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BRILLIANT EverGlow

ENDURING GLOSS – MADE BRILLIANT

BRILLIANT EverGlow is a sculptable Universal Submicron Hybrid Composite that allows for high aesthetic restorations with a reduced spectrum of shades. It is a true versatile material which fully meets high requirements for anterior and posterior restorations, offering simple handling, excellent blend-in properties and long-lasting brilliance.

FEATURES AT A GLANCE

- · Exceptional polishability and long-lasting brilliance
- · Aesthetic single-shade restorations
- · Versatile shade system with three translucency levels
- · Excellent sculptability and smooth consistency
- · Good wettability with minimal stickiness to the instrument

BRILLIANT EverGlow contains antibacterial zinc oxide (see Atmara, S., Gül, K. & Cicek, R., 1997, S. 595-597, Phadmavathy, N. & Vijayaraghavan, R., 2008)

INDICATIONS

BRILLIANT EverGlow is applied in the 2 mm increment technique and is indicated for:

- · Direct restorations of all cavity classes
- · Luting and repair of composite and ceramic restorations

BRILLIANT EVERGLOW FLOW

Complementing the product assortment, BRILLIANT EverGlow is also available in a flowable consistency. The material combines a low viscous consistency with high stability and thixotropy, allowing a controlled and comfortable application.







SHADE SPECTRUM

The BRILLIANT EverGlow line comprises 7 universal, 2 translucent and 3 opaque shades. They integrate so well into the existing surroundings, that one shade covers two VITA shades at a time, resulting in A1/B1 or A2/B2, for example.

Universal shades:

Can be applied separately or in combination with opaque and/or translucent shades.

Translucent shades:

Can be applied separately or following the universal shade as a coating layer.

Opaque shades:

The masking ability is controlled by the thickness of the layer. To achieve an optimal blend-in effect, it is suggested to keep the total opaque shade layer thickness as small as possible and to cover it with universal shades.

For further information on colour management, please see "Questions and Answers".



TRANSLUCENT

- · shape and colour corrections to enhance individual aesthetics
- · reconstruction of incisal edges



OPAQUE

- · masking dark spots
- · level out chroma differences

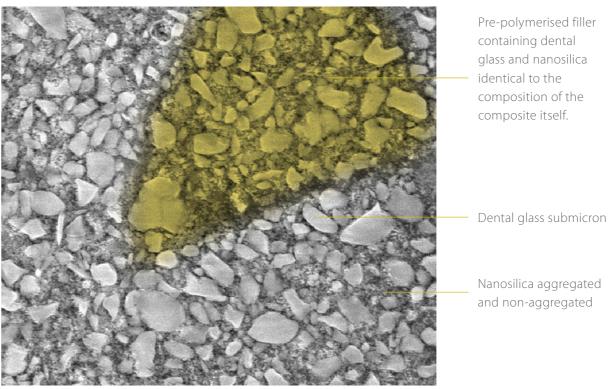




FILLER TECHNOLOGY

BRILLIANT EVERGLOW IS A SUBMICRON HYBRID COMPOSITE OF THE LATEST GENERATION.

The average particle size of the dental glass filler has been reduced to below 1 micron to achieve maximum ease of polishability and gloss retention. This was also accomplished by the composition of the pre-polymerised fillers corresponding to the composition of the composite itself. Further, the fillers' anchoring has been optimised to prevent plucking. The formulation has been adjusted without compromising neither the good handling characteristics of the composite paste nor the mechanical strength of the cured composite.



