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## Reprint

- **Creative shades**  
Contemporary esthetics using CreaColor:  
History, use, and application  
  
Sascha Hein, MDT, Perth, Australia



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Contemporary esthetics using CreaColor: History, use, and application

# Creative shades

Sascha Hein, MDT, Perth, Australia

"Why travel far when the good is so close!" This aphorism is perfectly applicable to the essence of this paper. Oral Designer Sascha Hein demonstrates impressively what the staining technique – which some had already pronounced dead – can accomplish, presenting three exemplary solutions. The combination with other build-up techniques makes it possible to create restorations that are indistinguishable from nature's original. So why embark on cumbersome new paths when the old-new techniques deliver impressive results?

Although their use was once frowned upon, modern ceramic stains are today counted among the "smart materials." They are versatile and deliver tremendous effects with minimal effort. Ceramic stains were originally used only to accentuate surfaces. Today, however, there are many more applications, making life a little easier when it comes to creating natural-looking dental restorations in the laboratory.

## Historic perspective

It has been 23 years since the now legendary Creation ceramic veneering system by Willi Geller was first presented. At that time, the ceramic system developed by the master from Zürich set esthetic standards – standards that have stood the test of time. It is no coincidence that some of our most famous colleagues from around the world use this sophisticated ceramic system for professionals on an everyday basis.

New inventions in 1988 included Willi Geller's opaque dentins, but also the stain and modifier sets, MakeUp and InNova, that are part of the system (Figures 1 and 2). Willi Geller Creation showed not only the courage to tackle natural esthetics but also the intelligence to devise a logical system. For the first time, pigments were not just arranged by color attributes alone, but also by their marking or translucent properties. A special highlight was, and continues to be, the legendary InNova set of modifiers that impresses with its natural shades and fluorescence appearance. That InNova was designed exclusively for mixing into the still moist ceramic material was perceived with as much excitement as controversy by the dental world. Further developments in the mid-90s led to the introduction of the MakeUp Instant system with its fast-dissolving properties – reminiscent of instant coffee. These properties ensure that the stains diffuse into the ceramic material rather than just sticking to the outside.

The veritable avalanche of new materials in the last ten years has instilled in many users a longing for more simplicity through greater flexibility. This has now been made possible with modern technology.

## Neo means new!

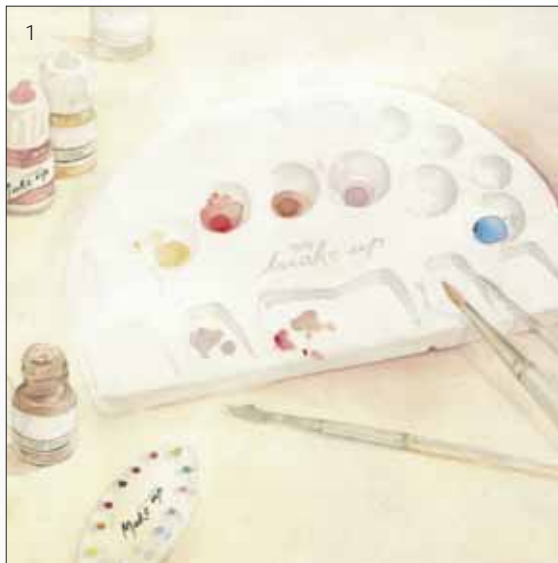
At a time when many manufacturers try to impress their customers mostly with product packaging, the focus at Willi Geller Creation has remained firmly on the content. Admittedly, though, esthetically gifted technicians will find that CreaColor is delivered in a simple but quite "sexy" package (Figure 3). The main components are the MakeUp Neo and InNova Neo ranges (Figure 4). Both systems cover the most common shades of their well-proven predecessors and have the same well-known properties. But there is one difference: The materials are now low-fusing and can be applied across the entire CTE range of all veneering and framework ceramics, from all-ceramic systems to metal-ceramics.

