How a Single-Shade Direct Composite Unlocks the Secrets of Color Matching



Sponsored by

**ADA** American Dental Association®

Vendor Showcase Premium Content

By definition, general dentistry has always been a restorative process in that it is concerned with "the repair of defects or injury to teeth."<sup>1</sup> Dentists traditionally focused on providing dental hygiene and treating caries with relatively basic materials, such as amalgam, and then an evolving array of tooth-colored materials like porcelain-fused-to-metal (PFM) and various all-ceramic options. As tooth-colored direct composite materials became available and more user-friendly, dentists began pursuing additional training that would enable them to provide increasingly "esthetic" services. Thus the advent of restorative dentistry—"that branch of the healing arts concerned with the teeth and associated structures of the oral cavity, including prevention, diagnosis and treatment of diseases of the teeth."<sup>1</sup> This is when the concepts of *healing* and *art* began to overlap.

Today, there are hundreds of products and techniques that can be skillfully used by clinicians to repair or replicate the appearance of teeth to the extent that they are barely discernible nestled among natural dentition. Almost no matter what the situation is, there is a restorative material in the dental office inventory that can be used to address it. Such is the nature of progress.

Clinical use of direct composite materials has always had inherent challenges understanding the chemical processes, mastering the techniques, and overcoming human limitations, such as shade matching.

Shade matching is an art form. Some might say it is a gamble that nothing short of luck will lead to a 100% successful outcome. This is partly because identifying color with the naked eye is a highly subjective process, impacted by variables such as being male or female, age, quality of vision and lighting, time of day, and numerous environmental factors, including the colors of surrounding teeth, restorations, tissues, skin tone, and other patient features. Combined with both the clinician's and patient's personal preferences, color matching can be quite difficult.

To further complicate things, human teeth are not 1 color. Clinicians have to identify and replicate the various colors necessary to create a natural looking, esthetically acceptable direct restoration. This is why some composite systems come with more than 30 shades.

What if shade matching and layering were taken out of the equation for most of your patient's restorations? The new single-shade direct restorative composite from Tokuyama Dental America, OMNICHROMA, makes that possible. This ebook focuses on this new technology along with one dentist's first impressions and clinical perspective.

### **Color Blindness Statistics**

The human eye is 1 of the best tools for determining color, until it's not. First, there is the subjective factor—some say purple, others say violet. Second, some people have deficiencies in color perception, and others are actually colorblind. Color blindness can be mild or severe, and one might even be unaware of it without testing. There are 3 kinds of color blindness: red-green is the most common, blue-yellow is second most common, and total color blindness is very rare. Color blindness can decline with age and if cataracts form on the lens.

According to the National Eye Institute, men have a greater propensity for color blindness (about 8%) than women (0.5%). Red-green color blindness is more common in people with Northern European ancestry.<sup>1</sup> Inherited color blindness can manifest at birth, start during childhood, or not appear until adulthood (think midcareer). About 300 million people are color-blind. Among people with color blindness, 99% have red-green color blindness.

How you see and perceive color depends on how your eyes and brain work together to interpret the properties of light. Light is not white, although that's what we think we see. It is a combination of colors that range from deep blue to deep red. Although many of us would not make the connection, a rainbow or glass prism reveals this phenomenon. The color of light depends on its wavelength—with red corresponding to longer wavelengths and shorter ones resulting in blue light. We perceive something as white when it reflects all light wavelengths, and black when it absorbs them all. Another factor that impacts color vision is something called "photopigments." These are contained in the rods and cones. Rods have only 1 photopigment. Cones have 1 of 3 different types, which makes them sensitive to long (red), medium (green), or short (blue) wavelengths. How the eye and brain communicate color varies from person to person, but because most people have all 3 cone photopigments, they can identify color at least similarly. But people with color blindness interpret color completely differently—perhaps seeing brown instead of red or green.

Color blindness cannot be cured, but special lenses may be useful to identify colors with better accuracy in bright light, outdoors. Apps have been developed for the iPhone and iPad that help with color discrimination. Other apps can be used to determine shades as well as colors.

Various devices are available in the dental market designed to help with color assessment and communication, from the VITA Shade Guide to spectrophotometers and chromameters.