SEM picture of BRILLIANT EverGlow after toothbrush abrasion Source: internal data

TECHNICAL DATA BRILLIANT EVERGLOW

Criteria	Method	Unit	Value**
Filler content by weight	-	W-%	79
Filler content by volume	-	vol-%	64
Inorganic filler content by weight	-	W-%	74
Inorganic filler content by volume	-	vol-%	56
Range of inorganic filler size	-	nm	20-1'500
Flexural modulus	-	MPa	8200
Flexural strength	ISO 4049	MPa	117
Compressive strength	internal method	MPa	390
Vickers hardness	internal method	kg/mm2	55
Wear rate McCabe	internal method	-	2.2
Gloss retention after toothbrush abrasion	internal method	GU	67
Water sorption	ISO 4049	μg/mm³	15.1
Water solubility	ISO 4049	μg/mm³	<0.1
Polymerisation shrinkage Watts	internal method	%	2.3
Polymerisation shrinkage Archimedes	ISO 17304	%	2.8
Consistency Zwick	internal method	N	18.0
Stickiness to steel	internal method	N	41
Polymerisation depth	ISO 4049	mm	2.4
Radio opacity	ISO 4049	mmAl	2.0
Operating light resistance 60s@8'000lx	ISO 4049	-	pass
Operating light resistance @20'000lx	-	S	50
Opalescence	internal method	-	21.0
Colour stability UV, delta E	internal method	-	0.76

^{**} Universal, translucent and opaque shades are identical in filler and resin composition. Therefore technical data are identical with the exception of optically influenced parameters such as depth of cure or operating light resistance. The data above are typical data as measured on the universal shade A2/B2.

TECHNICAL DATA BRILLIANT EVERGLOW FLOW

Criteria	Method	Unit	Value**
Filler content by weight	-	W-%	65
Filler content by volume	-	vol-%	46
Inorganic filler content by weight	-	W-%	60
Inorganic filler content by volume	-	vol-%	37
Range of inorganic filler size	-	nm	20-1'500
Flexural modulus	-	MPa	4100
Flexural strength	ISO 4049	MPa	96
Compressive strength	internal method	MPa	415
Wear rate McCabe	internal method	-	2.9
Gloss retention after toothbrush abrasion	internal method	GU	77
Water sorption	ISO 4049	μg/mm³	22.6
Water solubility	ISO 4049	μg/mm³	2
Polymerisation shrinkage Watts	internal method	%	4.0
Polymerisation shrinkage Archimedes	ISO 17304	%	4.7
Polymerisation depth	ISO 4049	mm	2.1
Radio opacity	ISO 4049	mmAl	2.2
Operating light resistance 60s@8'000lx	ISO 4049	-	pass
Operating light resistance @20'000lx	-	S	35
Opalescence	internal method	-	14.9
Colour stability UV, delta E	internal method	-	1.41

^{**} Universal, translucent and opaque shades are identical in filler and resin composition. Therefore technical data are identical with the exception of optically influenced parameters such as depth of cure or operating light resistance. The data above are typical data as measured on the universal shade A2/B2.

Source: internal da

POLISHABILITY

Introduction:

A low roughness value indicates that the composite is easy to polish and shows high gloss after polishing.

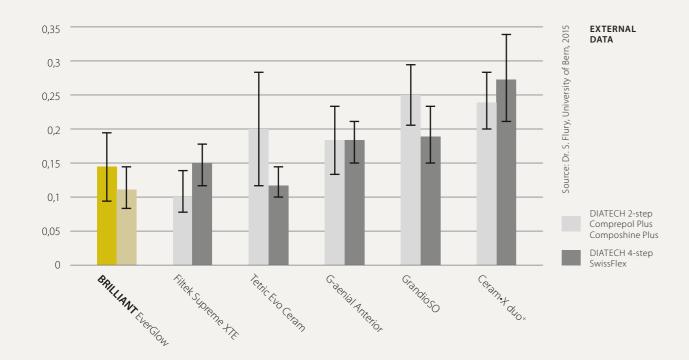
Method:

In this in vitro study, the surface roughness of 6 different composites (enamel shade A3 or an equivalent) was compared after polishing. Standard specimen were prepared in acrylic moulds, light cured and ground to a baseline surface roughness with SiC 220 grit paper. Then 20 specimen per composite were polished. Two different polishing systems were tested: the 4-step DIATECH SwissFlex discs and the 2-step DIATECH Comprepol Plus/Composhine Plus rubber points. Each polishing step has been applied for 10 seconds. Surface roughness Ra and Rz of each specimen was determined with a Mahr Perthometer S2 under 0°, 45° and 90° angle and averaged.