## Key words

- Esthetics
- Ceramic stains
- Metal ceramics
- Veneering ceramics
- Zirconia

## Category

Product-related user report



Figures 1 and 2 Birth of a Legend: By introducing the InNova modifiers and MakeUp stains in 1988, Willi Geller Creation showed not only the courage to tackle natural esthetics but also intelligence to devise a logical system. For the first time, pigments were not just arranged by color attributes alone, but also by their marking or translucent properties. A special highlight was, and continues to be, the legendary InNova set of modifiers that impresses with its natural shades and fluorescence appearance.

### External application of MakeUp Neo

One of the most common indications for the new CreaColor stains is shade matching for pressed ceramic restorations. Little helpers definitely make life easier, such as a handy but well-structured palette (Fig-

ure 5). After the wax-up, performed using standard procedures (Figure 6), and pressing, the fissures and then the body portion of the lithium disilicate restorations are painted to support the base hue and chroma (Figures 7 and 8). The 17 fluorescent and translucent MakeUp Neo stains cover a wide temperature range. They can be fired as needed, from

760 °C to 900 °C (Figure 9). After only one additional glaze firing, the pressed lithium disilicate restorations have obtained a smooth satin finish (Figures 10 and 11). After etching the cementing surfaces and cleaning the restorations, they can deliver to the dentist (Figure 12).



Figures 3 and 4 The new CreaColor kit consists of the MakeUp Neo stains and the InNova Neo modifiers, which are now low-fusing and therefore widely applicable – from all-ceramics to metal-ceramics. Even the packaging is functional: Small magnets make for a self-closing CreaColor box.

Figure 5 Little helpers make life easier: the handy Aqualine palette is small but well-organized.



Figure 6 One of the most common indications for the new CreaColor stains is creating the shade for pressed ceramic restorations.



Figures 7 and 8 After pressing, the fissures and then the body portion of the lithium disilicate restorations are painted to support the base hue and chroma.



Figure 9 The 17 fluorescent and translucent MakeUp Neo stains cover a wide temperature range. They can be fired as needed, from 760 °C to 900 °C.



Figures 10 and 11 After only one additional glaze firing, the pressed lithium disilicate restorations have obtained a smooth satin finish.





Figure 12 The etched and cleaned restorations are ready for delivery.



Figures 13 and 14 The InNova Neo modifiers can be used for all-ceramic and traditional metal-ceramic restorations. In this clinical case, the upper right central incisor (tooth 11) was to receive a metal-ceramic crown.

### Esthetics Now! Internal application of InNova Neo

The InNova Neo modifiers can also be used for all-ceramic and traditional metal-ceramic restorations. In the clinical case described below, the upper right central incisor (tooth 11) was to receive a metal-ceramic crown (Figures 13 and 14). Obviously, custom results require custom instruments. For these instruments to be

easy to use, they should be small and light and tailor-made for the user (Figure 15). The dentin core is first built up to full anatomic contour and then dried with blotting paper (Figure 16). Blotting paper slowly absorbs any liquid still present in the ceramics (residual moisture). This prevents the various ceramic and stain layers from getting mixed up. Ultimately, blotting paper supports a natural look of the build-up. The ceramic mate-

rial should not dry out too much before more material is added or applied. Also, to be able to use the instruments on the ceramic material, it should have a minimum of residual moisture (Figure 17).

To imitate the bright, fluorescent cervical imbrication lines\*, parallel striations are first scraped from the dentin and then re-filled with a moist mixture of BDA bleach dentin and InNova Neo 9 (white). To keep the ensuing effect from becoming

\*Imbrication lines are a term originally used in paleontology.



Figure 15 Custom results require custom instruments. They should be tailored to the user and be small and light for precision and ease of handling. The handles of the tools shown here are made of Japanese balsa wood – light as a feather.



Figure 16 The dentin core is first built up to full anatomic contour and then dried with blotting paper (Figure 16). Blotting paper slowly absorbs the moisture from the ceramic, preventing the different layers from being mixed up by excessive high suction and supporting a natural look of the build-up.