<mark>Men</mark> Women Overall	Normal Vision 91.4% 99.6% 95.5%	L-cone defect 2.45% 0.04% 1.25%	M-cone defect 6.1% 0.36% 3.24%	S-cone defect 0.011% 0.04% 0.025%
	Red	Red	Red	Red
	Orange	Orange	Orange	Orange
	Yellow	Yellow	Yellow	Yellow
	Green	Green	Green	Green
	Blue	Blue	Blue	Blue
	Magenta	Magenta	Magenta	Magenta

Note that the color names in the boxes vary slightly to represent, as much as it is possible, how colorblind people may see the named colors differently based on the type of color blindness they have. Scones: sensitive to short wavelength light with a peak at color absorption at 420 nanometers (blue); Mcones: sensitive to medium wavelength light, peak at color absorption 530 nanometers (green); L-cones: sensitive to long wavelength light, peak at color absorption 560 nanometers (red). Image used with permission from Iris Technologies: Statistics and how many people are color blind. Available at: https://iristech.co/statistics/. Accessed April 20, 2019. Source for cone information: Colblinder. Types of color blindness. https://www.color-blindness.com/types-of-color-blindness/.

Source

1. National Eye Institute. Facts about color blindness. Available at: https://nei.nih.gov/health/color\_blindness/facts\_about. Accessed April 3, 2019.

Accessed April 20, 2019.

## The Structural Color Concept: How Can 1 Shade Fit All?

Tokuyama Dental America introduced OMNICHROMA in February 2019. OMNICHROMA is a single-shade, structurally colored, universal direct restorative composite. "Single shade" means it has no added pigments or dyes yet is capable of matching all 16 VITA classical shades, A1 through D4, in almost any restoration from Class I to Class V.<sup>2</sup>

"Structurally colored" refers to its ability to generate red-to-yellow color as ambient light passes through the composite. Human teeth are exclusively in the red-to-yellow range of colors. Very simply, OMNICHROMA generates the red-to-yellow color of all human teeth, which then combines with reflected color of the surrounding tooth, creating the perfect match. This is the result of something called Smart Chromatic Technology and represents a first in composite dentistry.<sup>2</sup>



Human teeth primarily fall in the red-to-yellow spectrum of colors while varying in lightness to darkness.

OMNICHROMA's foundational technology, Smart Chromatic Technology, was discovered while developing Estelite Omega, according to Hironobu Akizumi, research manager at the Tsukuba Research Laboratory of Tokuyama Dental. "At that time, Tokuyama Dental did not have the technology to develop a shade demonstrating excellent opalescence and was researching various ways to develop a superior composite material with excellent opalescence," Mr. Akizumi explains. "In the course of the study, we discovered that spherical fillers with a specific particle size have the ability to generate a specific color tone, and that's what sparked the initial idea of OMNICHROMA."

OMNICHROMA contains spherical fillers made with a special manufacturing technique that results in uniformly sized, supranano particles. "First, the particle shape is different. The filler used in many other products is a crushed, irregularly shaped filler," Mr. Akizumi points out. The unique manufacturing process Tokuyama uses is called the Sol-Gel method. Instead of crushing glass materials, the Sol-Gel method gradually "grows" filler particles in an organic solvent, which produces uniform spheres.



Scanning electron microscope image of OMNICHROMA at ×5,000 magnification



Scanning electron microscope image of OMNICHROMA at ×20,000 magnification

OMNICHROMA uniform sized supranano spherical filler and round-shaped composite filler.

"Second, the particle size distribution is different. The uniform-sized spherical filler incorporated in OMNICHROMA and Tokuyama's other composite resins has a very small particle size distribution, making it possible to achieve both excellent polishability and mechanical properties," Mr. Akizumi continues. "Furthermore, the uniform-sized spherical filler has a particle size of 260 nanometers and exhibits a red-to-yellow color. Because natural teeth also fall in the narrow color range of red to yellow, OMNICHROMA is able to exhibit an extensive color range that matches natural teeth."

The concept of structural color has to do with what makes something appear to be a certain color, which is based on how light interacts with an object. For instance, the way wavelengths of light interact with the surface of a morpho butterfly wing, a bubble of soapy water, or a compact disc makes us think it is a certain color or notice color variations when viewed from different angles.