Conclusion:

BRILLIANT EverGlow and Filtek Supreme XTE show the lowest surface roughness after polishing. The 2 polishing systems lead to a comparable roughness level, but the polish quality with the 4-step SwissFlex discs is slightly more uniform.

ROUGHNESS R_a AFTER POLISHING/μm



GLOSS RETENTION

Introduction:

A high value indicates how well the good polish of the composite is preserved over time. The higher the value, the glossier was the surface after tooth brushing simulation.

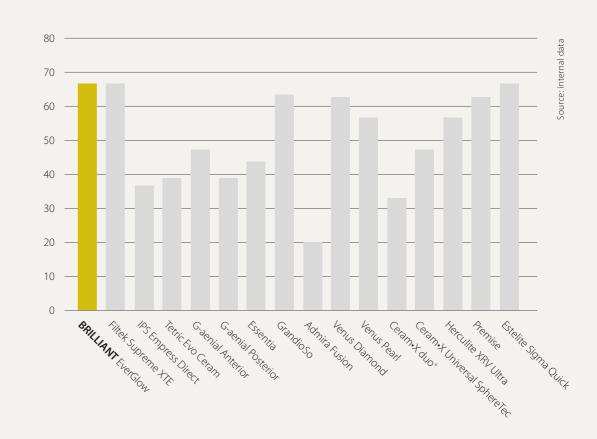
Method:

To measure gloss retention, a tooth brushing simulator was used allowing the testing of large numbers of samples. The samples were pressed and the surface layer ground off. In a first step they were mechanically polished with a Bühler EcoMet / AutoMet polisher and a diamond slurry to at least 95GU. Then, in a second step, they were brushed according to a standardised tooth brushing procedure* (toothbrush Curaprox ultra soft 5460, tooth paste slurry with Elmex caries protection RDA75, loading 3.2N, 6000 cycles, zig zag). Finally residual gloss was analysed with a Zehntner Gloss meter*.

Conclusion:

BRILLIANT EverGlow ranks among the composites with the best gloss retention.

GLOSS AFTER TOOTH BRUSHING SIMULATION / GLOSS UNITS



ROUGHNESS AFTER TOOTHBRUSH ABRASION

Introduction:

This test result has the same background as the one for gloss retention. A low surface roughness is an indicator for high gloss persistence.

Method:

Surface roughness of contemporary universal composites after a tooth brushing simulation was compared. Samples were pressed in a mould and the surface layer was ground off. The samples were mechanically polished with a Bühler EcoMet / AutoMet Polisher and a diamond slurry to at least 95 GU. The samples were then abraded in a tooth brushing simulator according to a standardized procedure* (toothbrush Curaprox ultra soft 5460, tooth paste slurry with Elmex caries protection RDA75, loading 3.2N, 6000cycles, zig zag) and finally analyzed with white light interferometry.

Conclusion:

Among the tested samples, BRILLIANT EverGlow shows the lowest roughness after tooth brush abrasion.

COMPRESSIVE STRENGTH

Introduction:

Compressive strength gives an indication of how well a composite performs under a high single load as encountered when unexpectedly biting on a hard object.

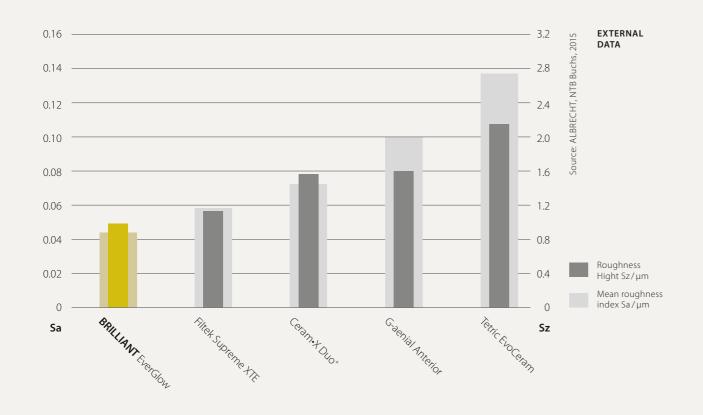
Method:

The composites were pressed into cylindrical steel moulds, Ø 4 mm, h: 6 mm and light cured 60 s from each side. Cylinders were demoulded and stored in deionised water at 37°C, 24 h before loading to compressive failure with the tensile testing machine*.

