1000 Shades of White

... all in 1 Syringe!

Tokuyama Dental

OMNICHROMA *Flow* BULK

The Future of Composites, Flowables and Bulk Fill Materials:
Colour through Light

From the Technology Pioneer.

Tokuyama

Unique worldwide: Only a single composite/ flowable/bulk for the entire range of tooth shades

After OMNICHROMA for composites, TOKUYAMA DENTAL has once again made the decisive innovative leap: this time with OMNICHROMA FLOW BULK in the field of bulk fill materials. For the third time, the long sought-after chameleon effect has been achieved successfully culminating in natural perfection, now also with deep curing. The reason is as simple as it is spectacular: OMNICHROMA, OMNICHROMA FLOW and OMNICHROMA FLOW BULK as well as the chameleon are coloured through light.

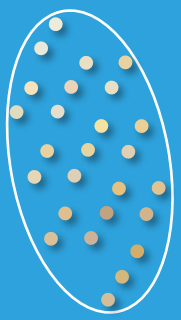
Tokuyama Dental OMNICHROMA Tokuyama Dental OMNICHROMA Flow Tokuyama Dental OMNICHROMA Flow BULK

In conventional composites, a limited number of tooth shades, for example, from A1 to D4 according to the VITA shade system, are reproduced using colour pigments. Due to the "*Smart Chromatic Technology*", OMNICHROMA, OMNICHROMA FLOW and OMNICHROMA FLOW BULK completely dispense with colour pigments and instead use the natural principle of structural colour – colour that becomes visible when light strikes special structures, the same as with chameleons.

- In 2015, scientists at the University of Geneva discovered that the chameleon has an omentum of nanocrystals in its skin that selectively reflects certain wavelengths of light.
- OMNICHROMA, OMNICHROMA FLOW and OMNICHROMA FLOW BULK consist of a homogeneous "pearl structure", which makes the reflection of a precisely defined light wave range possible.
- The targeted refraction of light creates structural colour in the yellow-red range and also reflects the surrounding real tooth colour.
- This was achieved by further developing TOKUYAMA DENTAL's patented *"Sub-Micro-Pearl-Technology"* with spherical fillers obtained according to the "cultured pearl principle".

Spectrum of indications

- Direct anterior and posterior restorations
- Directly bonded composite veneers
- Diastema closure
- Repair of ceramic/composite