Zachary Burkett, Product Manager for OMNICHROMA, explains how our interpretation of the surface of a CD can be deceptive. "That's an example of structural color. What you're seeing is light being diffracted by the engravings on the CD's surface and the thickness of the plastic. The CD is not rainbow colored, it's just silver, but the surface etching is interacting with the wavelengths of light. It actually changes the color of light hitting the CD in a physical process, not a chemical one."



Zachary Burkett is the Product Manager overseeing the OMNICHROMA launch at Tokuyama Dental America. When he first joined the company almost 3 years ago, the product was still in its early, undefined beginning stage. Since then, he has helped shape the image that is now associated with this universal shade-matching composite. From defining the strategy for the product launch, drafting ads, and creating impactful marketing materials to getting samples into clinicians' hands, Burkett has been at the forefront of what he hopes to be one of the most revolutionary products in decades. The Tokuyama researchers recognized that the colors OMNICHROMA generated differed depending on whether it was on a black or white background. "We first thought that this difference between the black and white backgrounds was due to the difference between the values of the material," Mr. Akizumi recalls. "We thought that the color is exhibited weakly when the value of the material is high and strongly when the value of the material is high and strongly when the value of the material is low. Therefore, when the prototype material of OMNICHROMA was placed on different shades of composite, we realized that a different color was generated for each composite shade and that the prototype material of OMNICHROMA exhibited an excellent color matching ability. After that, we examined the filler that exhibited the best shade matching to the VITA classical 16 shades, and we found that the 260-nm particle size was optimal, and OMNICHROMA was complete."



The Sol-Gel method also creates the refractive index of the filler, effectively reproducing the semitranslucent characteristics of natural teeth. "The spherical fillers in OMNICHROMA actually change the wavelength of light as it passes through the composite," Mr. Burkett says. "When that happens, it simply blends the restoration into the surrounding tooth. That's how it creates the perfect shade match for any tooth."

# How the Concept Came to Be

Tokuyama's OMNICHROMA product line is based on Tokuyama Dental's chemical technology and includes many of the original technologies combined, according to Mr. Akizumi. "We aim to have the world's best ability to propose new ideas and develop new products, so we are consistently working on new technological developments every day. One means of advancing these developments is for each of us to have subthemes. Tokuyama Dental's researchers freely establish themes (subthemes) that differ from the main themes that are assigned. Many new products come from subthemes, and OMNICHROMA is an example of that. Therefore, we recognize that being able to have subthemes is necessary for technological innovation."

### Research to Date

In a study conducted by the School of Dentistry at the University of Texas Health Science Center at Houston to analyze the color adjustment potential (CAP-1) of resin composites in simulated cavities (4-millimeter diameter and 2-mm depth) in all 16 VITA classical shades, OMNICHROMA showed the greatest CAP-1, representing the greatest instrumental color adjustment potential for the resin composites tested.<sup>3</sup>

A physical properties analysis of OMNICHROMA restorations in vitro conducted by the Oregon Health & Science University studied polymerization contraction stress (Bioman), flexural strength/modulus, fracture toughness, compressive strength, depth of cure (tooth model), polishability (gloss and gloss retention), and color and color stability.<sup>4</sup> OMINICHROMA was found to demonstrate clinically acceptable measures of polymerization contraction stress, flexural strength, and modulus of elasticity; average fracture toughness; the highest measure of compressive strength (317.21 megapascals); and the highest level of hardness at the greatest depth of cure tested. A study was conducted in 2018 by the Nihon University School of Dentistry to compare OMNICHROMA's color-matching characteristics with those of other available resin composites in different-colored hard resin teeth using the Crystaleye Spectrophotometer (a dental color analysis system from Olympus).<sup>5</sup> OMNICHROMA demonstrated the lowest ΔE values for all teeth and restoration depths, making it the only composite tested to show clinically acceptable shade matching results for all specimens.

Another study, conducted by the Tokyo Medical and Dental University on color adaptation analysis using a colorimeter, analyzed 10 healthy, extracted posterior teeth.<sup>6</sup> OMNICHROMA had lower  $\Delta$ L values in cervical region cavities, indicating a "profound" color adaptability.

### **Clinical Evaluations**

Tokuyama Dental America also realized the importance of clinical acceptance by practicing dentists and asked 25 clinicians in the United States to evaluate OMNICHROMA in their practices. A total of 841 restorations were placed and evaluated. Each clinician rated OMNICHROMA for its polishability, stability under ambient light, handling, and color matching.<sup>2</sup> Participants rated 92.7% of the restorations as excellent (60%) or good (32%) for a total average among all shades and classes.