Figure 17 The ceramic material should not be too dry for the cut-back. There should always be a minimum of residual moisture.

too salient, it is important to perform this step in the early stages of the build-up process. In this manner there will be sufficient space for enamel and dentin layers that attenuate the effect (Figure 18). The next important step is to define the incisal translucency of the natural tooth (Figure 19). The 25-year-old incisal-plate technique devised by Willi Geller has shown itself to be excellently suited for this purpose. This plate is made of enamel and transparent materials and forms the basis for the incisal characteristics (Figure 20). In order to achieve lifelike, three-dimensional mamelons, the technique by Ulrich Werder is applied. This technique

builds up three small knolls on the incisal plate, providing an irregular foundation for the mamelons (Figures 21 and 22). A custom mixture of MakeIn and incisal is enriched with InNova Neo 2 (pink) and applied to the incisal plate. The tips of the mamelons are additionally customized with MakeUp Neo F5 (flamingo) (Figure 24). Once additional enamel and transparent materials have been added (Figure 25), the next step is the imitation of the three-dimensional enamel cracks that are found in nature (Figure 26). This can be easily done using the knife technique. In this technique, which is very effective, In-

Nova Neo Crackliner is applied to the edge of a knife, which is then drawn through the still wet ceramic material, preferably at a slight angle (Figure 27). An important aspect of the clinical case presented here is the patient's labial enamel hypoplasia\*\*, which causes the dark appearance in the depth. To imitate this, a pit is created in the wet ceramic with a knife (Figure 28) and filled with MakeUp Neo F8 (medium brown) (Figure 29). After firing, the tooth contour and texture are designed according to the Japanese approach (Figure 30). The desired luster of the restoration is defined by polishing prior to the glaze firing (Figure 31).

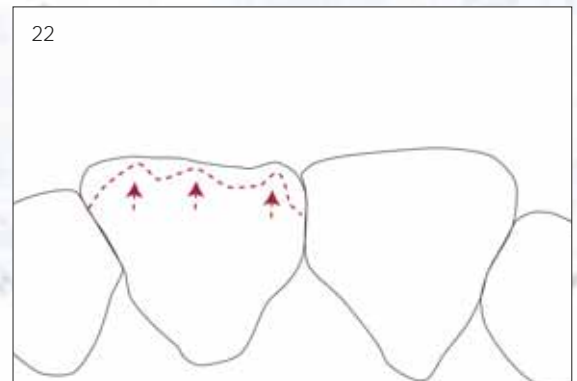
Figure 18 To imitate the bright, fluorescent cervical imbrication lines, parallel striations are scraped from the dentin and then refilled with a moist mixture of BDA bleach dentin and In-Nova Neo 9 (white).



Figure 19 The next important step is to define the incisal transparency of the natural tooth.



Figure 20 The 25-year-old incisal-plate technique devised by Willi Geller is excellently suited for this purpose. This plate is made of enamel and transparent materials and forms the basis for the incisal characteristics.



Figures 21 and 22 To achieve lifelike, three-dimensional mamelons, the technique devised by Ulrich Werder is applied. This technique builds up three small knolls on the incisal plate, forming an irregular foundation for the mamelons.



Figure 23 A custom mixture of Makeln and incisal is enriched with InNova Neo 2 (pink) and applied to the incisal plate.



Figure 24 The tips of the mamelons are additionally customized with MakeUp Neo F5.



Figure 25 The entire tooth is covered with enamel and transparent material.



Figure 26 Once additional enamel and transparent materials have been added, the next step is the imitation of the three-dimensional enamel cracks found in nature.

Figure 27 This can be easily done using the knife technique. In this technique, which is very effective, InNova Neo Crackliner is applied to the edge of a knife and drawn through the still wet ceramic material, preferably at a slight angle.



Figures 28 and 29 An important feature of this particular case is the labial enamel hypoplasia, which turns dark in the depression. To imitate this, a pit is created in the wet ceramic with a knife and filled with MakeUp Neo F8 (medium brown).



Figure 30 After firing, the contour and texture are designed according to the Japanese approach.

Figure 31 The desired luster of the restoration is created by polishing prior to the glaze firing.



