig. 2

Utilizing design software, the bars were designed and sent to the milling machine. In this case, the pink, round TRINIA puck was selected to match the tissue color of the processed acrylic so that no masking would be required to disguise the substructures (Figure 2).

The try-ins were returned to the models without the substructures in place. Then silicone indices were fabricated to hold the position of the teeth once the wax was removed. Made of glass-reinforced microfill-hybrid composite, VERACIA SA semi-anatomical teeth were used for anterior and posterior set-ups. The silicone indices were taken off the models, the wax was removed, and the teeth were returned to the indices using a tiny dot of adhesive on each tooth to affix it securely.

For the upper appliance, the titanium bases were prepared by sandblasting the outside of the bases and then painting the outside of the bases with ML Primer. The titanium bases were screwed into place on the upper cast without the soft tissue. Next the upper substructure was prepared to receive the titanium bases. The intaglios of the substructure were sandblasted, steam-cleaned, and wiped with a cotton swab with alcohol.

Metal-free TRINIA ON THE CUTTING-EDGE FOR SUBSTRUCTURES

FEATURED CASE FROM JIM COLLIS, CDT *Continued*

Next a thin coat of Ceraresin Bond 1 was applied to each intaglio and allowed to dry for one minute. A light coat of Ceraresin Bond 2 was applied to each intaglio, and then the substructure was light cured for three minutes. A small even coat of MonoCem was placed on the surface of each titanium base, then the upper substructure was affixed on top of the titanium bases maintaining pressure for 3 minutes to set the cement (Figure 3).

The upper substructure was then unscrewed from the cast with the titanium bases securely affixed. The soft tissue was returned to the cast, and the substructure was reattached to the cast to check for any premature contacts between the soft tissue and the substructure. The fit of the lower substructure with soft tissue was likewise confirmed on the lower cast. After the fit of the substructures were verified, the silicone indices were placed back on the casts, and the teeth were luted in place. Then the upper and lower were waxed up for a final try-in, making certain that the access holes on the upper were kept clear of any wax or debris (Figure 4).

Fig. 3

Fig. 4

The upper was invested using the standard All-on-4 protocol for processing, utilizing analogs to fabricate a processing cast. Alternatively, the try-in with analogs could be placed directly into the lower half of a flask and invested. The lower was invested directly into a flask. These analogs on the lower kept the substructure in position after boil-out and during processing. The upper and lower were cured overnight at 163 degrees Fahrenheit with a high impact acrylic and then bench cooled.

The dentures were then finished and naturalized with Ceramage Gum color composites, zirconium silicate indirect restorative, to further enhance the esthetics of the finished appliances. The dentures were then polished and remounted on the original casts. The occlusion was verified and adjusted, as needed. The case was delivered with appliance care instructions to be provided to the patient (Figure 5).

Fig. 5

Systems for
LABORATORY EFFICIENCY

VERACIA SA are semi-anatomical teeth manufactured from a homogeneous micro-filled composite reinforced with layered glass, used for anterior and posterior set-ups. This tooth placement system allows completion of a precise set-up in about half of the normal set-up time.

