

## STRUCTURE OR PIGMENTS? HOW COLOUR IS CREATED WITH COMPOSITES

Those who treat their patients with composite fillings have probably already justified this by saying that it is an aesthetically high-quality and metal-free form of restoration. But is this correct? Basically, composites are made up of three components: an organic resin matrix, inorganic fillers and a composite phase of silanes. If you take a closer look at the composition of the organic matrix, you will notice that, in addition to monomers, initiators and stabilisers, it contains dyes and pigments. While pigments made of titanium dioxide and aluminium oxide are used for white colouring. Black, red or yellow colourings can be achieved with iron oxide pigments. These are the shades that are relevant to the colour range of human teeth.

### Just like leaves and chlorophyll

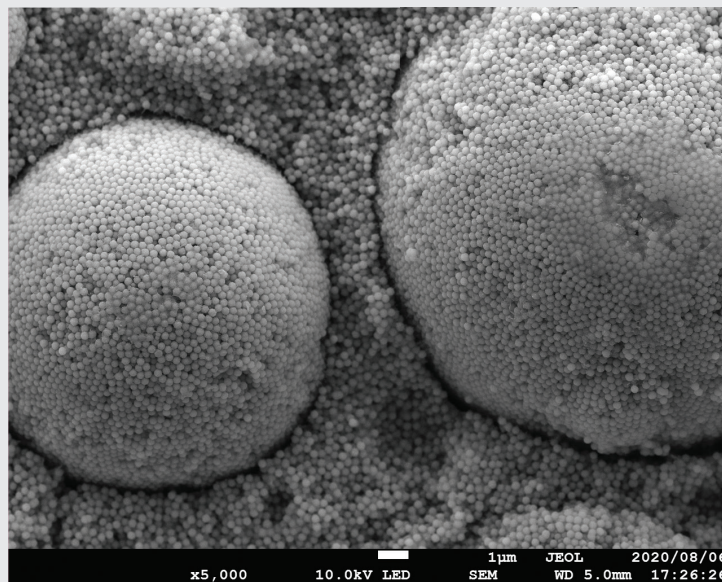
But how exactly does colouring with pigments actually work in composites? As with a plant, light with all its wavelength ranges hits a leaf, where it is largely absorbed by the chlorophyll. Only the green wavelengths are reflected, which is why we perceive the leaf as green. The colouring in this case has a chemical

cause. This mechanism also underlies the colouring of most composites. The iron oxides contained in them, for example, reflect red or yellow wavelengths and thus provide the desired colour tone.

### Colour from structure

However, it is also possible to create colour without the addition of pigments. The decisive term in this context is "structural colour". In contrast

to pigment colours, they do not result from the absorption or non-absorption of certain wavelengths of light, but are created based on certain surface structures. The cause is not chemical but physical. These structures interact with the light and give rise to colour, for example, through interference or diffraction.



### Structural colour in the dental practice

In the field of dental composites, structural colour was used as the main colour mechanism for the first time in 2019. Using Smart Chromatic Technology, the Japanese supplier Tokuyama succeeded in making the mechanism usable for its universal composite Omnicroma. The new flowable version of this material, Omnicroma Flow BULK, now also uses this technology and does not require any artificially added dyes or pigments. This is due to the microstructure of the material. Of particular importance in this con-

text are the spherical fillers with controlled particle size and structure. They create the structural colour, which also reflects the surrounding tooth colour.

This results in a pronounced chameleon effect with real added value for the practice and patients. With only one shade, Omnicroma Flow BULK allows for infinitely variable colour matching to all 16 classic VITA tooth shades from A1 to D4. This not only ensures that the right shade is always in stock, but also makes the restorative therapy workflow easier and more efficient. ◀◀

**Tokuyama Dental, Japan**

[www.tokuyama-dental.eu](http://www.tokuyama-dental.eu)

**Hall 10.1, Booth A40**

## AUFGABE GELÖST – MIT GC! SOLVED WITH GC!

GC konzentriert sich auf Lösungen und verhilft Zahnärztinnen und Zahnärzten zu mehr Effizienz und vorhersagbaren Ergebnissen und damit zu mehr Erfolg. Bei der Produktentwicklung achtet GC besonders auf eine einfache Handhabung. Das verkürzt die Prozesszeiten – ohne Kompromisse beim Endergebnis. Alle Produkte sind optimal aufeinander abgestimmt. Wenn man sie miteinander kombiniert, kommen sämtliche Vorteile zum Tragen.