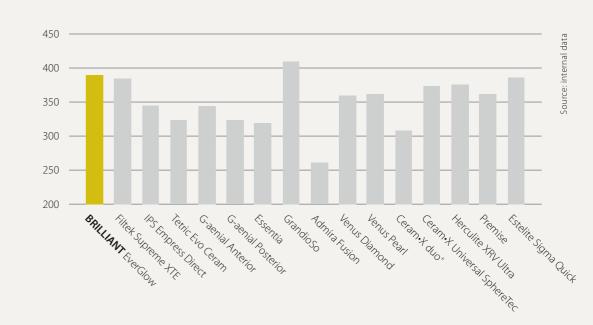
Conclusion:

BRILLIANT EverGlow shows a high compressive strength. It ranks in the follower group to the best performing GrandioSo.

SURFACE ROUGHNESS AFTER TOOTH BRUSHING/µm



COMPRESSIVE STRENGTH / MPa



STICKINESS OF THE COMPOSITE PASTE

Introduction:

To allow easy sculpting, it is essential for the material not to stick too heavily to the instrument. This test evaluates stickiness to stainless steel as often used for instruments.

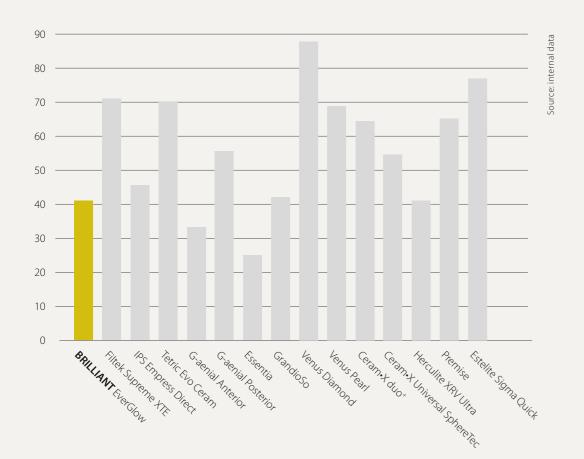
Method:

For testing, a polished stainless steel rod was pushed onto the composite surface and pulled away quickly. The maximum pull off force is considered a good equivalent for perceived stickiness*. It was found that the various CVD (Chemical Vapour Deposition) surface coatings (TiC-silver, TiN-gold, AlTiN-black) of the instruments have minimum influence on the stickiness.

Conclusion:

BRILLIANT EverGlow ranks among the composites with the least stickiness to the tested instrument surfaces.

STICKINESS OF THE COMPOSITE PASTE / N



FLEXURAL FATIGUE STRENGTH

Introduction:

The flexural fatigue strength is an indicator for the longevity of the composite.

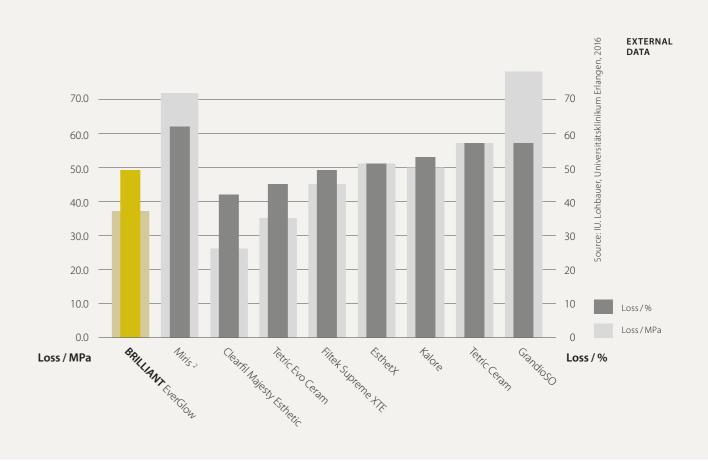
Method:

Standard specimens for flexural testing were prepared according to ISO 4049 from various universal composites. Specimens were stored for 2 weeks at 37°C in deionized water in order to simulate intraoral conditions. Flexural strength (FS) was measured using the four point bending test at 37°C in deionized water. Flexural fatigue strength (FFS) was measured at 10′000 cycles following the staircase approach with 25 specimens tested sequentially. Cycling loading was done at a frequency of 0.5 Hz with an amplitude from 1 MPa to maximum stress. For the first specimen maximum stress was selected as 50% of FS, for the next specimen the maximum load was either increased or reduced depending on failure or survival of the previous sample. For the test result, the difference between flexural strength and flexural fatigue strength has been calculated.

Conclusion:

BRILLIANT EverGlow ranks in the middle of the field with a relative strength loss of about 50 %. The absolute strength loss is low with 37 MPa only it can be concluded that BRILLIANT EverGlow is well suited for the use in load bearing posterior restorations.

LOSS OF FLEXURAL STRENGTH UNDER CYCLIC LOADING WITH 10.000 CYCLES



WEAR RESISTANCE

Introduction:

The wear rate in an indicator for the longevity of a composite. It is a comparative factor to a standard material which gets the value 1. The lower the value, the better the cured material stays in shape.

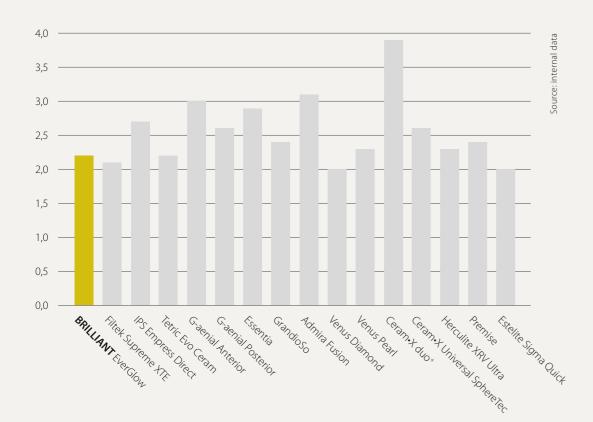
Method:

To assess the material loss by abrasion, a method described by McCabe was applied. Composite was pressed into cylinders Ø 5 mm, h: 6.7 mm, and light cured for 60 s from each side. After an additional 90 s in the light furnace, cylinders were stored in deionised water at 37 °C for 7 days. A cylinder was placed in an abrasive paper (SiC P800) coated vial and agitated by a flask shaker with 800 osc/min for 480 min. Weight loss was measured and wear rate relative to an amalgam standard was calculated*.

Conclusion:

BRILLIANT EverGlow ranks among the composites with the lowest material loss by abrasion.

WEAR RATE (McCabe)



BOND STRENGTH

Introduction:

Shear bond strengths is mainly influenced by the bonding system. In this test the shear bond strength of some contemporary bondings in combination with BRILLIANT EverGlow has been measured. The higher the value, the lower the risk of debonding.

Method:

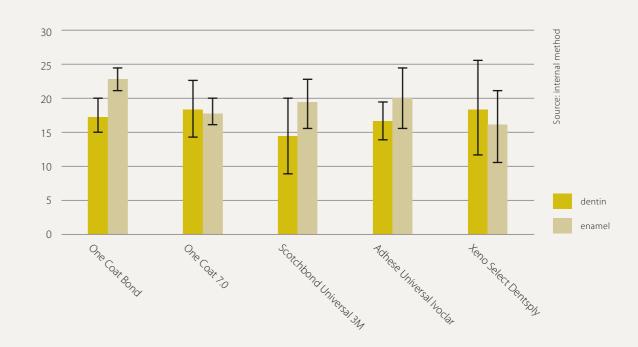
BRILLIANT EverGlow's compatibility with bonding systems has been tested with shear bond strength measurements using the Watanabe method*.

