



## Products Rated Highly by Evaluators in CR Clinical Trials

### OMNICHROMA



*Tokuyama Dental  
America*

**\$99.99/2.2ml syringe**

## First Esthetic Resin-Based Composite Restorative Material with Only ONE Shade to Match Most Teeth

How can one direct composite shade match most A-1 to D-4 teeth? As ambient light passes through the spherical fillers in OMNICHROMA, they generate red to yellow structural color, the natural colors found in human teeth. The red-to-yellow color combines with the reflected color of the surrounding tooth to create a match. This technology eliminates the need for pigments or dyes, and the result is a unique color-matching ability combined with excellent mechanical properties and high polishability. OMNICHROMA is an omni-chromatic suprananofilled zirconia particle composite. For dark internal-stained teeth and large anterior cases, OMNICHROMA BLOCKER can be used to prevent shade interferences. OMNICHROMA has similar physical properties to the well established Estelite Sigma Quick.

### Advantages:

- Good shade matching; shade blended well with natural tooth
- Easy placement with good dispensing, condensing, and handling
- Polishes well for a good final finish

### Limitations:

- Some cases require use of OMNICHROMA BLOCKER to achieve desired surface shade
- As with all new restoratives, clinical longevity and wear is being established

**CR CONCLUSIONS:** 75% of 24 CR Evaluators stated they would incorporate OMNICHROMA into their practice. 88% rated it excellent or good and worthy of trial by colleagues.



## New, Innovative Restorative Resins Appear Promising

**Gordon's Clinical Observations:** Resin-based composites have now been in the profession since the late 1950s. Since that time the major changes have not usually been new resin materials, rather changes in filler type and size. Currently, there is a trend to fewer colors, chameleon-like optics, active ion release, smoother finishing and polishing characteristics, and lower cost. Since placement of these restorations is currently the most common procedure in restorative dentistry, it is important for dentists to know if any of the recent formulation changes among restorative resins are clinically significant. *CR helps you to make this decision in this report.*

- **Filtek Supreme Ultra by 3M** has dominated the market of restorative resins for multiple years (44% of clinicians currently using, per CR survey February 2019).
- **Additional brands** by multiple manufacturers have been proven excellent clinically (see CR Buying Guide for 2019).
- **Multiple recently released brands have innovative concepts**, although they still need to be proven clinically to adequately compare to established brands.



New restorative resin formulations such as OMNICHROMA by Tokuyama Dental are exciting innovations (see Clinicians Report March 2019).

This report compares multiple new restorative resin brands to select proven brands through scientific testing and clinician input; references to previous articles for proper clinical technique are also provided.

### Comparison of New Brands

The following table lists multiple brands of new resin-based composite restorative materials as well as four clinically proven products used as project controls. All are indicated for posterior and anterior use. Brands are listed in order of overall rating. Many other brands are available.

Product Manufacturer	Cost/ml	Shades Available	Color Match	Tooth-like Appearance (Translucency)	Handling, Consistency	Initial Fluoride Release *	Wear Resistance (abrasion with prophylaxis)	Gloss Retention (abrasion with toothbrush)	Polymerization Shrinkage Stress (MPa, lower is better)	Depth of Cure (with Manufacturer-Recommended Cure Time)	Flexural Strength (MPa, higher is better)	Radiopacity (%Al equivalency)	Overall Rating (clinical results pending for new products)
OMNICHROMA Tokuyama Dental	\$48	1 †	Excellent	Excellent	Putty	No	Excellent	Excellent	2.1	4.0 mm	100	178	Excellent CR Choice
Filtek Universal 3M	\$50	10	Excellent	Excellent-Good	Putty	No	Good	Excellent	2.3	4.5 mm	101	288	Excellent CR Choice
SonicFill 3 KaVo Kerr	\$58	4	Good-Fair	Excellent-Good	Putty (sonic delivery)	No	Excellent	Excellent-Good	2.1	4.5 mm	104	231	Excellent-Good
G-aenial Universal Injectable GC America	\$51	16	Excellent-Good	Excellent-Good	Flowable	No	Excellent	Excellent	3.0	2.4 mm	139	220	Excellent-Good
G-aenial Bulk Injectable GC America	\$43	2	Good-Fair	Excellent-Good	Flowable	No	Excellent	Excellent	3.3	4.0 mm	112	219	Excellent-Good
Beautiful Flow Plus X Shofu	\$38	16	Excellent-Good	Excellent-Good	Flowable	Yes, low	Good-Fair	Excellent-Good	3.3	3.8 mm	109	211	Excellent-Good
Predicta Bioactive Bulk Parkell	\$20	2	Fair-Poor	Excellent	Flowable	Yes, low	Good	Good	3.3	Full (dual cure)	107	278	Good
LC Fill Parkell	\$30	1	Poor	Excellent	Flowable	No	Excellent	Good	2.0	3.0 mm	103	314	Good
Estelite Sigma Quick Tokuyama Dental (control)	\$45	20	Excellent	Excellent	Putty	No	Excellent	Excellent	1.9	4.0 mm	81	180	Excellent CR Choice
Filtek Supreme Ultra 3M (control)	\$70	36	Excellent	Excellent	Putty	No	Excellent	Excellent	2.3	4.5 mm	139	262	Excellent CR Choice
Harmonize KaVo Kerr (control)	\$57	30	Excellent	Excellent	Putty	No	Excellent-Good	Excellent	1.8	4.0 mm	115	269	Excellent CR Choice
TPH Spectra ST Dentsply Sirona (control)	\$60	6	Excellent	Excellent	Putty	No	Good	Excellent	2.0	4.0 mm	92	357	Excellent CR Choice

