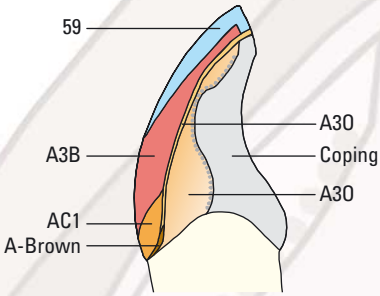
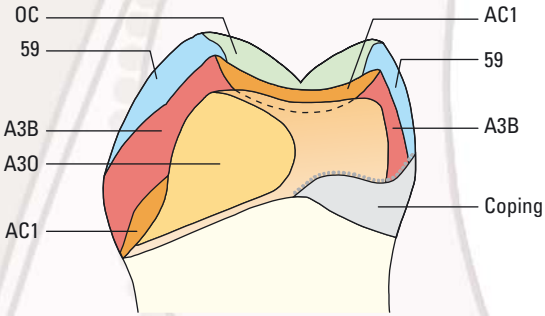
SOLIDEX

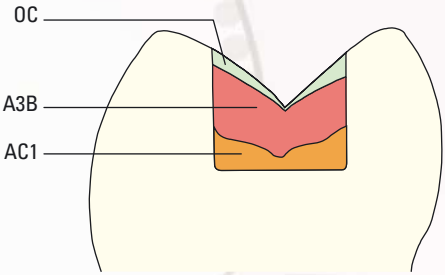
INSTRUCTIONS FOR USE

SHOFU®

Build-up Techniques







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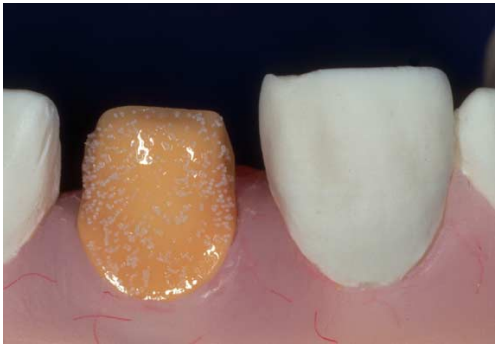

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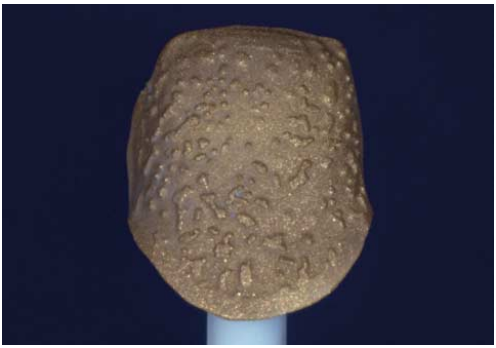

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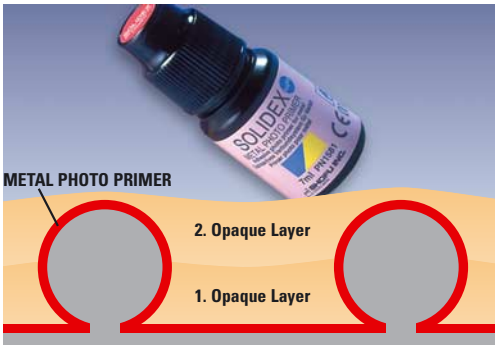
SOLIDEX
METAL PHOTO PRIMER
METAL PHOTO PRIMER
2. Opaque Layer
1. Opaque Layer

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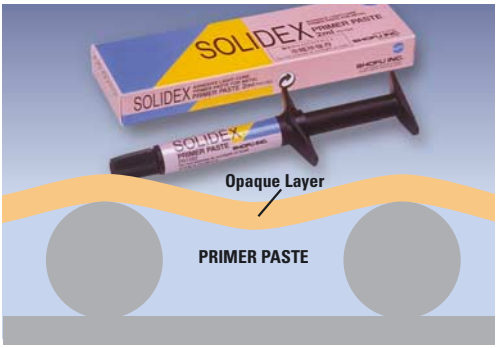