	6 704		Excellent	511	60.8%
	0.2%	Excellent	Good	268	31.9%
	31.9%	Good	Average	52	6.2%
	60.8%	Average	Below Ave	7	0.8%
Twenty-five doctors		Below Average	Poor	0	0.0%
completed a total of 841 cases		Unknown	Unknown	3	0.4%
in examining OMNICHROMA.			Total	841	

92.7% rated good or excellent for total average among all shades and classes.

	Polishability	Stability Under Ambient Light	Handling
Excellent	60.0%	44.0%	52.0%
Good	32.0%	48.0%	44.0%
Average	0.0%	0.0%	4.0%
Fair	0.0%	0.0%	0.0%
Poor	0.0%	0.0%	0.0%
No Response	8.0%	8.0%	0.0%

## Restorations Being Monitored In Vivo

A truly novel characteristic of OMNICHROMA is that as the color of the natural tooth around a restoration changes, OMNICHROMA "adapts" to it. This phenomenon relates back to the concept of structural color. What we now know about this product is that it's actively adapting to color changes around it," Mr. Burkett explains. "It's not like once you cure it, it changes to an A2 color and it's stuck that way forever. It actually changes color along with the patient's tooth. As patients age and their teeth get darker, it will appear to darken. If they go through a bleaching process, it will appear lighter. It won't look any different than other teeth when you're overdue for a cleaning."

Mr. Burkett distinguishes that there is a difference between stain resistance and color-change resistance. "Surface stains don't affect the internal color of the composite. If the patient's tooth color changes, the composite appears to have changed along with it. OMNICHROMA continues to match perfectly. It also has a really desirable level of stain resistance. It doesn't easily become stained by coffee, tea, wine, or nicotine. But the ability to change color according to the color of the patient's surrounding tooth is another thing that completely sets this composite apart.

"Interestingly," Mr. Burkett adds, "if you pull the composite out, it actually changes back to the opaque white color that it has when it was extruded. Nothing else on the market that I know of does that."

Mr. Burkett points out, though, that if changing the actual color of a patient's tooth is the goal in a certain case, OMNICHROMA is not designed for that. "Say a patient has a dark tooth and you're trying to bring it up to an A2. You wouldn't want to use OMNICHROMA because it would just match the dark tooth. There are times when clinicians will still need other composites," he says. "For instance, the multilayer approach is still extremely valuable with high-end cosmetic dentistry. OMNICHROMA is able to adapt to multiple shades in a single restoration, but we have other products for that type of procedure, like our Estelite Omega materials."

# Putting OMNICHROMA Into Clinical Use

Dr. Peter Auster, a general dentist in Pomona, New York, has been in practice for more than 30 years and has offered advanced reconstructive and esthetic dentistry for much of that time. He has also served 2 terms as director of the American Academy of Cosmetic Dentistry (AACD) and founded its New York affiliate.

"About 20 years ago, I found myself getting very bored in dentistry. I realized that I had to make a change. I simply wanted to get better at what I was doing. So I went to the Dawson Academy and finished their core curriculum. By the end, I felt that I had a firm understanding of function, but I didn't know how to make smiles beautiful. It does now, but at that time the Dawson Academy did not have an esthetic curriculum. About 12 years ago, I went to my first AACD meeting and have been going ever since. Now, I have fun practicing dentistry. Most of my makeovers are crown-and-bridge or implant-related, but I do a fair amount of direct restoration as well."

Dr. Auster started using OMNICHROMA in July 2018. He had been using Tokuyama products for at least 10 years, and he feels that their products are second to none. "In dentistry, most product updates are incremental. The changes are often subtle maybe it's a little bit smoother or more polishable or easier to manipulate. It's very rare that you find a product that is a total groundbreaker. OMNICHROMA is like nothing else that's ever been in the dental market before."



Peter Auster, DMD, FACD, completed 2 terms as a director of the American Academy of Cosmetic Dentistry (AACD) and recently completed a term as AACD leadership committee chair. He takes great pride in being named an AACD Humanitarian of the Year and recently completed his 10th year doing volunteer dentistry in Jamaica. He is a fellow of the American College of Dentists and was named a leader in Dentistry Continuing Education for years 2017 through 2019 by *Dentistry Today*. He is founder and past-president of the Greater New York Academy of Cosmetic Dentistry. Dr. Auster is a Dawson Academy Scholar and American Dental Association Certificate for International Voluntary Service winner. He is also a Catapult Education Dental Key Opinion Leader. Dr. Auster has published many articles in dental journals and has lectured from Portland, Maine, to Portland, Oregon, in the past 2 years.