\* CR lab test results within first week of placement; conventional glass ionomer restorative used as fluoride-releasing control

† One single shade capable of matching any surrounding tooth structure once cured (patented technology); additional BLOCKER shade for masking purposes as needed

Summary of Test Methods and Results on next page

## New, Innovative Restorative Resins Appear Promising *(Continued from page 1)*

### Comparison of New Brands

#### Summary of Test Methods and Results

- **Cost/ml:** Ranges from \$20 to \$70. Filtek Universal by 3M is a new, less expensive alternative to Filtek Supreme Ultra by 3M.
- **Shades Available:** OMNICHROMA by Tokuyama Dental has one single shade which has very innovative chameleon-like optical effect of adapting to surrounding tooth structure shade once light cured. Trend toward fewer shades to cover wide range of possible tooth shades continues (*among new brands*).
- **Color Match:** Rating based on ability of available shades to cover full classic VITA shade range. Controls had best results.
- **Tooth-like Appearance:** Esthetic similarity to enamel translucency.
- **Handling, Consistency:** Brands available in both flowable and putty forms of handling. Each clinician has their own preference.
- **Initial Fluoride Release:** Low fluoride release was measured from two new restorative brands; minimal compared to glass ionomer or resin-modified glass ionomer restoratives.
- **Wear Resistance:** Results generated from lab data using prophy paste and ribbed prophy cup under accelerated test conditions.
- **Gloss Retention:** Results generated from 40,000 cycles brushing motion using conventional sodium fluoride toothpaste.
- **Polymerization Shrinkage Stress (maximum):** Data generated using strain-based tensometer after 30 minutes post light cure; meant to simulate shrinkage of resin that influences formation of problematic white lines at restoration margins. Harmonize by KaVo Kerr had best results.
- **Depth of Cure:** Depth of light cure was identified using manufacturer-recommended light-cure time with standard high-intensity light. Only one brand evaluated (*Predicta Bulk by Parkell*) had dual-cure capability.
- **Flexural Strength:** Partly responsible for long-term durability of restorations. G-aenial Universal Injectable by GC America and Filtek Supreme Ultra by 3M had best results.
- **Radiopacity:** Reflects visibility of restoration in clinical radiographs. Dentin = 96; Enamel = 175; higher is more opaque.
- **Overall Rating:** Based on composite score from all categories listed. Some characteristics were weighted more heavily in overall score calculation. Individual weighting factors were derived directly from clinicians in recent CR survey results. OMNICHROMA by Tokuyama Dental and Filtek Universal by 3M had best overall results among newer brands.