- · Substrate: human teeth ground for dentin, bovine teeth pumiced and etched for enamel
- · Adhesive applied according to IFU
- · Composite applied in 3 layers
- · Composite light cured according to IFU
- · Specimen were stored in deionised water at 37 °C for 24 h before testing

Conclusion:

BRILLIANT EverGlow is compatible with the adhesives tested, as values \geq 15 MPa are considered as good. The standard deviation is an indicator for the technique sensitivity of each bonding system.

SHEAR BOND STRENGTH / MPa



ANTIBACTERIAL PROPERTIES

Introduction:

The test was conducted at Quality Labs BT GmbH, Nürnberg***) according to Quality Labs SOP3.2 from 2008-08-05 "Essay zur Bestimmung antimikrobieller Wirksamkeit von Werkstoffoberflächen gegen Staphylococcus epidermidis DSM 18857". A material causing a delay of > 6 h over a relevant control specimen is defined to be antimicrobial.

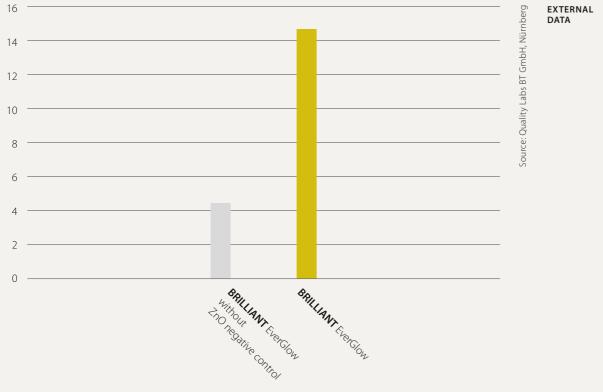
Method:

Cylindrical cured composite specimens were incubated with cells of the testing stem. Non-adhering cell material was washed off. The composite was challenged to inhibit the proliferation of the bacteria on its surface over a period of 18 h at 37 °C. If the inhibition was not complete, living daughter cells were released to the testing medium. The testing medium was cultivated and observed over 48 h and the onset of a critical perturbation in the medium was recorded. The higher the antimicrobial efficiency of the composite the later the onset.

Conclusion:

The test shows a significant delay of the onset time of about 10 h over the negative control. Under the limitations of this testing procedure BRILLIANT EverGlow containing ZnO shows antimicrobial properties.

PROLIFERATION INHIBITION TIME / h



- ***)Quality Labs BT GmbH is certified by:
- DAkkS, Deutsche Akkreditierungsstelle D-PL-13335-01-00
- SLG, Zentralstelle der Länder für Gesundheitsschutz bei Medizinprodukten, SLG-AP-231.10.72



OUESTIONS AND ANSWERS

1. What is BRILLIANT EverGlow (Flow)?

BRILLIANT EverGlow is a universal composite based on submicron hybrid filler technology. It is indicated for permanent direct restorations of all cavity classes and available in tips and syringes. BRILLIANT EverGlow Flow is the supplemental flowable submicron hybrid material and available in syringes in two needle sizes.

2. What makes the new submicron filler technology so special? How does it distinguish from other composites on the market?

BRILLIANT EverGlow (Flow) shows an outstanding polishability and gloss retention. The key to its performance lies in the submicron filler technology: the recipe comprises, on the one hand, very small (submicron) barium glass fillers, and on the other hand, pre-polymerised fillers that perfectly match the composite. In addition an optimum surface treatment leads to an optimised compound strength. This results in a composite with excellent abrasion resistance and a long-lasting glossy surface.