Dr. Auster was skeptical about a single product being able to perform at such a level. "The only reason I believed their claims about OMNICHROMA was that Tokuyama is a company that does not put a product out there before its time. They waited for it to be perfect before they introduced it. I wasn't totally convinced even after they gave me a chance to play with it on typodonts. But the minute I used it on a real tooth, I was blown away."

Dr. Auster found OMNICHROMA to be similar in the characteristics he has always appreciated about other Tokuyama products, such as Estelite Omega. Dr. Auster explains, "I find their products handle beautifully. They're not affected by ambient light as much as most products, so you can keep the same consistency for extended periods of time. OMNICHROMA has many of the same properties with the additional benefit that it's only 1 color, which is mind-boggling." He was astonished to find how many different situations he could use it for. "I have used it on the darkest teeth I've ever seen; I guess you'd call it D5 shade," he says. "I've used it in bleaching shades, whitening shades, B1s. And somehow it manages to match every single color and translucency. It's like nothing I've ever seen before."



Note cervical erosion and caries on teeth nos. 20 and 21. Caries was removed, a 1-millimeter bevel was placed at the enamel margin, the enamel was etched using the selective etch technique, and Bond Force (Tokuyama Dental America) adhesive was placed on the enamel and dentin and light cured for 10 seconds.



OMNICHROMA was placed on the cavosurface from a compule. Note the initial opaque appearance of the OMNICHROMA before contouring and light-curing.



The material was contoured to mesh well with tooth structure, light cured, and polished using Super-Snap discs (Shofu Dental Corporation) and Enhance polishing cups (Dentsply Sirona Restorative). Note the excellent color match.

## Impact on Inventory and Efficiency

Dr. Auster is finding that OMNICHROMA saves as much on inventory as it does operatory time, which is another way to improve efficiency in a dental practice.

"It's so simple," Dr. Auster relates. "The assistant doesn't have to pull out an entire tray of 30 shades. Dental companies have been trying to outdo each other for years by sheer numbers of shades. When I first started in dentistry, there were 2 or 3 shades, then it went up to 10, then 25, and then up to 35 or 36 shades for some materials. That's a real problem for a dental office. If you have 36 shades, you're not going to be using all of them in the period of time that the material is still functional.

#### OMNICHROMA

Using Tokuyama Dental's Smart Chromatic Technology (uniformly sized 260-nanometer spherical silicon dioxide [SiO<sub>2</sub>] and zirconium dioxide [ZrO<sub>2</sub>] fillers), OMNICHROMA represents the ultimate in direct composite color-matching capabilities. With a single shade, OMNICHROMA covers all VITA classical shades from A1 through D4 and can be used in every class of restoration. Available in 4-gram syringes or 0.2-g compules.

#### Esthetic properties

- Unprecedented color matching in both anterior
- and posterior regions
- High gloss and polishability

#### Indications

- Direct anterior and posterior restorations
- Direct bonded composite veneers
- Diastema closures
- Repairing porcelain/composite restorations

#### **Inventory Advantages**

Simplified inventory management:

- Reduction of incidental-use composite shades
- Reduction of unused composite wastage
- Not being short stocked on a shade
- Saving time on inventory management

#### Physical-mechanical properties

- Stable under ambient light; offers ample working time
- Low polymerization shrinkage
- High wear resistance
- High flexural and compressive strength
- Exceptional handling
- Depth of cure: 2 millimeters
- Kind to opposing natural dentition
- Stain resistant for lifetime of restoration
- Adapts to changes in patients tooth color over time
- Radiopaque