Figures 32 to 34 Because of the low-fusing properties of MakeUp Neo stains, the final surface shade characteristics can be performed in accordance with the photographic data collected. This is done at low temperatures and does not affect the previously defined surface luster.





Figure 35 This approach allows us to achieve a individual look on the cast ...



Figures 36 and 37 ... as well as intraorally.

Since the MakeUp Neo stains are low-fusing, the final surface characteristics can be performed in accordance with the photographic data collected. This is done at low temperatures without affecting the previously defined surface luster (Figures 32 to 34). This approach allows us to achieve an individual look on the cast (Figure 35) as well as intraorally (Figures 36 and 37).

#### Zirconia frameworks

The second clinical case exemplifies the use of CreaColor stains. The excessively

bright upper left central incisor (tooth 21) was to receive a zirconia-based all-ceramic crown (Figures 38 and 39). The CreaColor system contains an innovation that is very well suited for this purpose: the clear zirconia liner Frameshade Neutral (NT). Its purpose is to create strong fluorescence (Figure 40) and a secure bond between the veneer and the zirconia framework. This reliably prevents ceramic from being lifted off during the first firing. The clear liner can be used on white and on stained zirconia frameworks (Figures 41 and 42). After firing the Frameshade NT, the framework

should be sandblasted slightly to increase the surface area and thus to create a good bond with the ceramic veneer (Figure 43). To get even closer to the exact shade, the color of the zirconia framework can be characterized with MakeUp Neo or InNova Neo (Figure 44). The build-up procedure on zirconia is similar to the already described build-up on a metallic framework.

A grayish fluorescent zone just above the mid-labial is often found in natural anteriors (Figure 45). This important area can be imitated in the build-up by flowing in



Figures 38 and 39 The second clinical case exemplifies the use of CreaColor stains. The excessively bright upper left central incisor (tooth 21) was to receive a zirconia-based crown.

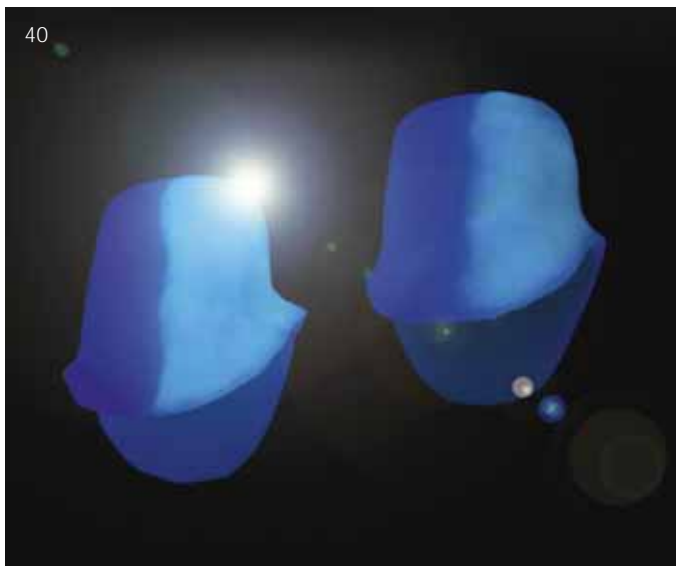


Figure 40 The CreaColor system contains an innovation – the clear zirconia liner Frameshade Neutral. It creates strong fluorescence and ensures a good bond between the ceramic veneer and the zirconia framework.



Figures 41 and 42 Frameshade Neutral can be used on white and on stained zirconia frameworks.



Figure 43 After firing the Frameshade NT, the framework should be sandblasted slightly to create a good bond with the ceramic veneer.



Figure 44 To get even closer to the exact shade, the base color of the framework can be characterized with MakeUp Neo or InNova Neo.