3. Why does BRILLIANT EverGlow (Flow) contain pre-polymerised fillers?

They ensure:

- · Low polymerisation shrinkage
- · Reduced stickiness to the instrument
- · Good sculptability

4. Does BRILLIANT EverGlow (Flow) contain Bisphenol A (BPA)?

BRILLIANT EverGlow (Flow) does not contain BPA by formulation but contains derivatives of BPA such as Bis-GMA and Bis-EMA which are widely used in state-of-the-art composites.

5. Which clinical situations is BRILLIANT EverGlow (Flow) indicated for?

As a universal composite, BRILLIANT EverGlow is indicated for all cavity classes and due to a high gloss retention especially suitable for anterior restorations. It is applied in the 2 mm increment technique. Further it is used to lute and repair composite and ceramic restorations.

The flowable consistency of BRILLIANT EverGlow Flow is suitable for various indications where the low viscous and thixotropic qualities of the material are an advantage: restoration of cavity classes III to V, fillings of small cavities of all cavity classes, blocking out of undercuts, extended fissure sealing and cavity linings. The full range of indications of both materials can be found in the IFUs.

6. Which adhesive system is BRILLIANT EverGlow (Flow) compatible with?

BRILLIANT EverGlow (Flow) is compatible with established adhesive systems on the market:

- · Self-etch technique (e.g. One Coat Self-Etching Bond)
- · Total-etch technique (e.g. One Coat Bond)
- Selective-etch technique (e.g. A.R.T. Bond)
- · Universal bonds (e.g. ONE COAT 7 UNIVERSAL)

In case of a high enamel ratio the total-etch technique is recommended. Please consult the manufacturer's instruction for use.

7. How does the blend-in effect of BRILLIANT EverGlow (Flow) work?

Thanks to light scattering and light reflection on internal composite interfaces and a suitable translucency, the composite takes up the shade from the remaining natural tooth substance in the surrounding. The composite filling harmoniously integrates into the tooth and preparation margins are virtually invisible.

8. How should I apply the BRILLIANT EverGlow shade spectrum to achieve optimum

The sophisticated shading system of BRILLIANT EverGlow allows for maximum flexibility in the dental practice.

With only 7 universal shades, (\approx 21 % of translucency) highly aesthetic anterior and posterior restorations may be realised. Compared to many other established composites, the COLTENE colour system is one step ahead: the COLTENE's innovative and continuously improved "Duo Shade" system allows, thanks to excellent blend-in properties, two VITA shades to be covered with only one universal shade, resulting in A1/B1 or A2/B2, for example.









Additionally, 3 opaque shades (≈ 13 % of translucency) were developed to carry out aesthetic corrections (e.g. chroma deviations) as a base material, to mask dark areas and or to form a dentine core. The opaque shade is applied in 1 mm layers and is covered by a matching universal shade.





9. How can I combine the shades from the BRILLIANT EverGlow (Flow) shade system?

The following table provides an overview on possible shade combinations.

Universal shades:

reconstruction of incisal edges.

Can be applied separately or in combination with opaque and/or translucent shades.

Translucent shades:

Can be applied separately or following the universal shade as a coating layer.

Opaque shades:

The masking ability is controlled by the thickness of the layer. To achieve an optimal blend-in effect, it is suggested to keep the total opaque shade layer thickness as small as possible and to cover it with universal shades.

BRILLIANT EverGlow SHADE COMBINATIONS													
Tooth colour	Universal					Translucent		Opaque					
(VITA)	BL	A1 / B1	A2/B2	A3 / D3	A3.5/B3	C2/C3	A4 / C4	Trans	BLTrans	OBL	OA1	OA2	OA3
Bleach	XX								XX	XX			
A1		XX						XX	XX		XX	X	
A2			XX					XX	Х		Х	XX	
A3				XX				XX	X			Х	XX
A3.5					XX			XX					Х
A4							XX	XX					
B1		XX						XX	XX	Х	Х		
B2			XX					XX	Х		Х	Х	
В3					XX			XX	Х				Х
D3				XX				XX					Х
C2						XX		XX					Х
C3						XX		XX					Х
C4							XX	XX					
	Young / Bleached												

suitable xx verv suitable

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10. How is BRILLIANT EverGlow (Flow) polymerised?