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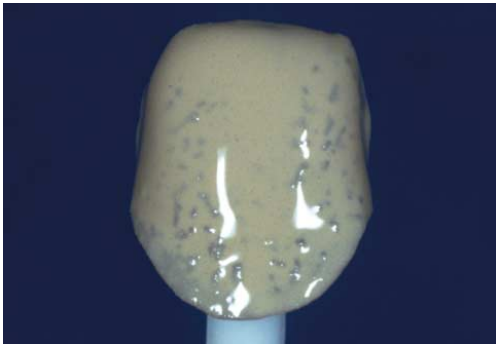

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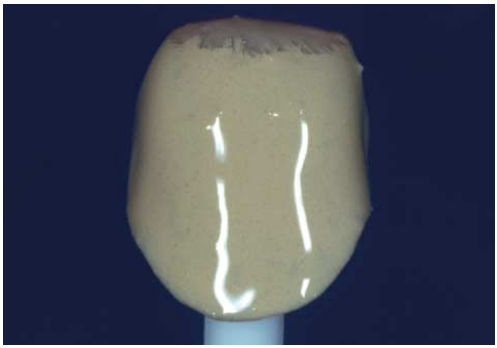

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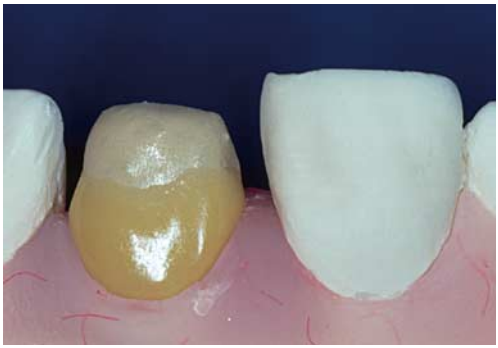

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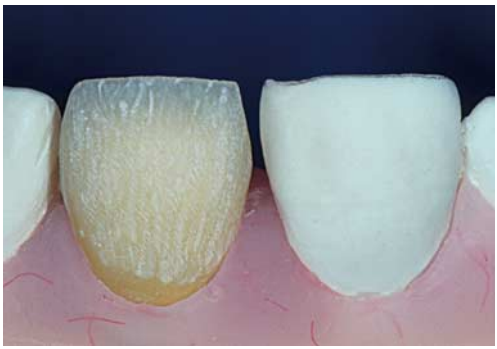

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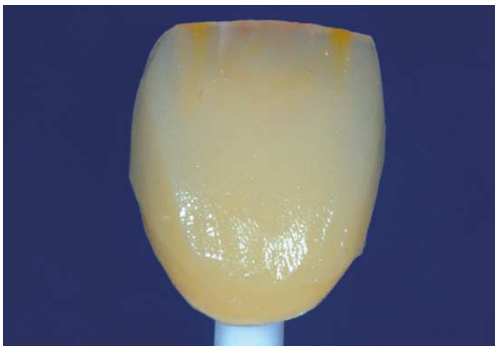

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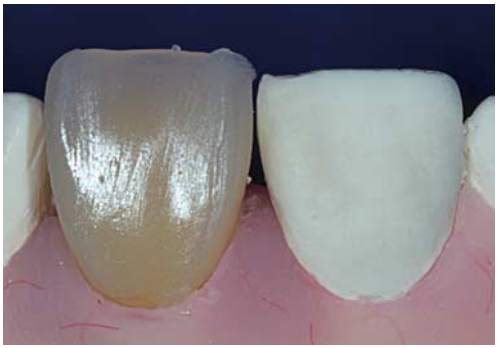

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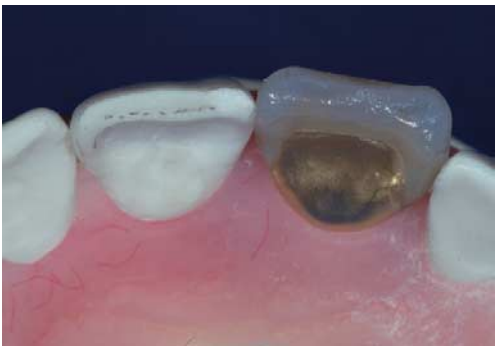

