

SR Nexco[®] Paste



Instructions for Use

CE 0123

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SR Nexco® Paste

Product Information

Material

SR Nexco® Paste is a purely light-curing lab composite with micro-opal fillers for framework-based and framework-free dental restorations.

As the desired shades can be reproduced even with varying layer thicknesses, a true-to-nature appearance can be achieved for fixed and removable dental restorations, even with artificial gingiva. The high content of inorganic opal fillers affords optimum benefits in terms of abrasion, discolouration, processing and surface gloss.



Physical properties of SR Nexco® Paste

Together with the respective matrix the inorganic micro-opal fillers impart a homogeneous structure to the material. The balanced ratio between these two components results in excellent physical properties achieved with the most popular curing units available on the market.

| SR Nexco Paste | | |
|---------------------------------|--|-----------------|
| | Normative requirements EN ISO 10477:2004 | Example value* |
| Flexural strength [MPa] | ≥ 50 | 100.3 ± 5.5 |
| Water absorption [µg/mm³] | ≤ 40 | 14.72 ± 0.6 |
| Water solubility [µg/mm³] | ≤ 7.5 | 0 ± 0.44 |
| Bond after TC 5000 cycles [MPa] | ≥ 5 | 21.81 ± 2.65 ** |

* from the Verification Report LL 1655537

** on Pisces Plus with SR Link

Esthetic properties of SR Nexco® Paste

In transmitted light, the full range of light-optical properties of SR Nexco Paste becomes evident: The opalescence and translucency of SR Nexco restorations correspond to the dynamic light effects of natural teeth.

The light behaviour is very similar to that of natural teeth in all areas: the tooth neck, the dentin areas and the incisal area.



This image taken with incident light shows the fluorescence and luminosity of SR Nexco restorations. Natural teeth derive a major part of their brightness effect from their fluorescence. This fluorescence plays an important role in the true-to-nature light behaviour of SR Nexco restorations.



Uses

Indications

Fixed denture prosthetics

Framework-based

- Veneering of metal-supported restorations
- Veneers on zirconium oxide (ZrO₂)-supported restorations
- Veneering of combination dentures (e.g. telescope crown veneers)
- Veneering of fixed-removable implant superstructures
- Veneering of gingiva portions in fixed-removable implant superstructures
- Veneering of CAD /CAM-fabricated metal frameworks
- Veneers on CAD/CAM zirconium oxide (ZrO₂) frameworks
- Masking of model cast frameworks with SR Nexco Opaquer pink

Framework-free

- Inlays/onlays/veneers
- Anterior crowns

Modification/characterization

- Superficial characterization of Ivoclar Vivadent resin teeth with SR Nexco Stains in conjunction with SR Connect and subsequent layering with SR Nexco Paste layering materials
- Shape and shade modifications of Ivoclar Vivadent resin teeth with SR Nexco Paste layering materials in conjunction with SR Connect
- Modification and characterization of Telio® CAD and Telio Lab in conjunction with SR Connect

Contraindications

- Posterior crowns without framework support
- Conventional cementation of fixed, metal-free restorations
- Framework-free long-term temporaries worn for longer than 12 months
- Patients with occlusal dysfunctions or parafunctions, such as bruxism, etc.
- Patients with inadequate oral hygiene and substantial drug intake (e.g. drugs that reduce salivary flow)
- All the clinical applications that are not described as an indication by the manufacturer
- Veneering of metal frameworks without the use of SR Link and SR Nexco Opaquer
- The use of non-recommended curing devices or bonding agents
- Repairing of chipped denture teeth

General note

As is generally known, composites have to meet different demands due to country-specific uses. Composite veneering materials show specific characteristics and properties and their performance and durability can therefore not be compared with that of other C&B materials. The composite restorations may require clinical repair over time, depending on the situation and the individual case. The restorations can be repaired by means of micro-filled composites, as described in the section on "Subsequent Adjustments" on page 64.

Composition

- **SR Nexco Paste layering materials**
(Margin, Dentin, Incisal, Effect, Pontic Fill, Gingiva and Intensive Gingiva materials)
Dimethacrylates (17–19 wt.%); copolymer and silicon dioxide (82–83 wt.%). Additional contents are stabilizers, catalysts and pigments (<1 wt.%).
The total content of inorganic fillers is 64–65 wt.%/46–47 vol.%.
Particle size 10–100 nm.
- **SR Nexco Liner**
Dimethacrylates (48 wt.%); barium glass filler, silicon dioxide (51 wt.%). Additionally, the material contains stabilizers, catalysts and pigments (<1 wt.%).
- **SR Nexco Opaquer**
Dimethacrylates (65–70 wt.%), inorganic filler (<43 wt.%).
Additional contents are catalysts, stabilizers and pigments (<2 wt.%).
- **SR Nexco Stains**
Dimethacrylates (47–48 wt.%); copolymer and silicon dioxide (49–50 wt.%).
Additional ingredients: stabilizers, catalysts and pigments (2–3 wt.%).
- **SR Modelling Liquid**
Dimethacrylates (approx. 99%). Additionally, initiators and catalysts are contained.
- **SR Nexco Retention Flow**
Dimethacrylates (65–70 wt.%), inorganic filler (30–35 wt.%).
Additional contents are catalysts, stabilizers (<2 wt.%).
- **SR Link**
Dimethacrylates, phosphate ester, solvents
- **SR Gel**
Glycerine, silicon dioxide and aluminium oxide
- **SR Retention Adhesive**
Copolymer, resin and softening agent (30 wt.%) solved in acetone (70 wt.%).
- **SR Microretentions: 200–300 µm**
- **SR Macroretentions: 400–600 µm**
Copolymer (99.5 wt%) and titanium dioxide (0.5 wt%).
- **SR Connect**
Methyl methacrylate (60–70%), polymethyl methacrylate (<10%), dimethacrylate (20–30%) and catalysts (3–5%).
- **Universal Polishing Paste**
Emulsion of aluminium oxide, ammonium oleate, petroleum distillate and water.