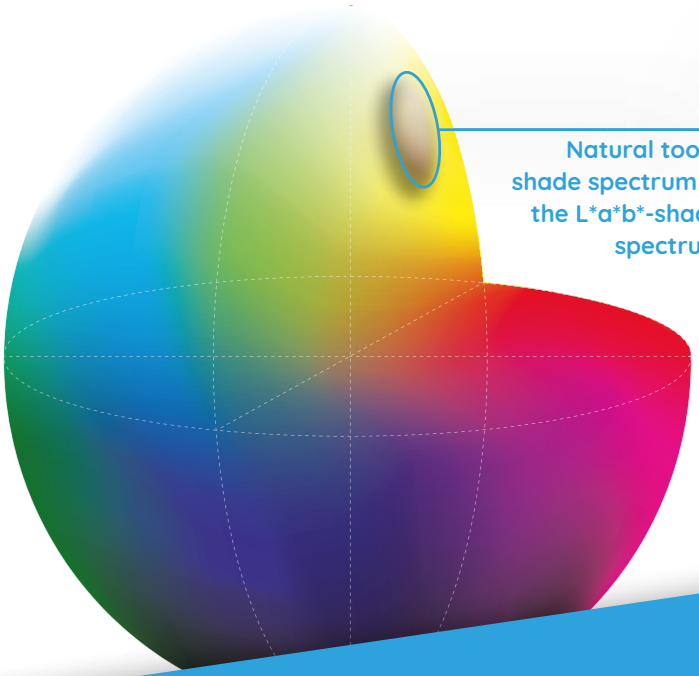


Conventional composites

UP TO 36 DIFFERENT TOOTH SHADES WITHIN THE TOOTH SHADE RANGE

OMNICHROMA

CONTINUOUS REFLECTION ACROSS ALL SHADES OF THE ENTIRE TOOTH SHADE SPECTRUM



Natural tooth shade spectrum in the L*a*b*-shade spectrum

Numerous advantages: OMNICHROMA, OMNICHROMA FLOW and OMNICHROMA FLOW BULK

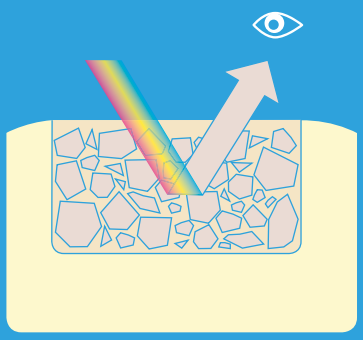
- Eliminates the need for shade determination
- Simplifies stocking
- Eliminates the need for special colours
- Reduction in expiring material
- Permanent availability of the right shade

Uniquely aesthetic: Outstanding colour adaptation

Smart Chromatic Technology: precisely 0.00026 millimeter sized beads and the translucency of the cured composite ensure that the right tooth shade is always created through light.

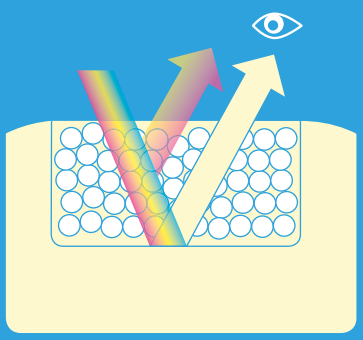
Conventional composites

THE COLOUR PIGMENTS OF THE COMPOSITE (FOR EXAMPLE, A3) ARE REFLECTED.



OMNICHROMA

THE REAL TOOTH SHADE OF THE CAVITY WALLS OR CAVITY BASE IS REFLECTED AS IS THE RED-YELLOW STRUCTURAL COLOUR OF THE HOMOGENEOUS PEARL STRUCTURE.



The innovation breakthrough from TOKUYAMA DENTAL's research

The phenomenon of colour adaptation in chameleons is the same as with OMNICHROMA: the light strikes a very specific structure in the sub-micro or nanometer range.

The decisive question was: which structure, in other words, which size and shape do the fillers need to have for the light to reflect real tooth shades optimally?

In 2018, TOKUYAMA DENTAL's research found the answer: the *"Smart Chromatic Technology"*. When light strikes small spherical fillers at exactly 0.26 µm the refraction and diffraction of the light generates the ideal red-yellow colour effect that is necessary to faithfully imitate the genuine tooth shade.

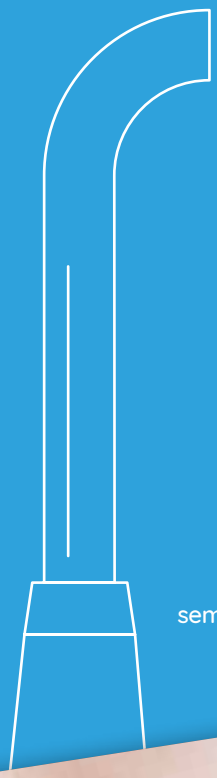
In contrast to conventional composites, OMNICHROMA is intended to achieve an extreme colour change after curing and is also very practical when modelling.

01

Real tooth with cavity = natural tooth shade

02

Modelling the composite filling = white-opaque OMNICHROMA processing shade



03

After 20 sec. curing = semi-translucent OMNICHROMA shade result

Typical for OMNICHROMA: Opaque beforehand … beautifully semi-translucent afterwards

Johanna's white

SM
CHRO
TECHN

Leo's white

As many
white a
are p

Betty's white

ART MATIC OLOGY

shades of
s there
eople.

Sophie's white

Anna's white

Tokuyama

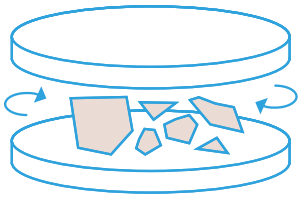
The key technology for OMNICHROMA comes from the TOKUYAMA DENTAL Research Center in Japan.

The TOKUYAMA DENTAL Corporation, based in Japan, has been developing innovative dental solutions for over 40 years and is one of the leading manufacturers of products for conservative and prosthetic dentistry. In 2020, this innovative strength was recognized internationally. OMNICHROMA and TOKUYAMA DENTAL received awards as the most innovative material and most innovative company from the renowned Dental Advisor. Additional awards were given to both the pasty OMNICHROMA and OMNICHROMA FLOW in subsequent years.