BRILLIANT EverGlow is cured by a polymerisation lamp.

Maximum thickness of the layer and curing times:

		≥800 mW/cm ²	≥ 1600 mW/cm ²		
Shade	Max. Layer Thickness	Exposure Time			
Universal Bleach, A1/B1, A2/B2, A3/D3, A3.5/B3, C2/C3, A4/C4	2 mm	20 s	10 s		
Translucent Bleach Translucent, Translucent	2 mm	20 s	10 s		
Opaque Bleach, Opaque A1, Opaque A3	1 mm	20 s	10 s		
Universal Flowables Bleach, A1/B1, A2/B2, A3/D3, A3.5/B3, A4/C4	1.5 mm	20 s	10 s		
Translucent Flowable Translucent	1.5 mm	20 s	10 s		
Opaque Flowable Opaque A2	1 mm	20 s	10 s		

Note: BRILLIANT EverGlow (Flow) must be cured layer by layer. Do not remove the inhibition layer since this would affect adhesion between the layers. In the event of underexposure there is a risk of insufficient curing. BRILLIANT EverGlow (Flow) is light-sensitive. Avoid continuing exposure to strong light sources, especially operatory lighting and/or sunlight.

11. Which finishing systems are recommended with BRILLIANT EverGlow (Flow)?

COLTENE recommends DIATECH ShapeGuard or the two step diamond polisher system DIATECH Comprepol Plus und Composhine Plus in combination with DIATECH Brushes. For interdental use of DIATECH SwissFlex and ROEKO Abrasive and Polishing Strips is recommended.





shapeguard.coltene.co

12. What is the reason for BRILLIANT EverGlow (Flow)'s effortless polishability?

The effortless polishability of BRILLIANT EverGlow (Flow) is thanks to the submicron fillers, that leave the restoration with a very homogenous and smooth surface.

13. How does BRILLIANT EverGlow (Flow) achieve such a high gloss retention?

The high gloss retention of BRILLIANT EverGlow (Flow) is thanks to:

- · Very small (submicron) barium glass fillers
- · Pre-polymerised fillers with the same composition as the composite itself
- · An optimum silanisation of the filler compound to reduce chipping

14. How is BRILLIANT EverGlow (Flow) to be stored?

BRILLIANT EverGlow (Flow) should be stored at room temperature or in the refrigerator $(4-23 \, ^{\circ}\text{C})$, in a dry environment and without exposure to direct sunlight.

15. Is BRILLIANT EverGlow compatible with Fill-Up!?

To enhance aesthetics or gloss retention of the restoration, BRILLIANT EverGlow can be applied on top of Fill-Up! Please proceed as follows:

- 1. Etch with phosphoric acid according to the manufacturer's instruction for use.
- 2. Apply a chemically curing bond (we recommend ParaBond Adhesive A + B) or alternatively a light curing bond with activator (we recommend One Coat 7 Universal with activator) according to the manufacturer's instruction for use.
- 3. Fill the cavity with Fill-Up!. Stop underneath the preparation margin.

 Shortly light cure Fill-Up! to reduce the inhibition layer while making sure not to contaminate it. In case the inhibition layer gets contaminated, the protocol of the adhesive system must be repeated.
- 4. Apply the covering layer with BRILLIANT EverGlow and cure with light.

16. Can effect colours be used with BRILLIANT EverGlow (Flow)?

Yes, BRILLIANT EverGlow (Flow) is compatible with effect colours for composites, for example with the effect colours of MIRIS 2 or Paint on Color. With Paint on Color COLTENE offers 7 effect colours for an individual characterisation of an anterior and posterior composite restoration: red, yellow, blue, brown, grey, white, white opaque. The colours can be even mixed to individual additional colours (orange = red + yellow, purple = red + blue, green = blue + yellow) or brightened up by adding white.











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