Warning

SR Nexco is intended for use in dentistry and dental technology. Contact of unpolymerized material (pastes) with the skin, mucous membrane or eyes must be prevented. Contact with unpolymerized material may have a slight irritating effect and may lead to a sensitization against methacrylates. Customary medical gloves do not provide protection against the sensitizing effect of methacrylates.

SR Connect contains methyl methacrylate (MMA). MMA is highly flammable. Therefore, keep away from sources of ignition and do not smoke. MMA is an irritant and is irritating to eyes, respiratory organs and skin. Do not breathe in vapours.

Do not inhale grinding dust. The safety notes on the individual primary packages and labels have to be observed.

General note

Failure to observe the stipulated contraindications and processing restrictions may lead to clinical failure.

Side effects

Systemic side effects have not been reported to date. Allergic reactions may occur in rare cases. In case of a suspected or confirmed allergy to one of the components, SR Nexco Paste or respective other system components must not be used.

Storage instructions

- Store SR Link at 2–28 °C (36–82 °F).
- Store SR Nexco Paste layering materials, SR Model Isolation, SR Connect at 2–28 °C (36–82 °F).
- Close syringes immediately after use. (Exposure to light leads to premature polymerization)
- Dispose of the cannula immediately after use and attach a corresponding cap to seal the syringe.
- Protect the materials against direct sunlight.
- Do not use the products after the indicated expiration date.
- Store out of the reach of children.

Note on the cleaning of SR Nexco Paste restorations


If used inappropriately, ultrasonic cleaning fluids may dissolve the resin surfaces because of their high degree of acidity. Therefore, alkaline cleaners with a pH value higher than 8 should not be used.

Working times/during depths

Working times

SR Nexco materials are sensitive to light. The working time depends on the layer thickness, shading and the prevailing light conditions. Light shades react more quickly than do dark ones. The times listed below represent mean values at a light intensity of 3000 lux, which corresponds to the light encountered in a well-lit working space.

Bear the maximum time limit in minds, when extruding the material from the syringe.

| SR Nexco | | Time  |
|----------------|-------------------------------------|--|
| low viscosity | SR Nexco Liner | 2–25 min |
| | SR Nexco Opaquer | |
| | SR Nexco Stains | |
| high viscosity | SR Nexco Margin | 4–25 min |
| | SR Nexco Dentin | |
| | SR Nexco Incisal | |
| | SR Nexco Effect SR Nexco Gingiva | |

Curing depths

Due to the light sensitivity, the curing depth (intermediate curing with the Quick initial curing light) of SR Nexco materials depends on the shade and above all the layer thickness. Light and translucent shades cure more readily, as light can penetrate them more easily than it does darker and more opaque shades. These values must be taken into consideration during the layering of the different materials.

| SR Nexco | Curing depths (20 seconds with the Quick) |
|--|--|
| SR Nexco Opaquer | 0.05 mm |
| SR Nexco Retention Flow | 0.7 mm |
| SR Nexco Stains | 0.2–0.8 mm |
| SR Nexco Paste Incisal, Dentin, Effect | 2.0 mm |
| SR Nexco Paste Margin, Gingiva, Intensive Gingiva | 1.0 mm |

Definitions and descriptions

Compatibility with Ivoclar Vivadent alloys

Each metal supported restoration starts with the fabrication of a metal framework. Ivoclar Vivadent offers customers a wide range of different high-quality alloys, which are specifically designed to match their field of application. The selection includes high-gold, reduced gold and base metal alloys. The SR Link bonding system provides a sound bond between the metal and composite.

If you use other alloys, please contact the corresponding manufacturer to make sure that the alloy used is compatible with SR Link and its components.



| Alloys | Au | Pt | Pd | Ag |
|-------------------------|----------|---------|------|--------|
| High-gold | | | | |
| Academy Gold | 77.2 | <1.0 | – | 12.7 |
| Harmony® Medium | 76.8 | – | <1.0 | 12.8 |
| Harmony® PF | 72.0 | 3.6 | – | 13.7 |
| Portadur P 2 | 71.0 | 2.5 | 1.5 | 12.2 |
| Academy Gold XH | 70.7 | 3.6 | – | 13.7 |
| Reduced gold | | | | |
| Portadur P 4 | 68.5 | 6.9 | – | 12.0 |
| Harmony® X-Hard | 68.3 | 2.9 | 3.6 | 10.0 |
| Auropal 1 | 63.4 | 0.5 | 3.0 | 19.5 |
| XL-X® | 62.8 | – | 3.9 | 16.1 |
| Maxigold® | 59.5 | – | 2.7 | 26.3 |
| Midigold® 50 | 50.0 | – | 3.5 | 35.0 |
| Magenta | 50.0 | – | 6.5 | 21.0 |
| Minigold® | 40.0 | – | 4.0 | 47.0 |
| Harmony® 3 | 3.5 | – | 25.9 | 50.8 |
| Harmony® 2 | 2.0 | – | 32.7 | 34.3 |
| Universal alloys | | | | |
| Porta Norm | 73.8 | 9.0 | – | 9.2 |
| BioUniversal® PdF | 71.1 | 9.2 | – | 11.7 |
| BioUniversal® KFG+ | 37.7 | <1.0 | 15.9 | 32.6 |
| | Co | Ni | Cr | Mo |
| Base metal | | | | |
| Callisto® CPG | 39.9 | – | 21.3 | 11.6 |
| d.SIGN® 30 | 60.2 | – | 30.1 | <1.0 |
| Colado® CC | 59.0 | – | 25.5 | 5.5 |
| Colado® NC | – | 65.6 | 20.1 | 1.3 |
| 4all | – | 61.4 | 25.7 | 11.0 |
| CAD/CAM-milled | | | | |
| Colado® CAD CoCr 4 | 63.0 | – | 29.0 | 6.0 |
| | Al | V | Ti | others |
| Colado® CAD Ti 5 | 5.5–6.75 | 3.5–4.5 | rest | <0.4 |
| Colado® CAD Ti 2 | – | – | 99.0 | – |

The range of available alloys may vary from country to country.