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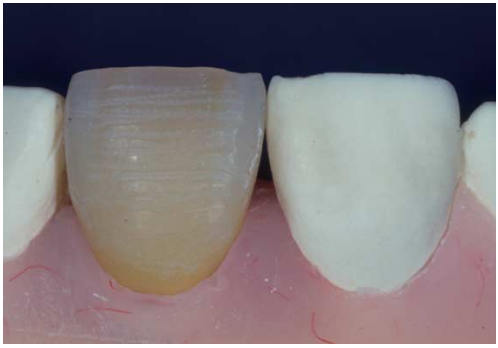

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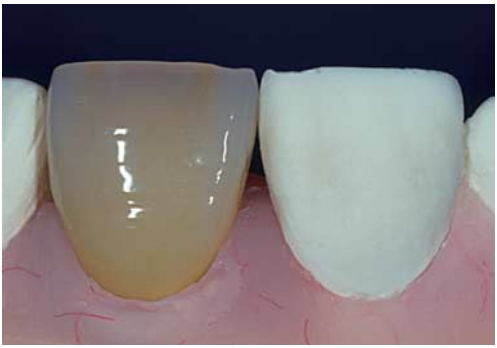

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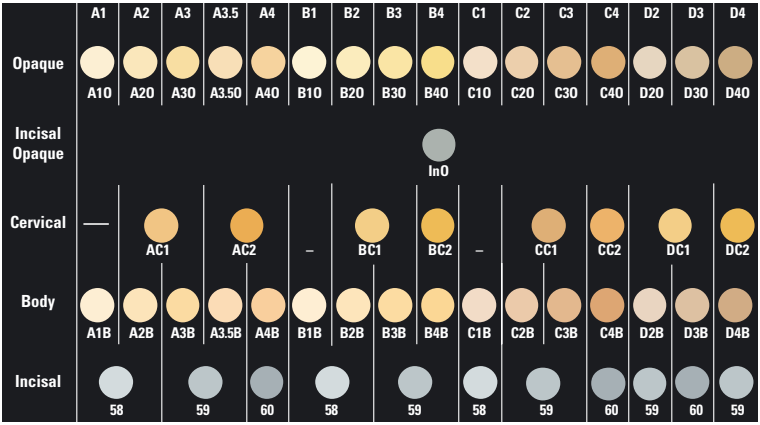
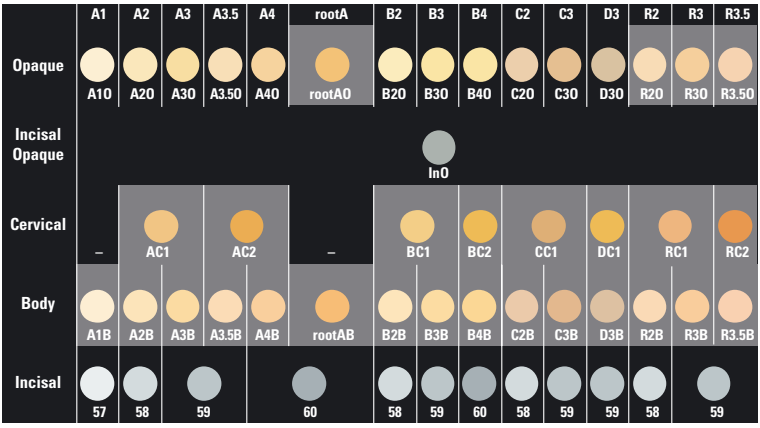
Color Charts

SOLIDEX Basic



SOLIDEX Effect & Stains

SOLIDEX NCC®



The various **SOLIDEX NCC®** materials required for fabricating **NCC®** shades have a grey backround in the table. They must be used in combination with SOLIDEX Standard materials (e.g. Opaque, Incisal).

SOLIDEX

The advantages of a light-curing composite with the aesthetics of porcelain

SOLIDEX sets standards for light-cured veneering resins. While developing this ceramic-filled, micro-hybrid composite, a great deal of importance was attached to natural shade matching, as well as user-friendly handling characteristics. Based on a special high light transmitting filler, SOLIDEX offers an extraordinary high resistance to abrasion with optimal elasticity. The SOLIDEX body, Opal enamel and effect pastes offer the ability to produce porcelain like restorations combined with natural fluorescence and opalescence. SOLIDEX is available in the 16 Vita* and 15 NCC®, shades and can be light cured in the recommended light curing units working within the spectrum of 420 to 480 nm.