Die farb- und formkeramischen Lösungen von GC bieten höchste Ästhetik für Vollkeramikrestorationen – und das innerhalb einer Mikroschicht. Initial IQ ONE SQIN erleichtert die Herstellung hochästhetischer Front- und Seitenzahnrestorationen aus vollkeramischen Werkstoffen wie Lithiumdisilikat oder Zirkonoxid und vermeidet arbeitsintensive Schichttechniken. Die Produktivität steigt – unabhängig davon, welche Technik das Labor bevorzugt. Das System besteht aus drei Komponenten: Lustre Pastes ONE, SQIN und Spectrum Stains. Die 3D-Farbkeramik Lustre Pastes ONE auf Feldspatbasis verleiht monolithischen Versorgungsfarbe, Tiefe und naturgetreue Transluzenz mit natürlichem Glanz. Die Fluoreszenz monolithischer Restaurationen ist dann von der Fluoreszenz natürlicher Zähne nicht zu unterscheiden.

Bei bukkal reduzierten monolithischen Restaurationen dient Lustre Pastes ONE als Farb- und Connector-Brand vor dem Auftrag der SQIN-Keramik in Mikroschichttechnik. Die SQIN-Keramik lässt sich in einer dünnen Schicht von etwa 0,1 bis 0,6 mm ganz leicht auf die gebrannte Lustre Pastes ONE-Oberfläche auftragen. Diese veredelte Feldspat-Keramikmischung besitzt einzigartige Applikations- und Modelliereigenschaften, die eine individuelle Oberflächentexturierung im feuchten Zustand ermöglichen. Darüber hinaus ist sie selbstglasierend, wodurch ein separater Glanz- und Glasurbrand überflüssig wird.

Die Spectrum Stains runden das Konzept ab und bieten unbegrenzte Möglichkeiten zur individuellen Charakterisierung.



Alle Dentalfachleute sind eingeladen, die Vorteile der Arbeitsabläufe und Lösungen von GC live stattfindenden Workshops und Labor-Demos direkt zu erleben – auf der IDS am Messestand. Dort werden auch täglich international renommierte Zahnärzte und Zahntechniker in der Speakers' Corner zu aktuellen Themen referieren. ◀◀

By focusing on solutions rather than problems, GC helps dentists achieve success with greater efficiency and predictability. By designing easy-to-use products, we can help you reduce your working time without compromising on the result. All of our products are optimally coordinated. When used in combination, you take full advantage of our solution workflows.

Our colour-and-form ceramic solutions provide maximum aesthetics to your all-ceramic restorations, within one micro-layer.

Initial IQ ONE SQIN facilitates the design of highly aesthetic posterior restorations made

from a single material such as lithium disilicate or zirconia, avoiding cumbersome and time-consuming layering techniques. Productivity is increased, regardless of which technique the dental technician prefers to use. The system consists of three elements: Lustre Pastes ONE, SQIN and Spectrum Stains. For full monolithics, the Lustre Pastes ONE, feldspar-based 3D-paint-on ceramic will add colour, depth and lifelike translucency with a genuinely natural glaze. Their inherent fluorescence brings the fluorescence of your monolithic restorations to a level that is not distinguishable from natural teeth's.

For buccally reduced monolithics, these Lustre Pastes ONE also serve as the connection firing before application of SQIN ceramics in the micro-layering technique. SQIN ceramic is easily applied in a thin layer of about 0.1 to 0.6 mm over the fired Lustre Pastes ONE surface. This refined mixture of feldspar-based glasses has unique application and modelling properties that enable individual surface tex-

turing in the wet stage. On top of that, it has self-glazing properties, omitting a separate glaze firing.

The Spectrum Stains complete the concept and equip you with infinite characterisation possibilities.

All dental professionals are invited to experience the benefits of all our workflows and solutions at the booth during hands-on courses and lab demos. Additional booth experience will include internationally renowned dentists and technicians daily presenting on current topics of interest on the booth at the speakers' corner. ◀◀



**GC Europe, Belgium**

[www.gc.dental/europe](http://www.gc.dental/europe)

**Hall 11.2**

**Booth N010/O039**

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Biodentine XP Medical Device Class III awaiting CE marking.  
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