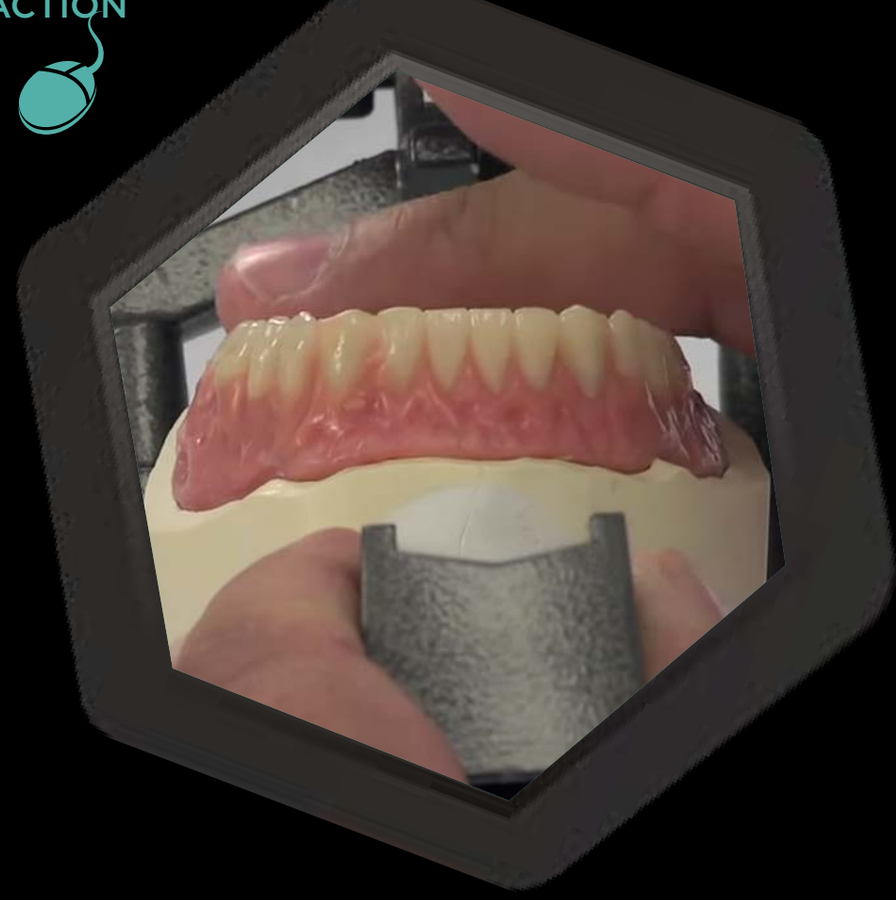
VERACIA SA delivers excellent esthetics, long durability, and exceptional bonding strength with the denture base.

GET THE DETAILS

Quick Quality Quadrant (Q³ Pack) is a system of four individual posterior teeth set on an occlusal template for each side of the arch to facilitate quick, precise set with perfect buccal alignment, Curve of Spee, Curve of Wilson, and long axis of the teeth.

Q³ Pack is available for each posterior arch (upper or lower) to accommodate the technician's method of setting teeth.

SEE IT IN ACTION



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Innovative Denture Teeth

DESIGNED FOR QUICK, PRECISE SET-UPS

FEATURED CASE FROM JIM COLLIS, CDT

Collis Prosthodontic Laboratory • Mount Prospect, Illinois

After the upper and lower anterior teeth were set from Veracia SA standard 1x6 cards (Figure 1), a Q³ Pack was used to set each side of the lower arch (Figure 2). Each lower template was then placed, and both templates were released by simply pressing down on the lingual of the templates.

In the next step, the posterior teeth were set for the upper arch using a standard 1x8 card. The opposing teeth dropped right into place because the teeth from the Q³ Pack are set into an ideal 20 degree Curve of Spee and Curve of Wilson.

Alternatively, the Q³ Pack for other occlusal schemes could be used by merely adjusting the inside ends of the template up or down by 1 mm during setup to either increase or decrease the Curve of Wilson. The teeth in the template are all separate, so that a technician can still individually rotate or move any tooth for esthetic reasons, if necessary, once the template is removed.

With Q³ Pack, teeth are easy to set in half the time with consistently precise results, even for the less experienced technician. Dentists and their patients confirm that the denture teeth look great and provide true functionality, because the abrasion zones of the posterior teeth are already pre-milled to afford better mastication in the mouth (Figure 3).

Fig. 1

Fig. 2

Fig. 3

A New Standard

IN INDIRECT OPTIONS

Ceramage is a zirconium silicate indirect restorative with highly filled organic polymer matrix (ca. 73% progressive fine structure). Demonstrating excellent flexural strength, elasticity, and polishability, Ceramage simulates the wear of natural dentition and provides superior abrasion resistance and color stability.