SOLIDEX FULL SET (16 Vita* shades)

contains:

16 shades PASTE OPAQUER	2 ml
16 shades BODY COMPOSITE	4 g
1 BASE PASTE	4 g
8 shades CERVICAL COMPOSITE	4 g
4 shades INCISAL COMPOSITE	4 g
4 shades EFFECT COMPOSITE	4 g
3 TRANSLUCENT COMPOSITES	4 g
1 METAL PHOTO PRIMER	7 ml
1 SOLIBOND	5 ml
1 Brush #2	
1 Brush Handle with 10 Brush Tips #4	
10 Dispodishes	
1 Paper Pad	
1 Light Protective Cap	
1 Mixing Spatula	

SOLIDEX INTRO SET (Vita* shades A2 or A3)

One Intro Set contains:

1 PASTE OPAQUER	2 ml
1 PASTE OPAQUER INCISAL	2 ml
1 BODY COMPOSITE	4 g
1 CERVICAL COMPOSITE	4 g
1 INCISAL COMPOSITE	4 g
1 TRANSLUCENT COMPOSITE	4 g
1 METAL PHOTO PRIMER	7 ml
1 Brush Handle with 10 Brush Tips #4	
10 Dispodishes	
1 Paper Pad	
1 Light Protective Cap	

SOLIDEX STAIN SET

One STAIN SET contains
contains:

12 Stain Colours	1 ml
1 Stain Liquid	6 ml

*VITA is a registred trademark of
VITA Zahnfabrik, Bad Säckingen, Germany

01/2009

Application

Metal Framework

The construction of the metal framework is modelled anatomically and made according to generally accepted guidelines. In order to obtain a tooth shade as natural as possible with sufficient stability, the thickness of the veneer should be at least 1.0 mm. For restorations exposed to lighter **incisal/occlusal** loading, e.g. telescopic or implant-supported restorations, the **palatal/lingual** aspect of the metal coping can be reduced by approx. 2 – 5 mm. For a smooth connection between the veneering resin and the metal, we recommend as support a precise marginal contour with a metal edge **(Fig.1)**. Then apply the SHOFU RETENTION BEADS in a size of 150 µm **(Fig.2)**.

Surface Treatment of the Metal Framework

The surface of the finished metal framework that is to be veneered requires sand blasting with 50–100 µm aluminium oxide and then use either steam or ultrasonic cleaning. Dry the surface by using **oil-free** air **(Fig.3)**.

Bonding Systems

a) **METAL PHOTO PRIMER**

Due to the identical light curing properties of the METAL PHOTO PRIMER and monomers in the PASTE OPAQUER excellent adhesion is guaranteed, even in the undercuts created by the beads retaining the composite on the metal **(Fig.4)**. Dispense 1–2 drops on a dispodish and apply a thin layer on the surface to be veneered (use brush #4). **Replace and close the lid of the Metal Photo Primer directly after use!** Allow the primer to dry for 30–60 seconds **(Fig.5)** and then apply the first layer of opaque. Apply the first layer of paste opaquer.

Please note: METAL PHOTO PRIMER must not be light cured prior to applying paste opaquer!

b) **PRIMER PASTE**

PRIMER PASTE is a metal bonding system and first opaque in one **(Fig.6)**. The milky, dull paste has a lower viscosity than the other SOLIDEX PASTE OPAQUERS and also bonds to the adhesive monomers. When using this technique, micro retention beads must also be placed on the metal coping. The PRIMER PASTE is applied evenly with a no. 4 brush, taking care that the retention beads are evenly covered. Light cure according the polymerization chart. Apply the second completely covering layer using SOLIDEX PASTE OPAQUE.

Please note: When using PRIMER PASTE it is unnecessary to use METAL PHOTO PRIMER.

c) **SILANE BONDING SYSTEMS**

It is possible to increase the bond between metal and veneering resin by the use of a silane bonding system, e.g. **Silicoater**, **Silicoater MD (Kulzer)** or **Rocatec (Espe)**. These systems can be used with SOLIDEX without any problems.