InNova Neo. Like its predecessor from the MakeUp set, this material is of a highly fluorescent and complex gray shade (Figures 46 and 47). Natural mamelons are characterized by intense chroma and high fluorescence (Figure 48). This can

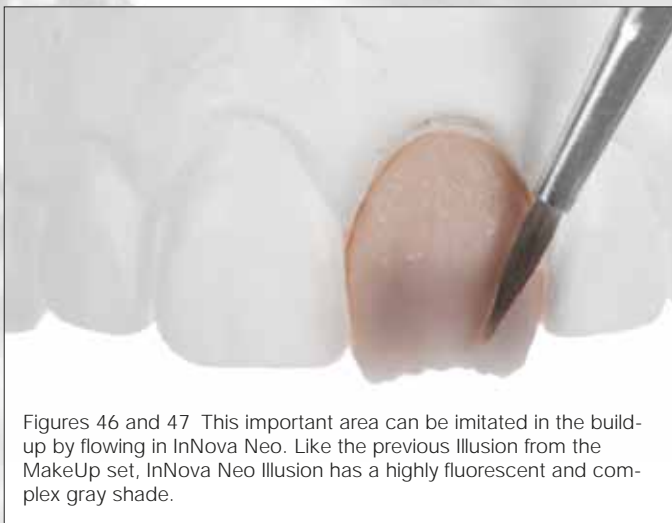
also be imitating by flowing in MakeUp Neo (Figures 49 and 50).<sup>2</sup> A very precise characterization can still be achieved using the envelope technique by *Michel Magne*. Here, the restoration is cut back incisally after the first firing (Fig-

ure 51), then precision-stained with multiple intermediate firings (Figures 52 and 53). Once the incisal details match the natural example, they are coated with enamel and transparent materials (Figure 54) and finished (Figure 55). The enve-

Figure 45 A grayish fluorescent zone just above the mid-labial is often found in natural anteriors.



46



Figures 46 and 47 This important area can be imitated in the build-up by flowing in InNova Neo. Like the previous Illusion from the MakeUp set, InNova Neo Illusion has a highly fluorescent and complex gray shade.



Figure 48 Natural mamelons are characterized by intense chroma and high fluorescence.



49



50

Figures 49 and 50 Both the chroma and the fluorescence can also be imitated by flowing in MakeUp Neo.



51

Figure 51 A very precise characterization can still be achieved using the envelope technique by Michel Magne. Here, the restoration is cut back incisally after the first firing.



Figures 52 and 53 It is then precision-stained with multiple intermediate firings.



Figure 54 Once the incisal details are as close as possible to the natural example, they are coated with enamel and transparent materials.

Figure 55 The finished restoration on the cast.



Figures 56 and 57 The envelope technique represents a modern and reliable method for achieving an esthetically accurate result through the interaction of CreaColor with the traditional build-up technique.

lope technique represents a modern and reliable method to achieve an esthetically accurate result through the interaction of CreaColor with the traditional build-up technique (Figures 56 and 57).

### Summary

Some tried and tested methods which had been out of fashion for a while are now back in the dental limelight in the wake of paradigm shifts and ongoing product development. The use of ceramic stains – once considered a form of “cheat-

ing” – is no exception. The list of “renaissance” techniques includes copy milling (Celay), the platinum foil technique and, more recently, the directly screw-retained implant-supported crown, which had almost fallen into oblivion in Germany (Figures 58 to 60). So new is actually old – but better! ■



Figure 58 Some tried and tested methods that have been out of fashion for a while are now back in the dental limelight. Ceramic stains, once considered "cheating," have resurfaced as a modern technique – just like the classic occlusally screw-retained crown.



Figures 59 and 60 Implant-supported crown customized with CreaColor on tooth 21 in situ.

### Product list

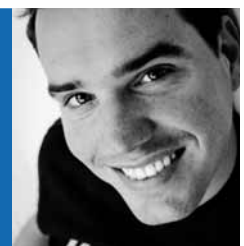
Product	Name	Manufacturer/distributor
Mixing tray	Aqualine Professional	Willi Geller Creation/AmannGirrbach
Computer	Mac Pro	Apple
Investment	Fujivest Platinum	GC Europe
Camera system		
- Body	EOS 5D Mk III	Canon USA
- Flash	Auto Duo Flash	Novoflex
- Lens	Apo Macro Elmarit-R	Leica
Ceramic furnace	Austromat 424 Oral Design Edition	Dekema
Alloy	V 92	Cendres+Métaux
Palette	Aqualine	Willi Geller Creation/AmannGirrbach
Stains and modifiers	CreaColor, MakeUp Neo, InNova Neo	Willi Geller Creation/AmannGirrbach
Dental stone	Fujirock Pearl White	GC Europe
Carving wax	Milling wax, Hans-Jürgen Stecher	Stecher Zahntechnik
Music	Bonobo, „Black Sands“	Ninja Tune
Pressable ceramic	IPS e.max press	Ivoclar Vivadent
Ceramic pressing furnace	Austromat 654 Press-i-dent	Dekema
Veneering ceramics	Creation CC and Zi-F	Willi Geller Creation/AmannGirrbach
Zirconia	Lava	3M ESPE