Compatibility of SR Phonares® II

Compatibility between denture teeth and lab composite is an important criterion particularly in the fields of partial and removable denture prosthetics. Therefore, the shade of SR Nexco has been specifically coordinated with the shades of SR Phonares II.



Compatibility with IPS Style®

The more complex a clinical case, the more flexibility is required. SR Nexco and IPS Style® metal-ceramic thus follow the same shade concept: The two materials can be harmoniously integrated next to each other. In order to achieve the desired shade result, SR Nexco offers a matching opaquer for each tooth shade, as well as the corresponding Dentin and Incisal materials. The many SR Nexco Paste Effect material and SR Nexco Stains enable additional characterization options. Ivoclar Vivadent Gingiva Solution, the uniform shade concept for designing the prosthetic gingiva applies to both SR Nexco and IPS Style. This facilitates material selection and quickly leads to a highly esthetic restorative solution.



Compatibility with curing units

High-performance polymerization is requisite in the fabrication of high-quality lab composite restorations. With the excellent light-curing device **Lumamat® 100** from Ivoclar Vivadent, you can achieve an optimum polymerization of SR Nexco restorations and thus benefit from the full potential of this material's physical properties. The sensor-controlled Quick can be used for fast pre-curing processes. It can also be used for the intermediate polymerization of other light-curing veneering materials. Apart from Lumamat 100, other curing devices may also be used for complete or intermediate polymerization. An overview of the tested devices and the respective polymerization parameters can be found on page 71.



SR Nexco® within the Gingiva Solution concept

The SR Nexco® Paste Gingiva and Intensive Gingiva materials are coordinated with Ivoclar Vivadent Gingiva Solution. This is a shade and product concept for the true-to-nature design of the prosthetic gingiva. Gingiva Solution includes laboratory composites, such as SR Nexco, as well as ceramic materials, such as IPS Style® metal-ceramic and IPS e.max® all-ceramic. The prosthetic gingiva of fixed and removable dentures can thus be designed according to a uniform shade concept even though the restorations are based on different materials. The Basic Gingiva Shade BG34 is used as the basic shade to quickly individualize, for example, IvoBase® dentures.



SR Nexco® Retention Flow

SR Nexco Retention Flow is a low-viscosity opaquer component, which can be applied into the undercuts of the retention beads. SR Nexco Retention Flow demonstrates a higher curing depth than the shaded SR Nexco Opaquers and can be quickly and easily applied due to its flowable consistency. The application of SR Nexco Retention Flow provides for a reliable bond between the metal framework and the first opaquer layer.



SR® Accessories

SR Link, 5 ml

SR Link is a metal/zirconium oxide/composite bonding agent that provides a covalent bond between the metal and zirconium oxide frameworks and SR Nexco. SR Link is an easy-to-use and, above all, tried-and-tested bonding system that can be used in conjunction with a wide selection of alloys and zirconium oxide frameworks.

The bonding system is suitable for use on frameworks made of

- alloys that contain less than 90% gold, palladium and platinum
- alloys that contain less than 50% copper and/or silver
- base metal alloys
- titanium and titanium alloys
- zirconium oxide



SR Connect, 5 ml

SR Connect is a light-curing conditioner to bond light-curing veneering materials to PMMA, heat- or cold-curing polymers and resin denture teeth. These are the areas of application:

Establishing a bonding layer in the case of

- individual shade and shape modifications of pre-fabricated teeth and different veneering materials, such as Telio® CAD and Telio Lab
- individual shade adjustments of denture base resins.



SR Modelling Liquid, 5 ml

SR Modelling Liquid is used to wet the dental technician's instruments during modelling and as a modelling aid (wetting of the brush to disperse the material, etc.). SR Modelling Liquid must not be used as a bonding agent for the purpose of modifying the consistency or in the case of subsequent adjustments. Use SR Modelling Liquid only in very low quantities.



SR Gel, 30 ml

SR Gel is a glycerine-based masking gel that is impervious to oxygen. The gel is applied to the restoration before polymerization to minimize the formation of an inhibition layer on the surface of the veneering composite. Consequently, the gel ensures complete curing of the restoration surface. Do not apply too thick a layer of SR Gel.



SR Model Separator, 10 ml

The SR Model Separator is suitable for separating working dies during the fabrication of metal-free restorations and adjoining stone surfaces during lab composite veneering.



SR Retention Adhesive, 20 ml

This adhesive varnish is utilized to affix micro- and macro-retention beads to the restoration surfaces after contouring.



SR Micro Retention Beads, 15 ml

SR Macro Retention Beads, 15 ml

Two different sizes of retention beads are available, depending on space conditions.

- Microretention: 200–300 microns
- Macroretention: 400–600 microns



SR Mixing Pad, small

SR Mixing Plate, small

Depending on the material to be processed, the SR Mixing Pad and SR Mixing Plate may be used. The pad is mainly used to process liquid SR Nexco materials so that time-consuming cleaning of the plate can be avoided. By contrast, the plate is used to mix the more viscous composite components. The light-protective cover of the plate extends the working time of the materials.



Universal Polishing Paste, 100 ml

The SR Universal Polishing Paste enables quick and efficient polishing of composite and metal restorations.

The paste is particularly suitable for prepolishing and principal polishing of SR Nexco veneers.



Universal Holder

Used to handle disposable brushes and sponges and thereby help facilitate the working procedures in the dental laboratory.



Disposable Brushes, 50x

The disposable brushes are particularly suitable for the application of liquid materials, such as SR Model Separator, SR Link and SR Nexco Opaquer.



Disposable Sponges, 50x

The disposable sponges have been modified to fit into the universal holder. They are used to remove the inhibition layer after polymerization of the Opaquer and Liner.