The secret is our way of manufacturing

Conventional process

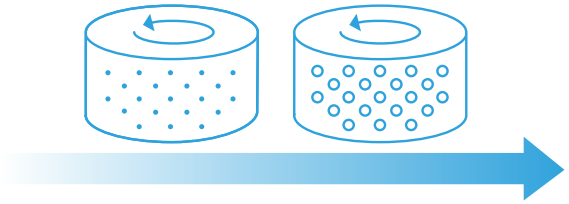
PRODUCTION OF FILLERS BY A GRINDING PROCESS



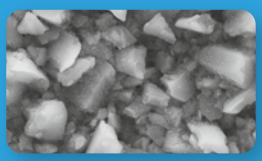
Glass materials are ground until the individual filler particles are within a desired size range. However, an exact control is not possible in this way, so that the filler particles differ significantly in shape and size. This becomes particularly clear as soon as the fillers in question are observed under the scanning electron microscope.

Sub-Micro-Pearl-Technology

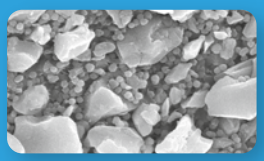
"GROWING" FILLERS BY THE SOL-GEL METHOD



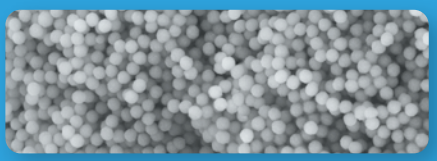
TOKUYAMA DENTAL produces OMNICHROMA fillers based on its own patented *"Sub-Micro-Pearl-Technology"*. In this process, the Sol-Gel method is used to progressively coat spherical fillers in an organic solution. After several weeks, the fillers have "grown" evenly in a spherical shape and are exactly 0.26 µm in size. In this optimal size, the desired colour adaptation effect is achieved precisely in combination with other outstanding physical properties.



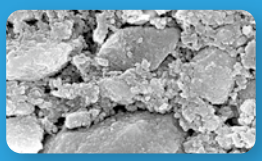
Venus One, Kulzer
(1 µm; 20,000x magnification)



Tetric EvoCeram, Ivoclar Vivadent
(1 µm; 20,000x magnification)

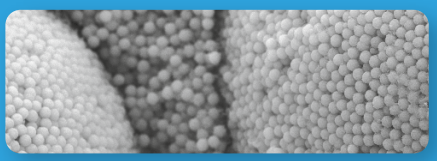


OMNICHROMA, TOKUYAMA DENTAL
(1 µm; 20,000x magnification)

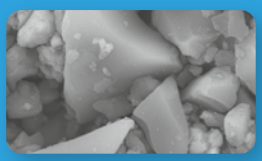


Filtek Supreme XTE Flow, 3M Espe
(1 µm; 20,000x magnification)

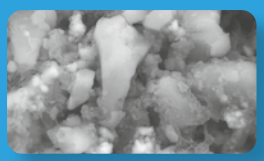
G-aenial Universal Flow, GC
(1 µm; 20,000x magnification)



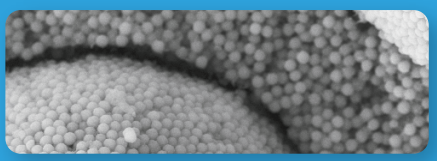
OMNICHROMA FLOW, TOKUYAMA DENTAL
(1 µm; 5,000x magnification)



Venus Bulk Flow One, Kulzer
(1 µm; 20,000x magnification)



SDR flow+, Dentsply Sirona
(1 µm; 20,000x magnification)



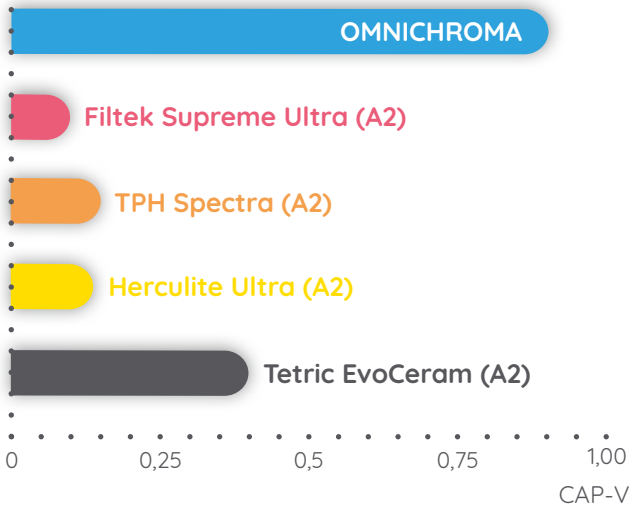
OMNICHROMA FLOW BULK, TOKUYAMA DENTAL
(1 µm; 5,000x magnification)