Please note: The METAL PHOTO PRIMER must not be applied for these procedures! Use SOLIBOND or the materials supplied by the manufacturer of the system in use and read their instructions!

PASTE OPAQUER / FLOW OPAQUE

The SOLIDEX PASTE OPAQUER is ready to use and contains a special high light transmitting filler, which creates an exceptional depth of shade. The complete polymerization is guaranteed for light and dark colours, and once cured, the composite exhibits an insignificant dispersion layer. The first layer of opaque is applied in a thin layer **(Fig. 7)** and light cured according to the polymerization chart. The viscosity can be modified by adding approx. 5% PRIMER PASTE or mixing carefully with a spatula (for approx. 10 secs.) With the second application and light cure you will achieve an even opaque layer. Do not use the same brush for the opaque as for the METAL PHOTO PRIMER.

Characterisation of Opaque

To obtain the depth of shade and translucency in the incisal, interproximal and connection areas of large bridges, it is possible to characterise these areas with INCISAL OPAQUE **(InO)** or VALUE REDUCE OPAQUE **(VrO) (Fig. 8)**. By addition of VALUE PLUS OPAQUE **(VpO)**, an increase of the value of the chosen tooth colour is possible. Further coloration can be achieved by painting on the light curing stains available in the STAIN SET.

PINK OPAQUE PO

PINK OPAQUE is a special pink material used for gingival areas of combination or implant works. To use PINK OPAQUE, prepare the metal frame work as stated in the instructions and then a first layer of PINK OPAQUE. Light cure according to the polymerization chart. A second application of PINK OPAQUE will achieve an even covering of the metal.

Please note: Before adding the denture resin to the framework, the air-inhibition layer must be removed with monomer.

BASE PASTE

Differences in the layer thickness between the individual parts of a bridge can cause differences in colour, which can be balanced by the use of BASE PASTE. After the metal framework has been covered with PASTE OPAQUE, the bridge element will be completed with the Base Paste to the level of the adjacent crown covered with opaque and light cured. SOLIDEX BASE PASTE can be light cured up to a thickness of 2 mm. If greater thickness is required, the build-up has to be effected step by step in several layers. Afterwards, paste opaque is applied to the polymerized BASE PASTE and cured.

DISPERSION LAYER

When light-activated composites are polymerized, a dispersion layer forms on the surface due to oxidisation. This effects the chemical bond between each successive layer of paste. With SOLIDEX, this layer is hardly recognisable, so that after intermediate light curing, the following layers can be applied without additional treatment. Please do not touch intermediately polymerized layers.

Please note: If the contours have to be modified after light curing the individual materials, before building up further materials a thin coat of STAIN LIQUID must be applied to renew the air-inhibition layer (Fig. 11). It is essential that this layer is light cured separately! Before doing so, scrub off any dust with a brush or blast it off with oil-free compressed air.

Under no circumstances must the area be cleaned with water or a steam-cleaner!

Layering
SOLIDEX composites transmit light in a virtually identical manner to VINTAGE HALO and VINTAGE porcelains. For this reason, the layer technique corresponds to that of porcelain restorations. The SOLIDEX facing is built up in the following order: CERVICAL COMPOSITE, BODY, INCISAL and possibly TRANSLUCENT composite, ensuring that each layer is light cured separately. Then follows the final light curing according to the polymerization chart. Turn the screw to squeeze the required amount of SOLIDEX Composite out of the syringe, pick it up with an instrument and form it on the paper pad. Then close the syringe again. The paste is modeled with an instrument or brush.

Please note: No modelling liquid is necessary!

Cervical Composite
After curing of the opaque, the CERVICAL COMPOSITE is applied in a crescent shape and tapered towards the proximal area **(Fig. 9)**. The intermediate light cure (fixation) is executed according to the polymerization chart. As SOLIDEX CERVICAL COMPOSITES are highly opaque, they reproduce shades perfectly even in thin layers. The maximum thickness of each individual layer should not exceed 1mm.