Cannulas, 10x

These applications can be attached to Liner, Opaquer and Stains syringes. They help achieve more accurate dosing and cleaner application procedures as the extrusion pressure can be controlled.



Cannula Caps, 20x

The cannula caps prevent the material from drying out or polymerizing prematurely while it is in the cannula and provide protection against contamination.



SR Nexco[®] Paste

Practical Procedure

Shade determination – tooth shade, stump shade

Shade determination of the natural tooth.

After tooth cleaning, the tooth shade of the non-prepared tooth and/or the adjacent teeth is determined with the help of a shade guide. Individual characteristics have to be considered when determining the tooth shade. If a crown preparation is planned, for example, the cervical shade should also be determined. In order to achieve the best possible true-to-nature results, shade determination should be carried out in daylight. Furthermore, the patient should not wear clothes of intensive colours and/or lipstick.



Die shade selection

Based on the IPS Natural Die shade guide, a die for a framework-free restoration is fabricated. This die is used as control die in conjunction with the restoration to check the shade.

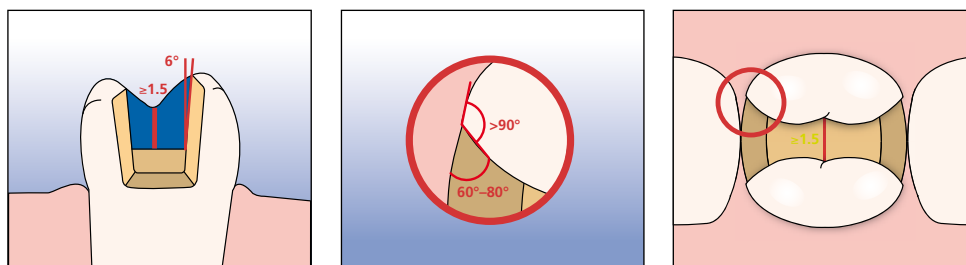
Preparation guidelines and minimum layer thicknesses

Successful results can only be achieved with SR Nexco veneering material if the guidelines and minimum layer thicknesses are strictly observed.

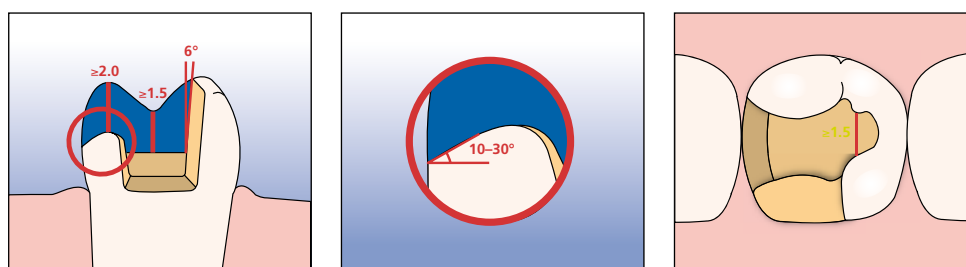
As framework-free SR Nexco restorations are placed using an adhesive cementation method, a tooth-conserving and defect-oriented preparation technique can be used.

Inlays and onlays

Static and dynamic antagonist contacts must be taken into consideration. The preparation margins must not be located on centric antagonist contacts. A preparation depth of at least 1.5 mm and an isthmus width of at least 1.5 mm must be observed in the fissure area. Prepare the proximal box with slightly diverging walls and observe an angle of $>90^\circ$ between the proximal cavity walls and the prospective proximal inlay surfaces. For inlays with pronounced, convex proximal surfaces without adequate support by the proximal shoulder, marginal ridge contacts should be avoided. Round out internal edges and transitions in order to prevent stress concentration within the composite material. Eliminate the proximal contacts on all sides. Do not prepare slice-cuts or feather edges.

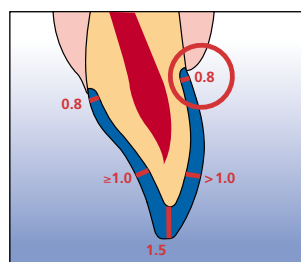


For onlays, provide at least 2 mm of space in the cusp areas. On the vestibular side, prepare a bevel (10° – 30°) to improve the esthetic appearance of the transition between the composite and the tooth. Onlays are indicated if the preparation margin is less than approximately 0.5 mm away from the cusp tip, or if the enamel is severely undermined.



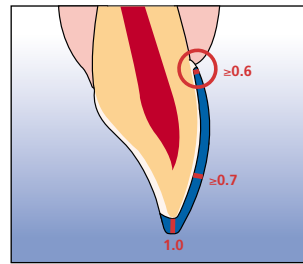
Anterior crown

Evenly reduce the anatomical shape and observe the stipulated minimum thickness. Prepare a circular shoulder with rounded inner edges or a pronounced chamfer of at least 0.8 mm. In the anterior region, reduce the labial and/or palatal/lingual surfaces by at least 1.0 mm. Reduce the incisal crown third by at least 1.5 mm. Design transitions in such a way that no angles or edges are present.



Veneers

If possible, the preparation should be entirely located in the enamel. Either design a classical preparation with oro-incisal, chamfer-type embrasure of the incisal edge, or a simple incisal reduction without embrasure of the incisal edge. Make sure that the incisal preparation margin is not located in the area of the abrasion surfaces. The extent of the incisal reduction depends on the desired translucency of the incisal area to be built up. The more transparent the incisal edge of the intended veneer, the more pronounced the incisal reduction should be. The incisal edge should be reduced by at least 1.0 mm. By preparing orientation grooves using a depth marker, controlled enamel reduction can be achieved. The minimum preparation thickness is >0.6 – 1.0 mm, depending on the preparation technique selected. Elimination of the proximal contacts is not required. Discoloured teeth may require more preparation. In the cervical area, prepare a chamfer.