#### **OMNICHROMA BLOCKER**

A supplementary lining material for use in large Class III and IV cases with limited surrounding dentition. Can be used to create a lingual layer to prevent shade-matching interferences. Can also be used to block underlying staining, reconstruct opaque teeth, and cover underlying metal if OMNICHROMA is being used to repair a porcelain-fused-tometal restoration or cover an implant crown access hole. After tooth preparation, OMNICHROMA BLOCKER is applied and light cured before OMNICHROMA is applied. Available in 4-g syringe or 0.2-g compules. "I'd have material sitting around for ... who knows how long? Like an A4 or A5 that I hadn't used for 2 years which would be expired when I finally had a need for it," he continues. "That happens all the time to dentists. OMNICHROMA is so efficient because you don't have to stock 30 plus shades. Also, I do volunteer work in Jamaica every year. Imagine the difficulties in transporting 35 shades to intense heat. Now imagine what it's going to be like to carry only 1 material instead of 30. This is great for hospital residency programs, clinics, and any dental office. It also takes less time to use because you don't have to play with colors. It can take 5 minutes to pick the right shade. So, if you're saving 5 minutes, say 8 times a day, you've just saved time for 1 or 2 more patients!"

Dr. Auster points out another economic aspect: inaccurate shade matching. "With other products, sometimes the color you choose isn't the color you hoped for once you zap it with the light," he explains. "Some materials turn darker with the light, some turn lighter. Sometimes you have to remove them and start over." He cautions that when OMNICHROMA is placed, it may seem like the wrong color because it is extremely opaque and looks pure white. "As soon as you cure it, though, it magically turns the color of the tooth!"

### Tips and Tricks

Unlike many new dental products, there are no technical learning curves with OMNICHROMA. It can be used with standard universal composite procedures and bonding agents and works the same as any other direct composite if the manufacturer's directions are followed correctly.

Dr. Auster has discovered a couple of ways to make the process more successful in his practice. One is to create bevel or chamfer margins around the preparation, which Tokuyama recommends as well. "I find it's best to bevel all the way around the surface to create a thin edge that will help it blend better with the rest of the tooth," he says.

Any resin-based, light-cured bonding agent works well with OMNICHROMA but it is important to properly follow the manufacturer's bonding procedure instructions for the single-shade matching property to work. "It is obvious if the restoration has failed," Mr. Burkett says. "There is actually a visual indicator after curing if there is a bonding failure. It comes out whiter rather than tooth-colored."

Another tip is to use OMNICHROMA BLOCKER as a supplementary material in large Class III and IV cases in which there may be limited surrounding dentition. OMNICHROMA BLOCKER can be used to create a lingual layer where it is necessary to prevent shade-matching interferences, block underlying staining, reconstruct an opaque tooth, or cover underlying metal if OMNICHROMA is being used to repair a restoration or cover an implant crown access hole. After tooth preparation, OMNICHROMA BLOCKER is applied and light cured before OMNICHROMA is applied.



Note compromised amalgam restoration on tooth no. 19 with fractured mesial margin and dark amalgam residue staining throughout the enamel. The decision was made to create a Class II restoration for now and not to extend the restoration to all stained areas, which would compromise the tooth more. The patient did not want an onlay or crown at this point in time. The amalgam was removed, a 1– millimeter bevel was placed on all cavosurface margins, Consepsis Scrub (Ultradent Products) was applied to the entire restored area, the enamel margins were etched with Ultra-Etch (Ultradent Products), a minimal amount of OMNICHROMA BLOCKER was placed on the dark cavosurface margin and light-cured, and OMNICHROMA was applied and light-cured for 10 seconds.



The restoration was completed and polished using Composi-Tight 3D Fusion Full Curve Matrix Bands (Garrison Dental) and the restoration was polished using Jiffy Polishers (Ultradent Products) and Super-Snap discs (Shofu Dental). Note the excellent color blending and lack of visible amalgam residue stain. "I have found great uses for OMNICHROMA BLOCKER," Dr. Auster says. "When used under OMNICHROMA, it has an amazing chameleon affect for implant screw-holes and metal posts. The resulting fill is totally invisible—the telltale gray spot isn't there! Another situation where you would use the BLOCKER is a Class IV or a large Class III. Placing the BLOCKER on the lingual surface of the preparation first will prevent OMNICHROMA from echoing other parts of the mouth."

Dr. Auster has placed 80 to 90 OMNICHROMA direct restorations so far in both anterior and posterior cases. "It's perfect for Class V and Class III restorations. Class IV restorations have a tiny bit longer learning curve. So far, I haven't found a tooth that it doesn't work well for."