DESIGNED FOR PERFORMANCE

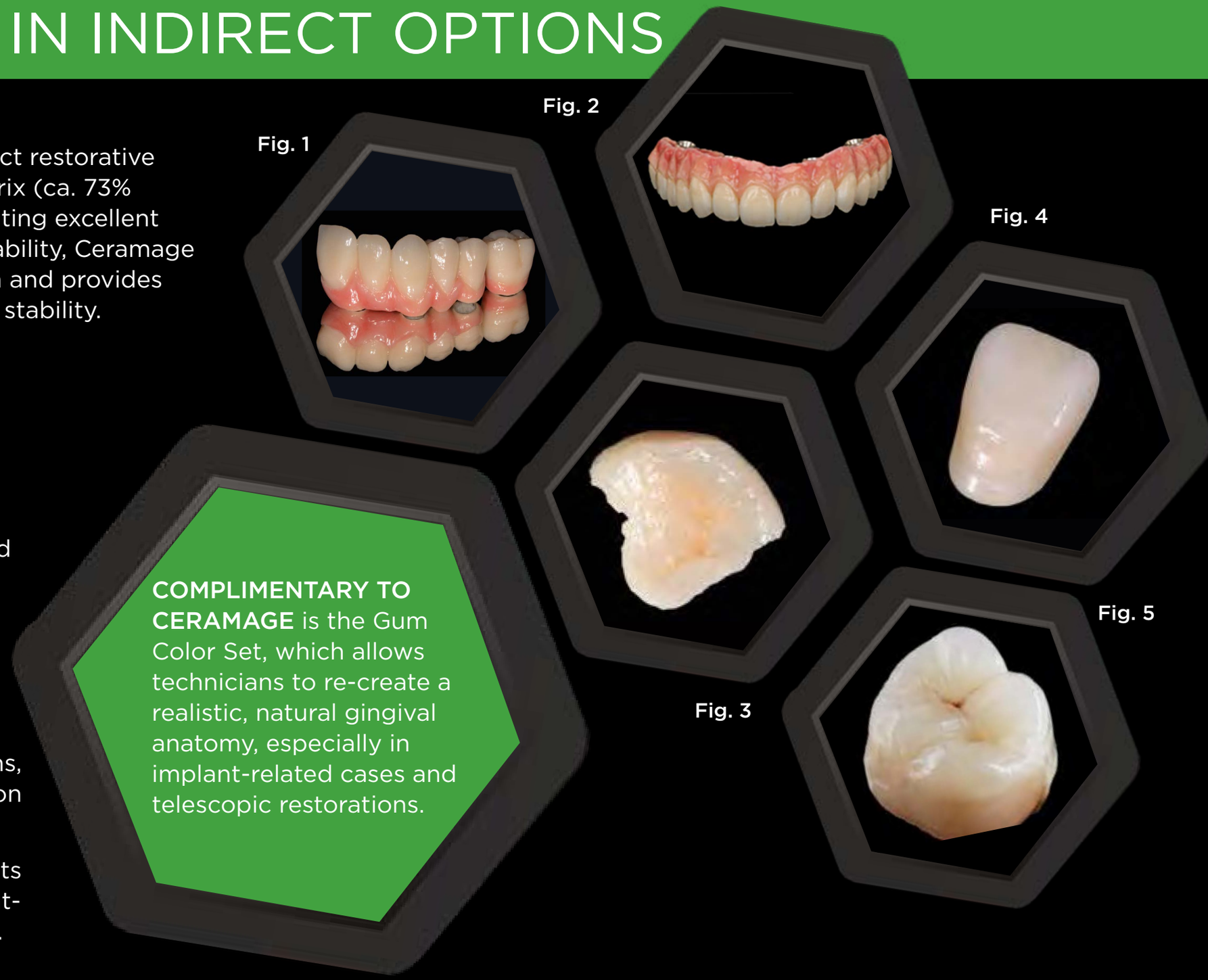
Bonds to a variety of substructures, including TRINIA (Figure 1).

Works with all metals and is indicated for inlays, onlays, crowns, implants, and bridges (Figure 2).

Allows for controlled application and modeling, even for very fine anatomical details (Figure 3).

Provides excellent esthetic results for both anterior and posterior restorations, with the translucency and light diffusion of natural teeth (Figure 4).

Does not require firing and maintains its true color throughout the buildup, light-curing, and final restoration (Figure 5).



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About SHOFU

In 1922, Kyoto ceramics maker Kajo Shofu III formed a company that specialized in industrial mass production of ceramics, including ceramic teeth, a precursor of the today's VERACIA SA denture teeth. Shofu's laboratory division has become an incubator of a cornucopia of innovative dental materials, instruments, and equipment, including abrasives, porcelain, indirect and direct restorative composites, adhesive systems, preventive materials, a digital dental camera, and many more.

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Additional Resources

TRINIA INDICATIONS & TECHNIQUES

TRINIA BROCHURE

TRINIA WEBINAR