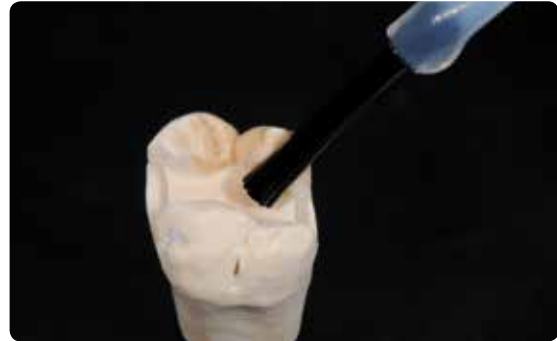


Framework-free restorations (inlay/onlay)

Model isolation

Sealer application

Fabricate a master model or a model with detachable segments according to the impression in the usual manner. Expose and mark the preparation margin. Block out undercuts with blocking-out wax or blocking-out resin to ensure that the restoration can be removed after the polymerization process without damaging the die. Basically, the application of a sealer is recommended to harden the surface and to protect the stone die. However, the sealer layer must not result in any changes of the dimensions of the stone die. It is not mandatory to utilize a spacer, as two coats of SR Model Separator will be applied. If you use a spacer, check as to whether it is compatible with SR Model Separator.



Fabrication of a die coated with sealer as the working basis

Sealing the dies and adjoining parts of the model

SR Model Separator is applied in two thin coats. Apply the first coat generously and make sure that all areas of the die are well covered. Watch out for sharp edges (incisal edges) in particular. Then allow to react for 3 minutes. After the reaction time, apply a second layer in a thin coat, invert the model and allow to dry for 3 minutes. Additionally, apply SR Model Separator to adjoining model surfaces that may come into contact with SR Nexco including counterbite, allow to react for a short time, and then disperse excess material with oil-free compressed air.

Inlay (and onlay)



Apply first coat of SR Model Separator generously, watch out for sharp edges, and allow to react for 3 minutes. Isolate model areas.

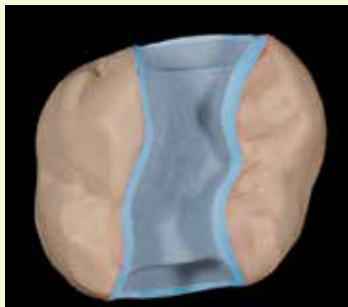
Liner application

SR Nexco Liner combination table

| | BL | | A | | | | | B | | | | C | | | | D | | |
|-------------|-----|-----|----|----|----|------|----|----|----|----|----|----|----|----|----|----|----|----|
| Tooth shade | BL3 | BL4 | A1 | A2 | A3 | A3.5 | A4 | B1 | B2 | B3 | B4 | C1 | C2 | C3 | C4 | D2 | D3 | D4 |
| Liner | BL | BL | 1 | 2 | 2 | 3 | 4 | 1 | 2 | 3 | 3 | 1 | 5 | 5 | 4 | 5 | 5 | 5 |

Procedure for **non-discoloured** cavities

- Apply Liner clear to the cavity walls and the cavity floor (dentin area) for an optimum chameleon effect
- Apply Liner incisal in the marginal areas (course of natural enamel) to achieve a harmonious transition between the shade of the restoration and natural tooth structure without grey lines.

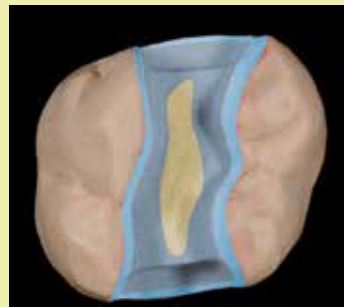


Liner clear

Liner incisal

Procedure for **slightly discoloured** cavities

- Mask dark areas using a Liner in an appropriate shade (1–5).
- Coat the remaining portions of the cavity, except the marginal areas, with Liner clear.
- Apply Liner incisal in the marginal areas (course of natural enamel) to achieve a harmonious transition between the shade of the restoration and natural tooth structure without grey lines.



Liner 1–5

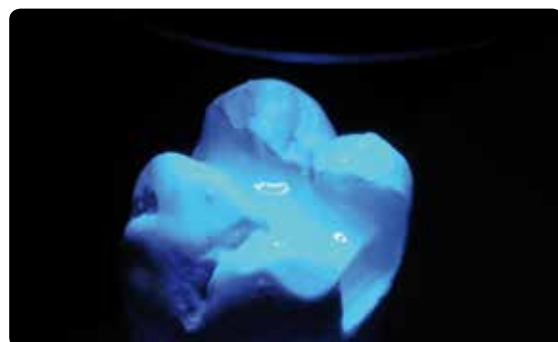
Procedure for **severely discoloured** cavities

- Mask the entire cavity, except the marginal areas, using a Liner in a corresponding shade (1–5).
- Apply Liner incisal in the marginal areas (course of natural enamel) to achieve a harmonious transition between the shade of the restoration and natural tooth structure without grey lines.



1st Liner application (Clear, 1–5)

Extrude the desired amount of the ready-to-use Liner paste from the syringe and spread it out slightly on the mixing pad using a disposable brush. First, apply the Liner to the cavity walls and cavity floor in a thin coat and precure each segment for 20 seconds using a Quick curing light. Make sure to fully cover all areas, as the Liner provides an essential bonding surface to the luting composite. Do not cover marginal areas at this stage (course of natural enamel).



Generously cover the cavity walls and floor with the 1st liner layer and precure with Quick for 20 seconds for each segment.

2nd Liner incisal application in the marginal area

After the application of the first Liner layer to the cavity walls and floor, apply Liner incisal in the marginal areas so that all cavity surfaces are coated with Liner. Apply Liner incisal up to the preparation margin in order to ensure a reliable bond between the preparation margins and the luting composite. This measure helps to reduce premature discolouration between the restoration margins and tooth structure.



Apply Liner incisal to the marginal areas or the course of the natural enamel and precure each segment for 20 seconds.

| Polymerizing the Liner | Device | Time | Program |
|----------------------------|--------|------|---------|
| Precuring time per segment | Quick | 20 s | – |



- The entire inner surface of the restoration has to be covered with SR Nexco Liner. The layer thickness should be at least 150 µm. Thin out the Liner towards the preparation margin.
- Do not separate polymerized SR Nexco Liner from the die.