He suggests that dentists have a few other composites on hand for certain restorations. "I am a huge fan of Tokuyama's Estelite Omega for AACD-style full facial bonds. On the other hand, OMNICHROMA makes a terrific final shade."

The other recommendation Dr. Auster makes is that at first he found it easier to work with compules than with syringes. "For me, it flowed better into the tooth structure, and it seemed that the result was better," he recalls. "But now that I'm using syringes, I'm comfortable with it, and I'm getting just as good a result."



## Conclusion

When an important goal of restorative dentistry is to make it impossible to discern that part of a tooth is not real, a product or process that eliminates the human error element of shade matching in most restorative procedures is an incredible benefit.

Given that it is an art to accurately assess the color palette of the natural dentition and choose direct composite shades that replicate the imperfectness of nature while blending perfectly into surrounding tooth structure, OMNICHROMA solves this problem and allows clinicians to focus more attention on physically replicating tooth anatomy while it handles "the chameleon effect."

OMNICHROMA saves time in less critical areas in which esthetics is not quite as much of a priority, such as some posterior restorations, without compromising the outcome. It also saves time and effort on the shade selection process in areas in which both the patient and clinician consider esthetics to be paramount. "It's more efficient and results in the patient getting a better looking smile," Mr. Burkett says. "It's totally game changing for the industry when things have been the same for almost 60 years to come out with the first 1-shade product that matches everything. It just simplifies the restorative process; it saves time, helps the patient get a better looking restoration, and eliminates a lot of waste."

While he could not share any specifics, Mr. Burkett said that dentists should be quite excited for the future of the OMNICHROMA product line as well as Tokuyama Dental's other products.



\*Limit five offers per doctor. For no charge goods, purchase must be made from dealer between 5/17/19 and 7/17/19. Purchase must be made on ONE invoice. Invoices/redemptions must be received no later than 7/31/19 to claim no charge goods. To receive your no charge goods, fax or mail your invoice and no charge product desired to: FAX: +1 (760) 942-7212. MAIL: 740 Garden View Ct, Suite #200, Encinitas, CA 92024, Attn: ADA eBook Offer. Indicate promo code ADAEBK on your invoice. Incomplete submissions will not be processed. This offer may not be combined with any other Tokuyama offers. No charge goods fulfilled through Tokuyama. Offer can be used with OMNICHROMA and OMNICHROMA BLOCKER syringe and PLT. No charge goods must be of equal or lesser value. While supplies last. Please allow 4-6 weeks for delivery of no charge goods. Offer valid in US and Canada only. Participating doctors or dentists are obligated to properly report and reflect any bonus product, rewards, rebates, discounts or other benefit they receive on their submissions to Medicare, Medicaid, state or federally funded healthcare program and/or private insurance.

### References

1. The Free Dictionary. Restorative dentistry. Available at: https://medical-dictionary.thefreedictionary.com/ restorative+dentistry. Accessed April 11, 2019.

2. Tokuyama Technical Report: OMNICHROMA—Every Shade, One Choice. Encinitas, CA; Tokuyama; 2019.

3. Sanchez N, Powers J, Paravina R. Visual evaluation of color adjustment potential of resin composites. Presented at: the International Association for Dental Research/PER General Session, London, England, Wednesday, July 25, 2018. *J Dent Res.* 2018:97(Spec Iss C): Abstract No. 0107. Available at: https://iadr.abstractarchives.com/ abstract/18iags-2957239/visual-evaluation-of-color-adjustment-potential-of-resin-composites. Accessed April 24, 2019.

4. Ferracane J, Pfeifer C, Watanabe H. Final report: Evaluation of various properties of ECM-001 and other commercial dental composites.

5. Takimoto M, Kurokawa H, Shimoyama Y, et al. Evaluation of color matching ability of experimental resin composite (ECM-001). Abstract No. A8. Presented at:148th Meeting of the Japanese Society of Conservative Dentistry; Yokohama, Japan. Available at: http://www.hozon.or.jp/member/publication/abstract/abstract\_148.html

6. Kobayashi S, Hosaka K, Sato K, Nakajima M, Tagami J. Color adaptation of newly-developed resin composite (ECM-001). Abstract No. A9. Presented at: 148th Meeting of the Japanese Society of Conservative Dentistry; Yokohama, Japan. Available at: http://www.hozon.or.jp/member/publication/abstract\_148.html

The cited references in this eBook do not reflect ADA views and policies.