Body Composite
Place the BODY COMPOSITE in the centre of the surface being veneered. Contour and adapt the material to the required thickness. Again, the intermediate light cure (fixation) is executed according to the polymerization chart. The maximum thickness of each individual layer should not exceed 2 mm. For individual characterization, stains can be used, which are cured separately. After the intermediate light cure of body paste it is possible to correct the shape of body by grinding **(Fig. 10)**. Before continuing to apply further pastes, the dispersion layer must be restored by a thin layer of STAIN LIQUID **(Fig. 11)**. Special effects can be created with stains, which are cured separately **(Fig.12)**.

Translucent Composite
Natural teeth often show areas of different translucency in the incisal/interproximal region. For these cases, the SOLIDEX system contains 3 different translucent pastes. For standard layering, translucent paste **(T)** is recommended. If a bright translucent effect is required, this is achieved with HIGH VALUE TRANSLUCENT **(HVT)**. Dark, rather grey areas are reproduced with LOW VALUE TRANSLUCENT **(LVT)**. Apply these pastes as a translucent intermediate layer at the incisal/interproximal area **(Fig.13)** and light cure according to the polymerization chart.

Incisal Composite
SOLIDEX INCISAL PASTES are opalescent and show a natural fluorescence. Apply the incisal paste to the pre-light cured body and model the final tooth shape with an instrument or brush **(Fig. 14+15)** The maximum thickness of each individual layer should not exceed 2 mm. Then follows the final light cure according to the polymerization chart.

Effect Composite
The life-like appearance of a veneer depends directly on the light transmission in the incisal area. Individual, dull areas of younger teeth can be reproduced with the effect composite OCCLUSAL **(OC)**. The enamel of older teeth often shows a partially amber effect. For these cases, the effect composite AMBER **(AM)** was developed. OCCLUSAL and AMBER are also opalescent and can be mixed with translucent composite in order to reduce intensity.

Please note: A mixing of pastes can lead to air contamination in the composite!

Effect WE
Effect WE (White Enamel) is an enamel effect composite to create intensive white areas. It is suitable for the reproduction of dullness in the buccal area, and demineralised areas.

GUM
The paste GUM is a special element of the effect composites. GUM is a gingival paste and serves for the reproduction and modelling of pontics, interdental papillae or areas of gingiva. Again, the maximum thickness of each individual layer should not exceed 2 mm.

STAINS
SOLIDEX stains are ready to use paste stains and consist of a light-cured hybrid composite. Apart from the 8 base stains for reproducing dentine anomalies, cracked enamel, fillings or demineralised zones, the STAIN SET contains one cervical stain for each of the A, B, C and D shade groups. In these areas, excellent adaptation in thin layers is possible.

Dispense the stain onto a paper pad and close the syringe. The various pastes can be mixed to create new shades. Stains are applied with a brush or instrument and must only be added to polymerized surfaces. The polymerization data for stains are also shown in the polymerization table.

Please note: Polymerized stains must be coated with composite.

STAIN CLEAR C
STAIN CLEAR is a fluid material with the consistency of a SOLIDEX stain which can be placed and fixed as required. STAIN CLEAR is as clear as glass, and can be used to enhance the depth of appearance of composite. Individual and transparent effects are archieved easily by mixing the eight base colors respectively the four cervical colors into STAIN CLEAR.

Please note: As STAIN CLEAR is extremely transparent, it contains minute amounts of ceramic filler and must be coated with conventional SOLIDEX incisal or translucent materials. Do not add it to the surfaces of finished restorations!

STAIN LIQUID
The STAIN LIQUID is a light-cured liquid to obtain the required viscosity of stains. Ground surfaces are moistened with STAIN LIQUID in order to restore the dispersion layer. This procedure guarantees a safe bond to the following layers.

Polymerization

SOLIDEX composites can be light cured in all light curing units recommended by SHOFU. The types of unit and light cure times are shown in the polymerization chart. In order to guarantee a perfect polymerization of the SOLIDEX materials, take care that the work to be cured is placed at optimal position to the ray of light. Please consider the corresponding manufacturers instructions when operating the light curing devices. Application of a protective varnish before final polymerization is not necessary, as the formation of a dispersion layer is extraordinarily low.