Removing the inhibition layer after polymerization of the Liner

Thoroughly remove the resulting inhibition layer using a disposable sponge (do not use a solvent); make sure that the Liner surfaces are free of residue. Make sure that the Liner shows a mat surface.



Thoroughly remove the inhibition layer with clean disposable sponges.

Inlay/onlay layering

Adapt the first layer firmly (press into place) to ensure an effective bond between the Liner and lab composite and precure each segment for 20 seconds using a Quick curing light. The shade effect in the interdental area and cavity may be increased by means of Occlusal Dentin orange. Slightly emphasize the marginal ridges and cusps with Dentin. Subsequently, begin the process of building up the cavity with Dentin materials. Make sure to provide adequate space for the subsequent application of Incisal and Effect materials. The translucency of the restoration may be increased by means of coloured Transpa materials, such as Transpa orange-grey and Transpa brown-grey. Layer SR Nexco Paste layering materials step by step and precure each individual layer. After building up and precuring the dental plateau, apply characterizations with SR Nexco Stains and precure for 20 seconds. Next, complete the restoration using Incisal and Transpa materials. The cusp tips and triangular ridges may be coated with a fine layer of Opal Effect 3 and 4. Adapt firmly and create smooth, rounded transitions between the layers using SR modelling instruments or synthetic brushes.



Increase the shade effect in the interdental and cavity area with Occlusal Dentin. Outline the marginal ridges with Dentin and create a plateau with various Dentin materials. Precure each intermediate segment for 20 seconds using the Quick curing light.



Apply characterizations with SR Nexco Stains, precure with the Quick and cover with Incisal and Transpa materials.



Design a lifelike occlusal morphology and subsequently precure all areas for 20 seconds using Quick.



- It is essential to observe the stipulated curing depth and maximum layer thickness of the individual materials during the layering procedure.
- If the maximum layer thickness is exceeded, break up large portions into several increments and precure each increment for 20 seconds.
- SR Nexco Stains always have to be coated with layering material (e.g. Incisal, Transpa).

Final polymerization

After the layering procedure has been completed, all layers must be precured. To make sure that this is the case, you may precure each segment again for 20 seconds. Next, apply SR Gel on the **entire** veneering surface ensuring that all areas are fully covered and the layer is **not too thick**.



Apply a covering, but not too thick layer of SR Gel and secure the dies on the object holder in the correct position.

| Polymerization Inlay/onlay | Device | Time | Program |
|----------------------------|-------------|--------|---------|
| Precuring time per segment | Quick | 20 s | – |
| Final polymerization | Lumamat 100 | 11 min | P2 |

For the parameters of other curing devices, please go to page 71.

Finishing/polishing

After completion of the polymerization procedure, completely remove SR Gel from the restoration using running water and/or a steamer. Carefully remove the restoration from the die. If the restoration is removed at a later stage, it is advisable to warm up the stone die by means of steam/hot water. Finish the restoration with cross-cut tungsten carbide burs and fine diamonds. It is advisable to use low speed and light pressure. Make sure to rework the entire restoration to remove the inhibition layer of approximately 30 microns from all surfaces. Carefully taper the margins of the restoration, lightly grind the margins, and adjust proximal and occlusal contact points. Subsequently, recreate a lifelike tooth shape and surface structure.

The inhibition layer must be removed from the entire SR Nexco surface.



Remove SR Gel and carefully remove the restoration from the die. Remove the inhibition layer and finish the surface with cross-cut burs.

Polishing

Finishing

Carefully smooth out the ridges on the occlusal surface and proximal surfaces with rubber polishers and silicone polishing wheels. Pay particular attention to the margins in order to avoid rendering them too short.

Prepolishing and high-gloss polishing

The restorations are prepolished and polished to a high gloss using a goat hair brush, cotton or leather buff as well as Universal Polishing Paste. Use low speed and slight pressure for prepolishing and high-gloss polishing. Adjust the pressure **at the handpiece, not with the polishing motor**. In order to optimally polish the occlusal surfaces, we recommend modifying the goat hair brushes to become star-shaped so that only the desired areas can be polished due to the smaller size of the brush. Depending on the type of high gloss desired, leather buffing wheels can be used to achieve a high shine, while cotton buffers are used to achieve a lesser degree of lustre.



Results



Preparing for cementation



Adhesive cementation is mandatory for framework-free SR Nexco Paste restorations.

In order to achieve an excellent bond with the luting composite, the cavity side of the restoration has to be carefully blasted with Al_2O_3 (80–100 μm) at 1 bar/15 psi pressure in the laboratory. Following the try-in in the dental practice and subsequent cleaning, the cavity side is again roughened with a 50–100 μm diamond directly prior to the adhesive cementation. Finally, the surfaces are silanized (e.g. with Monobond® Plus) to enable a chemical bond.

Framework-free restorations (anterior crown)

Model isolation

Applying the sealer

Fabricate a master model or a model with detachable segments according to the impression in the usual manner. Expose and mark the preparation margins. Block out undercuts with blocking-out wax or blocking-out resin to ensure that the restoration can be removed after the polymerization process without damaging the die. Basically, the application of a sealer is recommended to harden the surface and to protect the stone die. However, the sealer layer must not result in any changes of the dimensions of the stone die. It is not mandatory to utilize a spacer, as two coats of SR Model Separator will be applied. If you use a spacer, check as to whether it is compatible with SR Model Separator.

Sealing the dies and adjoining parts of the model

SR Model Separator is applied in two thin coats. Apply the first coat generously and make sure that all areas of the die are well covered. Watch out for sharp edges (incisal edges) in particular. Allow the layer to react for 3 minutes. After the reaction time, apply a second layer in a thin coat, invert the model and allow to dry for 3 minutes. Additionally, apply SR Model Separator to adjoining model surfaces that may come into contact with SR Nexco including counterbite, allow to react for a short time, and then disperse excess material with oil-free compressed air.