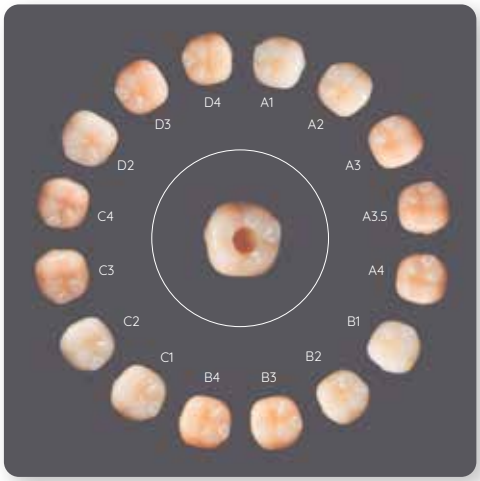
Clinical studies confirm the excellent colour adaptation properties of OMNICHROMA (CAP-V)

The University of Texas study analysed the Visual Colour Adjustment Potential (CAP-V) of various composite materials through visual evaluation.

Of the five composites tested, OMNICHROMA from TOKUYAMA DENTAL demonstrated the best shade adaptation effect.

The evaluation of shade differences in Class I restorations compared to the surrounding artificial tooth substance was lowest for OMNICHROMA, which represented the best correlation between OMNICHROMA and the A1-D4 prosthetic teeth.





Center: Denture tooth with Class I cavity

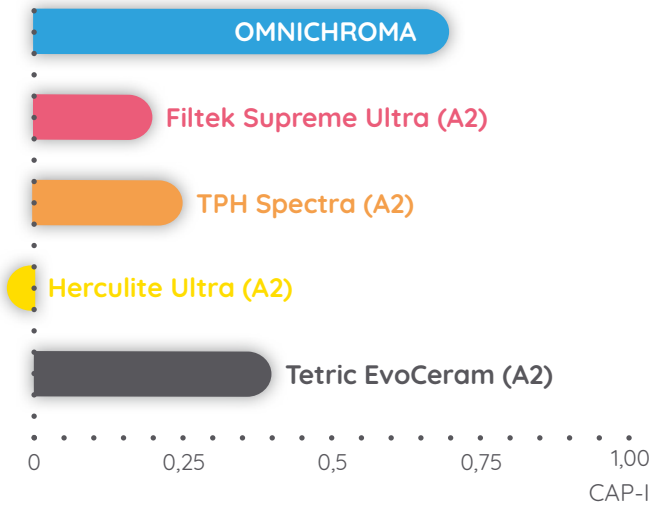
Circle: A1-D4 denture teeth restored with OMNICHROMA (dual specimen)

Evaluation of Color Adjustment Potential of Resin Composites Pereira-Sanchez N., Paravina R.D., et al. (University of Texas)

Clinical studies confirm the excellent colour adaptation properties of OMNICHROMA (CAP-I)

Another study by the University of Texas also analysed the Instrumental Colour Adjustment Potential (CAP-I) of various composite materials by instrumental evaluation.

OMNICHROMA again confirmed the results of the previous study (CAP-V) in the instrumental determination of the colour adaptation effect. Thus OMNICHROMA offers both visually and instrumentally a very broad chameleon effect across the entire VITA shade range.



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OMNICHROMA: International study results

Effect of filler size on the colour adaptation effect

To demonstrate that the size of the fillers significantly relates to the structural colour produced, Tokyo Medical and Dental University examined three composites with fillers of different sizes for their respective shade adaptation effects. Cavities on eleven different human teeth (shades A2, A3, A4, B2, B3, B4, C2, C3, C4, D2, and D4) were filled with OMNICHROMA (260 nm), an experimental nano-composite (100 nm) and a conventional composite with ground fillers. The respective colour adaptation was then measured using a spectrophotometer and compared with the measured colour before filling (Delta E_{00}).