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*Creation*



The Brilliance of CreaColor • utmost colour brilliance for internal and external colouring • versatile and efficient: one system for all ceramics! • high colour accuracy and fidelity thanks to high-quality materials • natural colour effect due to very high fluorescence values • easy to handle: can be mixed together and can be corrected

# CREACOLOR: MAKE UP NEO & IN NOVA NEO


## MAKE UP NEO:

intensive colour character, efficient to use

### Indications:

- internal staining of pressed or fired dentine cores (Creation CP, CP ZI, CP L&M)
- external staining of all pressed ceramics
- external staining of all layered ceramics (Creation CC, ZI-F, AV, LF and TI)
- admixing for intensifying or individualising layered ceramic
- characterising zirconium dioxide (with the aid of Frame Shade FS NT)



 MUN-F1 white	 MUN-F2 eggshell	 MUN-F3 lemon yellow	 MUN-F4 mandarine	 MUN-F5 flamingo	 MUN-F6 apricot	 MUN-F7 light brown	 MUN-F8 medium brown	 MUN-F9 olive	 MUN-F10 red
 MUN-F11 blue	 MUN-F12 grey	 MUN-F13 deep blue	 MUN-FA stain A	 MUN-FB stain B	 MUN-FC stain C	 MUN-FD stain D	 MUN-GL-F Glaze	 UF	 Recon- ditioner

## IN NOVA NEO:

naturally coloured light dynamics and fluorescence

### Indications:

- admixing for intensifying or individualising layered ceramic
- staining zirconium dioxide frames for tooth-coloured shading and for characterising the white or pre-stained zirconium dioxide surface
- imitation of depth effect and simulation of three-dimensional cracks



 INN-1 melone	 INN-2 rose	 INN-3 yellow	 INN-4 red brown	 INN-5 brown	 INN-6 olive	 INN-7 grey	 INN-8 blue	 INN-9 white	 INN-10 mais	 INN-CRL Crackliner	 INN-IL Illusion	 INN-FLUID
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## FRAME SHADE FS NT:

fascinatingly fluorescent

High adhesion, more aesthetics: the new Frame Shade FS NT is a fluorescent bonding agent which helps to **support adhesive strength** between zirconium dioxide frame and layering ceramic while increasing the fluorescence of the zirconium dioxide frame – **for an impressively strong bond.**

The ready-to-use bonding agent in paste form can be used for tooth-coloured staining or characterising of zirconium dioxide, ideally with the ceramic stains from the **CreaColor Make Neo** range – for a natural and fluorescent effect in the eventual restoration.

### The brilliance of Frame Shade FS NT:

- individual control of colour intensity due to high fluorescence value
- high adhesion for reliable bonding strength without stresses
- more aesthetics thanks to colouring with the CreaColor Make up Neo ceramic stains
- targeted application and thin layer application due to fine-grained paste form

## AQUALINE MINI

drying out is impossible

In a compact design, the Aqualine mini offers everything a perfect ceramics workplace needs: the moisture of the materials is constantly kept at the perfect level via cellulose strips, without producing any unpleasant odours. There is no chance of materials drying out. It saves on costs and materials. The overall ergonomic design allows efficient working processes in the smallest of spaces – simply smart, isn't it?

**Color:** antracite, rubber touch

**Size:** 135 x 70 x 18 mm

**Components:** tray box with glass plate and cellulose strips

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