Fabrication of a die coated with sealer as the working basis



Applying two layers of SR Model Separator

Liner application

Extrude the desired amount of the ready-to-use Liner paste from the syringe and spread it out slightly on the mixing pad using a disposable brush. First, apply the Liner thinly on the die surfaces. Make sure to fully cover all areas, as the Liner provides an essential bonding surface to the luting composite. The Liner layer must be at least 150 microns thick and has to be precured for 20 seconds per segment using the Quick.



The Liner layer must be at least 150 μm thick and has to be precured for 20 seconds per segment using the Quick.

Procedure for non-vital, discoloured stumps

- Mask the entire die with Liner to block out the dark colour of the underlying tooth stratum and, at the same time, to attain an adequate degree of brightness.
- Additionally, Stains white may be applied locally to the Liner surface to further increase the degree of brightness.

| Polymerizing the Liner for anterior crowns | Device | Time | Program |
|--|--------|------|---------|
| Precuring time per segment | Quick | 20 s | – |

For the parameters of other curing devices, please go to page 71.



- The entire die surface has to be covered with an SR Nexco Liner layer of at least 150 µm. Thin out the Liner towards the preparation margin.
- Do not separate polymerized SR Nexco Liner from the die.
- If desired, the translucency of the Liners 1–5 may be increased by using Liner clear or Liner incisal.

Removal of the inhibition layer

Thoroughly remove the resulting inhibition layer using a disposable sponge (do not use a solvent); make sure that the Liner surfaces are free of residue. Make sure that the Liner shows a slightly shiny surface.



Tips and tricks regarding the layering

Liner incisal may be applied to the marginal area to facilitate the transmission of light in the cervical area. This measure provides a harmonious transition between the gingiva and the restoration.

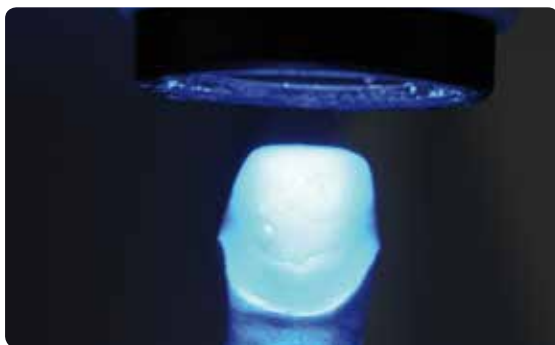


Anterior crown layering

Adapt the first layer firmly (press into place) to ensure an effective bond between the Liner and lab composite and precure each segment for 20 seconds using a Quick curing light. The shade effect in the interdental area and palatal fossa may be increased by means of Stains orange or Occlusal Dentin orange. Build up the labial surface using various Dentin materials. Reproduce areas of higher brightness with Opal Effect 3 (cervical). Apply the appropriate Transpa materials to the dentin core. Build up and precure the incisal extension using Opal Effect materials (OE 1 and OE 2). Mimic mamelons using Mamelon materials and Stains and precure. Next, complete the restoration step by step using Incisal and Transpa materials. Build up the palatal ridges using Dentin materials. The triangular ridges may be coated with a fine layer of Opal Effect 3 and 4. Adapt firmly and create smooth, rounded transitions between the layers using SR modelling instruments or synthetic brushes. With such or similar individual layering patterns you can achieve an esthetic outcome customized to the patient using SR Nexco.



Add Dentin material to the marginal areas. Use Stains and Occlusal Dentin materials to enhance the shade effect in the palatal area.



Precure for 20 seconds with the Quick between the layers. Outline mesial and distal ridges with Opal Effect materials.



Outline the ridges from the palatal aspect with Opal Effect 2 and cover with Incisal material. Apply Mamelon materials and Stains and precure.



Complete the labial tooth contours with Incisal and Transpa materials. Precure the layered material for 20 seconds with the Quick.



- It is essential to observe the stipulated curing depth and maximum layer thickness of the individual materials during the layering procedure.
- If the maximum layer thickness is exceeded, break up large portions into several increments and precure each increment for 20 seconds.
- An optimum shade reproduction is achieved if the SR Nexco layer is 1 mm thick.

Final polymerization

After the layering procedure has been completed, all layers must be precured using the Quick curing light. To make sure that this is the case, you may precure each segment again for 20 seconds. Next, apply SR Gel on the **entire** veneering surface ensuring that all areas are **fully covered and the layer is not too thick**.



| Polymerization anterior crown | Device | Time | Program |
|-------------------------------|-------------|--------|---------|
| Precuring time per segment | Quick | 20 s | – |
| Final polymerization | Lumamat 100 | 11 min | P2 |

For the parameters of other curing devices, please go to page 71.

Finishing/polishing

After completion of the polymerization procedure, completely remove SR Gel from the restoration using running water and/or a steamer. Carefully remove the restoration from the die. If the restoration is removed at a later stage, it is advisable to warm up the stone die by means of steam/hot water. Finish the restoration with cross-cut tungsten carbide burs and fine diamonds. It is advisable to use low speed and light pressure. Make sure to rework the entire restoration to remove the inhibition layer of approximately 30 microns from all surfaces. Carefully taper the margins of the restoration, lightly grind the margins, and adjust proximal contact points. Subsequently, recreate a lifelike tooth shape and surface structure. The inhibition layer must be removed from the entire SR Nexco surface.



Polishing

Finishing

Carefully smooth out the surfaces with rubber polishers and silicone polishing wheels. Pay particular attention to the margins in order to avoid rendering them too short.



Carefully smooth out the surfaces with rubber polishers and silicone polishing wheels.