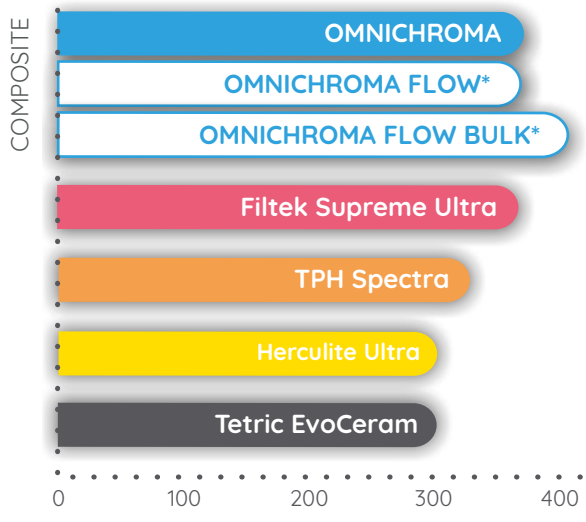
	ECM	R1	R2
FROM INCISAL	1.40 ± 0.37^{A}	2.09 ± 73^{B}	2.02 ± 0.68^{B}
FROM CERVICAL	1.45 ± 0.30^{a}	2.07 ± 0.23^{b}	2.05 ± 0.21^{b}

The samples demonstrated significant differences with respect to Delta E_{00} ($p < 0.05$), depending on the material differences. OMNICHROMA exhibited significantly lower Delta E_{00}-values than R1 (ground fillers) and R2 (nano fillers) from both viewed from incisal and cervical, suggesting that OMNICHROMA has a superior ability to mimic the original shade of the human tooth. This also indicates that the particle size of the filler has a significant influence on OMNICHROMA's colour adaptation capability.

Not only superior in colour adaptation, but also superior under load

The Oregon Health & Science University investigated numerous material properties of OMNICHROMA in comparison to conventional composite materials. Here, too, OMNICHROMA's superior class was demonstrated, as the special filler structure and filler composition result in an outstanding load-bearing capacity of the material. Among other things, this is reflected by excellent compressive strength.

OMNICHROMA FLOW BULK also proves to be extremely resilient in tests. If paste-like composites are generally considered to be more resilient due to their higher filler content, the flowable OMNICHROMA FLOW BULK with 414MPa compressive strength does not have to shy away from comparison with the supposedly stronger composites. OMNICHROMA FLOW BULK thus opens up the entire range of indications to the user without any compromises, so that restorations are also possible without the usual capping layer.



* TOKUYAMA DENTAL R&D

Not only superior in colour adaptation, but also superior colour retention

At Okayama University, a series of tests investigated the colour stability of OMNICHROMA. Four artificial teeth in the shades A1, A2, A3 and A3.5 were filled accordingly and stored in a water bath. The colour adaptation of OMNICHROMA was measured immediately after one day, after one week and after three months. The result was as follows: “The study demonstrated that OMNICHROMA can cover a wide range of cavity colours with just a single shade. This study also demonstrated that the composite material based on the structural shade system has the potential to enable aesthetic restorations without shade selection or layering.”

A further in-house study (TOKUYAMA DENTAL R&D) also showed that OMNICHROMA still adapts to the changed real tooth colour even after bleaching.

The surface is decisive

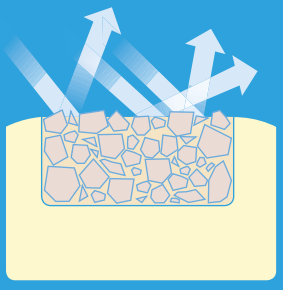
Which is easier to polish?
Which reflects light more uniformly?
Which shines more beautifully?

Brilliant results

With its surfaces smooth like mirrors, TOKUYAMA DENTAL's Sub-Micro-Pearl-Technology provides a fast and long-lasting gloss.

In the case of typical ground fillers, the light strikes extremely irregular surfaces that scatter the light diffusely and appear correspondingly matt or require a long and complex polish.

The law of reflection "angle of incidence equals angle of reflection" is the basic prerequisite for the gloss effect and only works with very smooth surfaces: with mirrors, natural teeth and OMNICHROMA.