Finishing and Polishing

Due to its high ceramic filler content, SOLIDEX Composite is extremely abrasion-resistant and exhibits outstanding physical properties. Therefore, polymerized composite surfaces must be trimmed with matched rotary instruments. **It is not advisable to use cutters or coarse diamond burs!** The surface can be trimmed to achieve the desired texture and shine using the items in the **SOLIDEX Finishing & Polishing Kit (Fig.16)**. First use Dura-Green stones, available in three shapes, to contour the restoration and structure the surface **(Fig.17)**. It is then essential to prepolish the surface with SoftCut silicone polishers to smooth the anatomical structures - only exert minimal pressure. A surface sheen is rapidly achieved with diamond impregnated CompoMaster polishers. A high lustre is quickly and easily achieved with a wool mop and Dura-Polish Dia polishing paste **(Figs. 18+19)**.

Please note: Overheating must be avoided during finishing and polishing! Caffeine and nicotine can cause discolorations on unpolished surfaces.

Adjusting the contours and shade of finished restorations – SOLIBOND

Polymerized and polished surfaces must be roughened mechanically (e.g. sandblast with aluminium oxide) before further pastes are applied. Scrub off any dust with a brush or blast it off with oil-free compressed air. Under no circumstances must the area be cleaned with water or a steam-cleaner. Moisten the dry, clean surface with SOLIBOND liquid and allow to dry for about 60 secs.

SOLIBOND is a silane bonding agent, which guarantees the safe bond on already polymerized surfaces.

Apply a thin coat of STAIN LIQUID to restore the dispersion layer. This coat does not have to be light cured separately! Depending on the required correction, composite is now applied and light cured according to the polimerization chart.

SOLIDEX – Polymerization Chart

Material	LAYER THICKNESS (MM)	SOLIDILITE EX SHOFU (MIN)	UNI-XS**/DENTACOLOR XS/KULZER (SEC)	VISIO BETA VARIO ESPE (MIN)	LICULITE DE TREY/DREVE POLYLUX HDS 400/MIN	LABOLIGHT LV II GC (MIN)	TARGIS POWER IVOCLAR (MIN)	SPECTRAMAT IVOCLAR (MIN)
Primer Paste	≤ 0,15	1	90	7 (without vacuum)	3	2	5 (without heat)	5
Opaque Paste *	≤ 0,15	3	180	7 (without vacuum)	5	3	11 (without heat)	10
Base Paste	≤ 2	1	90	(Visio Alfa) 20 sec/4 cycles	3	2	5 (without heat)	2
Cervical Paste	≤ 1	1	90	(Visio Alfa) 20 sec/4 cycles	3	2	5 (without heat)	2
Body Paste	≤ 2	1	90	(Visio Alfa) 20 sec/4 cycles	3	2	5 (without heat)	2
Incisal Paste	≤ 2	1	90	(Visio Alfa) 20 sec/4 cycles	3	2	5 (without heat)	2
Translucent Paste	≤ 2	1	90	(Visio Alfa) 20 sec/4 cycles	3	2	5 (without heat)	2
Effect Paste	≤ 2	1	90	(Visio Alfa) 20 sec/4 cycles	3	2	5 (without heat)	2
Final Polymerisation		5	180	2 x 7 (without vacuum)	10	5	11 (without heat)	10
Stains	≤ 0,15	1	90	(Visio Alfa) 20 sec/4 cycles	3	2	5 (without heat)	2

* The first opaque layer must be as thin as possible.

Technical Data

SOLIDEX is a hybrid composite with a specially developed inorganic ceramic filler (UDMA).

Compressive strength:	314 MPa
Bending strength:	75 MPa
Vickers hardness:	422 MPa
Water absorbtion:	according to standard
Solubility:	according to standard
Colour stability:	according to standard
Total content of filler:	78 wt. % / 70 vol. %
Content of inorganic filler:	53 wt.%
Inorganic filler particle range:	0,16 – 7 µm

Ready to use at room temperature
According to ISO 10477

Hazard Warnings/Safety Recommendations

PRIMER PASTE, OPAQUES, COMPOSITES, STAINS, STAIN LIQUID

PRIMER PASTE, OPAQUES 2 HEMA
STAINS, STAIN LIQUID DAMA
Avoid direct sunlight.