### Clinical Technique References

#### • Class II restoration placement technique:

- **Overall procedure:** See *Clinicians Report* February 2014
- **Finishing and Polishing (focused):** See *Clinicians Report* September 2017
- **Preventing cervical caries:** See *Clinicians Report* June 2018

• **Universal restorative resin placement technique:** See *Clinicians Report* November 2017

• **Light curing products and techniques:** See *Clinicians Report* March 2019 and January 2016

*Previous issues are available at [www.CliniciansReport.org](http://www.CliniciansReport.org).*

**CR CONCLUSIONS:** Multiple new brands of resin-based composite restorative materials are available. Some have very innovative formulations that provide increased simplicity of use and, in some cases, active ion release. Long-term clinical observation and validation is needed. OMNICHROMA by Tokuyama Dental and Filtek Universal by 3M had best initial test results among new restorative resin brands. Clinically proven brands of resin-based composite (*see control brands on previous page*) continue to excel in service. If not satisfied with current brand, new restorative resins provide innovative options. **Clinical technique of restorative resin placement remains crucial to success in service** (*see referenced articles above*).



# What is CR?

## WHY CR?

CR was founded in 1976 by clinicians who believed practitioners could confirm efficacy and clinical usefulness of new products and avoid both the experimentation on patients and failures in the closet. With this purpose in mind, CR was organized as a unique volunteer purpose of testing all types of dental products and disseminating results to colleagues throughout the world.

## WHO FUNDS CR?

Research funds come from subscriptions to the Gordon J. Christensen Clinicians Report®. Revenue from CR's "Dentistry Update™" courses support payroll for non-clinical staff. All Clinical Evaluators volunteer their time and expertise. CR is a non-profit, educational research institute. It is not owned in whole or in part by any individual, family, or group of investors. This system, free of outside funding, was designed to keep CR's research objective and candid.

## HOW DOES CR FUNCTION?

Each year, CR tests in excess of 750 different product brands, performing about 20,000 field evaluations. CR tests all types of dental products, including materials, devices, and equipment, plus techniques. Worldwide, products are purchased from distributors, secured from companies, and sent to CR by clinicians, inventors, and patients. There is no charge to companies for product evaluations. Testing combines the efforts of 450 clinicians in 19 countries who volunteer their time and expertise, and 40 on-site scientists, engineers, and support staff. Products are subjected to at least two levels of CR's unique three-tiered evaluation process that consists of:

1. Clinical field trials where new products are incorporated into routine use in a variety of dental practices and compared by clinicians to products and methods they use routinely.
2. Controlled clinical tests where new products are used and compared under rigorously controlled conditions, and patients are paid for their time as study participants.
3. Laboratory tests where physical and chemical properties of new products are compared to standard products.

**Clinical Success is the Final Test**



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**CRA Foundation® changed its name to CR Foundation® in 2008.**



*This team is testing resin curing lights to determine their ability to cure a variety of resin-based composites.*

*Every month several new projects are completed.*

## THE PROBLEM WITH NEW DENTAL PRODUCTS.

***New dental products have always presented a challenge to clinicians because, with little more than promotional information to guide them, they must judge between those that are new and better, and those that are just new. Because of the industry's keen competition and rush to be first on the market, clinicians and their patients often become test data for new products.***

***Every clinician has, at one time or another, become a victim of this system. All own new products that did not meet expectations, but are stored in hope of some unknown future use, or thrown away at a considerable loss. To help clinicians make educated product purchases, CR tests new dental products and reports the results to the profession.***

Products evaluated by CR Foundation® (CR®) and reported in the *Gordon J. Christensen Clinicians Report®* have been selected on the basis of merit from hundreds of products under evaluation. CR® conducts research at three levels: 1) multiple-user field evaluations, 2) controlled long-term clinical research, and 3) basic science laboratory research. Over 400 clinical field evaluators are located throughout the world and 40 full-time employees work at the institute. A product must meet at least one of the following standards to be reported in this publication: 1) innovative and new on the market, 2) less expensive, but meets the use standards, 3) unrecognized, valuable classic, or 4) superior to others in its broad classification. Your results may differ from CR Evaluators or other researchers on any product because of differences in preferences, techniques, product batches, or environments. CR Foundation® is a tax-exempt, non-profit education and research organization which uses a unique volunteer structure to produce objective, factual data. All proceeds are used to support the work of CR Foundation®. ©2019 This report or portions thereof may not be duplicated without permission of CR Foundation®. Annual English language subscription: US\$229 worldwide, plus GST Canada subscriptions. Single issue: \$29 each. See [www.CliniciansReport.org](http://www.CliniciansReport.org) for additional subscription information.