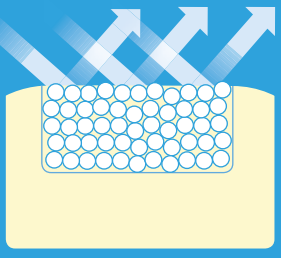


CONVENTIONAL NANO-HYBRID FILLERS

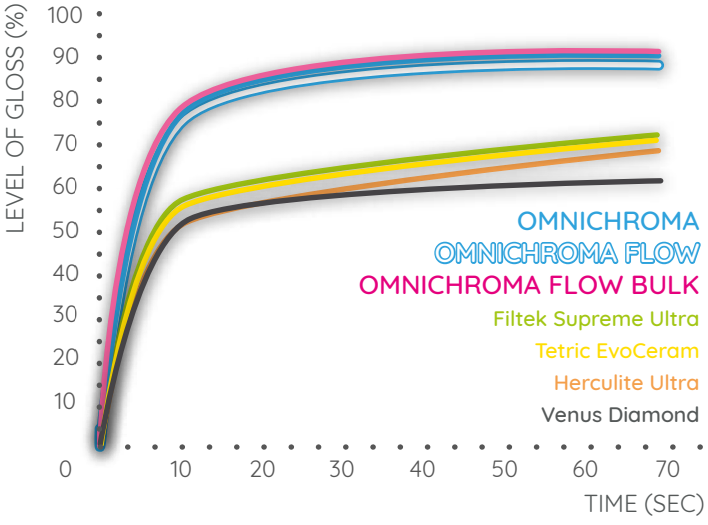
ROUGH, IRREGULAR SURFACES REFLECT LIGHT MORE DIFFUSELY: LESS GLOSS

OMNICHROMA WITH SUB-MICRO-PEARL-TECHNOLOGY

UNIFORM REFLECTION OF LIGHT AS WITH A MIRROR: NATURAL HIGH GLOSS



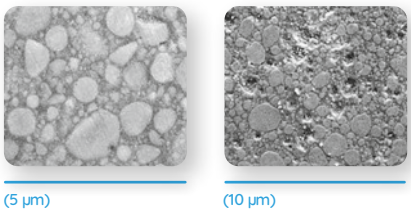
Superior polishability: 89 % gloss already after 30 sec.



TOKUYAMA DENTAL R&D

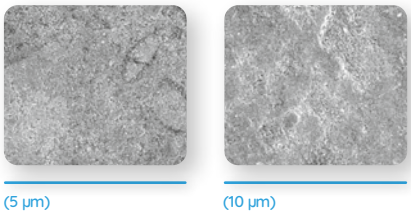
Excellent abrasion properties

OMNICHROMA is a particularly abrasion-resistant composite, yet at the same time gentle on the antagonist due to its unique filler structure, which only offers a small surface area for abrasion.



Filtek Supreme XTE, 3M Espe

before and after the abrasion test (50.000 cycles)



OMNICHROMA, TOKUYAMA DENTAL

before and after the abrasion test (50.000 cycles)

TOKUYAMA DENTAL R&D

OMNICHROMA: A composite with unique properties

UNIQUELY USER-FRIENDLY

- No sticking to instruments due to perfectly round fillers with smooth surfaces
- Good processing time
- White opaque colour shade is easy to process visibly
- Excellent adaptation to the cavity walls due to soft creamy consistency

UNIQUELY PATIENT-FRIENDLY

- Free of Bis-GMA – for a significant reduction in the risk of allergies
- High resistance: due to good flexural strength and very high compressive strength

UNIQUELY TIME-SAVING

- Due to the perfect chameleon effect, time-consuming shade determinations are a thing of the past
- Always reorder, store and document only 1 product at a time
- Highest level of polishability: glossy like a mirror in a flash due to spherical fillers

UNIQUELY AESTHETIC

- Creation of a structural colour through precise light refraction of the homogeneous pearl structure as well as reflection of the surrounding tooth shade: for a perfect chameleon effect, even for bleached teeth
- Perfect gloss due to optimal light reflection
- Permanent colour fidelity
- Highly resistant to discolouration

1 Composite
3 Viscosities
All Benefits

Tokuyama Dental
OMNICHROMA

10112 | OMNICHROMA
Syringe (à 4 g)

10122 | OMNICHROMA
20 capsules (à 0.2 g)

10113 | OMNICHROMA BLOCKER
Syringe (à 4 g)

10123 | OMNICHROMA BLOCKER
20 capsules (à 0.2 g)