R 43	Can cause sensitization on skin contact.
S 26	In the event of contact with the eyes, bathe them thoroughly with water and consult a doctor.
S 28	In the event of contact with the skin, wash off immediately with plenty of water and soap.

METAL PHOTO PRIMER

contains acetone

Store in a cool place.
Avoid direct sunlight.

R 11	Highly flammable.
S 9	Store container in a well ventilated place.
S 16	No naked flames – no smoking.
S 23	Do not inhale vapor.
S 33	Take precautions against electrostatic discharges.

SOLIBOND

contains ethanol

Store in a cool place.
Avoid direct sunlight.

R 11	Highly flammable.
S 7	Keep container tightly closed.
S 16	No naked flames – no smoking.

SOLIDEX NCC®

Supplementary shades for the SOLIDEX Composite System

When fabricating fixed/removable restorations, matching the shades of composite and porcelain is always a challenge.

The abbreviation **NCC®**, stands for Natural Color Concept and describes the compatibility with the VINTAGE HALO porcelain shade concept. The **Fig. 20** shows 5 VINTAGE HALO PORCLAIN as well as 3 SOLIDEX COMPOSITE restorations.

Therefore, the **SOLIDEX NCC®** shades complement the proven SOLIDEX Composite System. The **RED-Shift** shades - **R2**, **R3** and **R3.5** – form a fifth shade group which harmonize with the A shades but exhibit slighter reddish hues. In addition, **shade Root-A** is a version of A4, but with a more intensive chroma.

The basic materials for fabricating a SOLIDEX facing, e.g. various opaquers, incisal materials, shade modifiers and STAIN LIQUID for recreating the dispersion layer are included in the SOLIDEX Full Set or SOLIDEX STAIN SET.

(Please refer to the SOLIDEX NCC, shade combination chart.)

SOLIDEX NCC® – Color Mixing-Chart

Shades	NCC A1	NCC A2	NCC A3	NCC A3.5	NCC A4	NCC rootA	NCC B2	NCC B3	NCC B4	NCC C2	NCC C3	NCC D3	NCC R2	NCC R3	NCC R3.5
Opaque	A1O	A2O	A3O	A3.5O	A4O	NCC rootAO	B2O	B3O	B4O	C2O	C3O	D3O	NCC R2O	NCC R3O	NCC R3.5O
Incisal Opaque	InO														
Cervical	-	NCC AC1		NCC AC2		-	NCC BC1		NCC BC2	NCC CC1		NCC DC1	NCC RC1		NCC RC2
Body	NCC A1B	NCC A2B	NCC A3B	NCC A3.5B	NCC A4B	NCC rootAB	NCC B2B	NCC B3B	NCC B4B	NCC C2B	NCC C3B	NCC D3B	NCC R2B	NCC R3B	NCC R3.5B
Incisal	57	58	59		60		58	59	60	58	59	59	58	59	
Translucent	T														

Please note:
The various SOLIDEX **NCC®** materials required for fabricating **NCC®** shades have a grey background in the table.
They must be used in combination with SOLIDEX Standard materials (e.g. Opaque, Incisal).

CE 0120

Manufacturer
SHOFU INC. 11 Kamitakamatsu-cho, Fukuine, Higashiyama-ku, Kyoto 605-0983, Japan
SHOFU DENTAL ASIA-PACIFIC PTE. LTD. 10 Science Park Road, #03-12, The Alpha, Science Park II, Singapore 117684
SHOFU DENTAL CORPORATION 1225 Stone Drive, San Marcos, California 92078-4059, USA
SHOFU UK Riverside House, River Lawn Road, Tonbridge, Kent, TN9 1EP, UK
SHOFU DENTAL TRADING (SHANGHAI) CO., LTD. No. 645 Jiye Road, Sheshan Industrial Park, Songjiang, Shanghai 201602, China
EC REP **SHOFU DENTAL GmbH** Am Brühl 17, 40878 Ratingen, Germany www.shofu.de

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