Tokuyama Dental
OMNICHROMA *Flow*

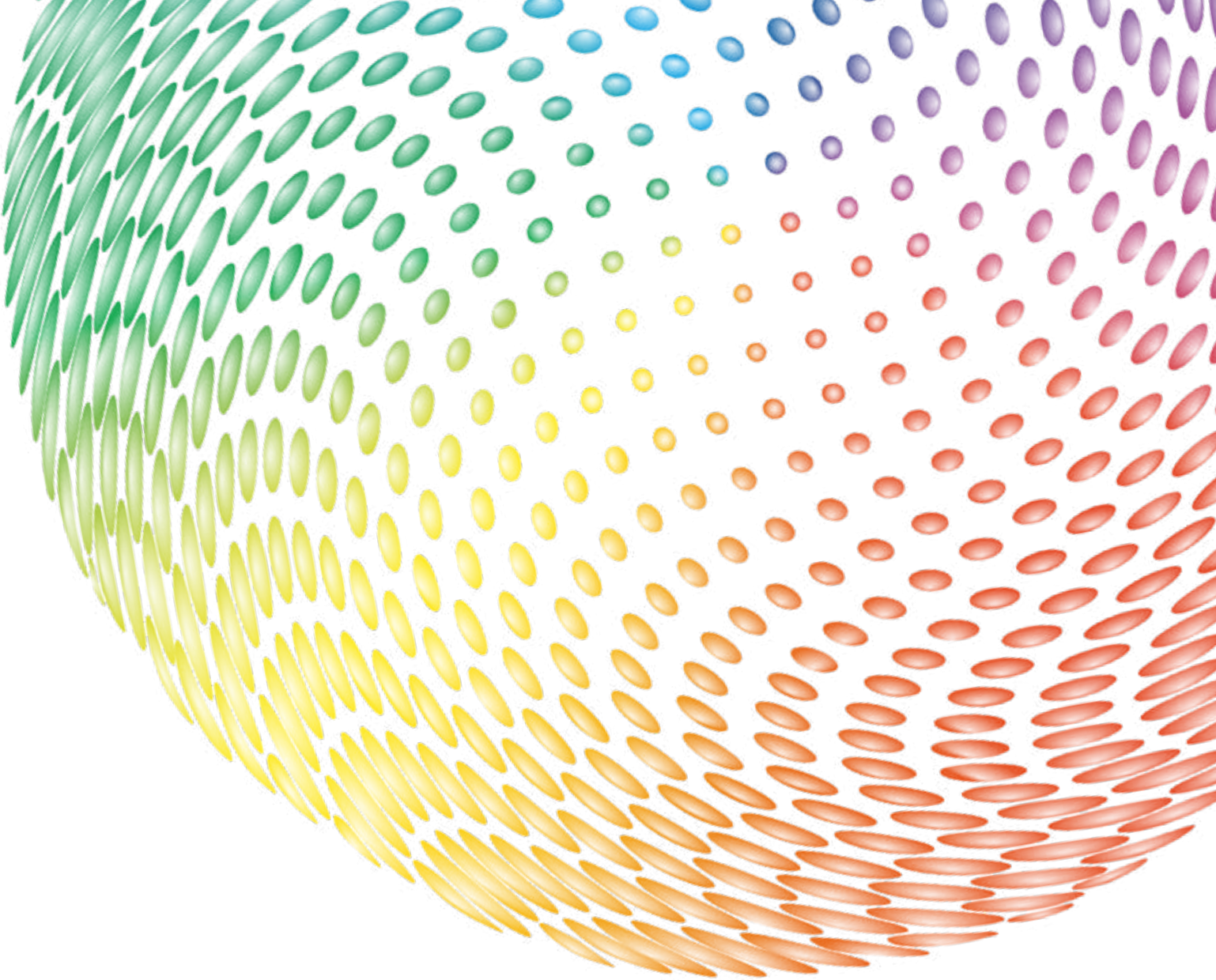
10232 | OMNICHROMA FLOW
Syringe (à 3 g)

Tokuyama Dental
OMNICHROMA *Flow* BULK

NEW

10234 | OMNICHROMA BLOCKER FLOW
Syringe (à 3 g)

10233 | OMNICHROMA FLOW BULK
Syringe (à 3 g)



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From the Technology Pioneer.

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