Prepolishing and high-gloss polishing

The restorations are prepolished and polished to a high gloss using a goat hair brush, cotton or leather buff as well as Universal Polishing Paste. Use low speed and slight pressure for prepolishing and high-gloss polishing. Adjust the pressure **at the handpiece, not with the polishing motor**. Depending on the type of high gloss desired, leather buffing wheels can be used to achieve a high shine, while cotton buffers are used to achieve a lesser degree of lustre.



The restorations are prepolished and polished to a high gloss using a goat hair brush or cotton as well as Universal Polishing Paste.

Results



SR Nexco Paste anterior crown polished to a high gloss

Preparing for cementation



Adhesive cementation is mandatory for framework-free SR Nexco Paste restorations.

In order to achieve an excellent bond with the luting composite, the cavity side of the restoration has to be carefully blasted with Al_2O_3 (80–100 μm) at 1 bar/15 psi pressure in the laboratory. Following the try-in in the dental practice and subsequent cleaning, the cavity side is again roughened with a 50–100 μm diamond directly prior to the adhesive cementation. Finally, the surfaces are silanized (e.g. with Monobond® Plus) to enable a chemical bond.

Fixed, metal-supported restorations

Framework design

The following points must be observed for the design of frameworks veneered with lab composite:

1. Framework design for full-coverage veneers (ideal space conditions)

With full-coverage veneers, the framework has to reflect the shape of the tooth in a reduced form. Design the framework in such a way that it supports the cusps resulting in a virtually even layer thickness of the lab composite. In this way, the masticatory forces occurring during functional chewing are exerted on the framework rather than on the veneering composite. In case of unfavourable preparations, the missing tooth structure has to be compensated by the design of the framework and not the lab composite. Furthermore, an even layer thickness facilitates the creation of a harmonious shade effect while full-coverage veneering provides a maximum level of esthetic beauty and function. All areas of the framework should be smooth and rounded to prevent delamination and cracking. Angles and edges should be rounded out already in the wax-up and not in the metal in order to avoid undermining the minimum framework thickness. The thickness of the metal framework must not be less than 0.3 mm for single crowns and 0.5 mm for bridge abutments after finishing.

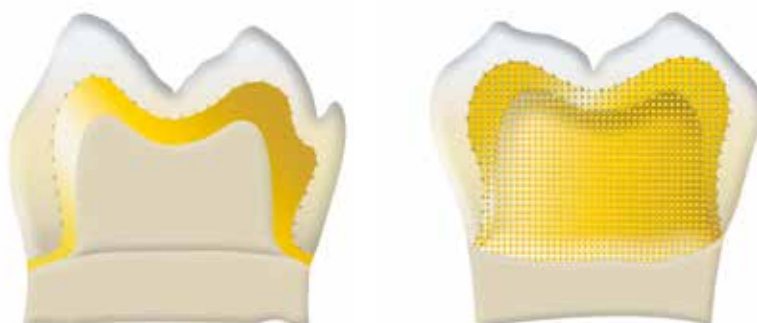
Anterior crowns



Premolar crowns



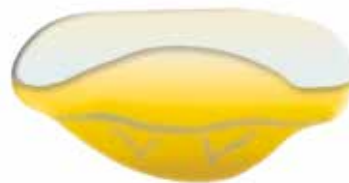
Molar crowns



2. Framework design for partial veneers (limited space conditions)

A different framework design is required for partial veneers (e.g. telescope and conus crowns). As the space in the occlusal, palatal and lingual area in particular tends to be limited in many cases, this area of the restoration must be designed in the metal in such a way that cracks or delamination cannot occur because of too thin layer thicknesses of the lab composite. In this design, the transition between the metal framework and the lab composite should be clearly defined and it should incorporate a right angle finish line. The transition areas between the metal framework and the veneering composite must not be located in the contact point areas, nor on surfaces involved in masticatory functions. A chamfer or wraparound technique is required in partial veneer preparations to provide adequate support for the veneer. Observe the palatal area in upper canines (canine guidance) and the occlusal area in posterior teeth. To obtain a balance between esthetic and functional properties, it is advisable to reduce the medial corner of the occlusal surface in upper posterior teeth in particular to attain a harmonious esthetic appearance, especially when the buccal corridor is exposed. The thickness of the metal framework must not be less than 0.3 mm for single crowns and 0.5 mm for bridge abutments after finishing. For further information, please refer to the Instructions for Use of the alloy being used.

Anterior crowns



Premolar crowns



Molar crowns



3. Design of the bridge pontic

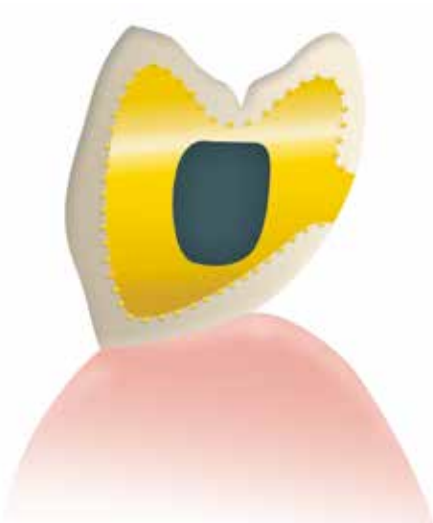
Bridge pontics are designed taking esthetic and functional aspects as well as oral hygiene into account. The pontic rest on the alveolar ridge should consist entirely of metal (polished to a high gloss) or composite material. The transition between metal and lab composite should always be located in areas where oral hygiene is ensured in an ideal way. If enough space is available, the rest should consist of composite material. In order to ensure adequate stability between the bridge pontic and bridge abutment, a palatal and/or lingual scallop is recommended.

If space is limited, the contact area is made of metal polished to a high gloss. The palatal or lingual restoration surfaces are designed in metal for reasons of stability. In order to avoid inclusion at the bridge pontic due to massive cast parts, the bridge pontic should be hollowed out. A wax wire is placed in the hollowed space (ample space available) and formed in such a way that it is level with the abutment teeth. This measure provides additional retention and helps achieve an even shade effect in the bridge pontic and abutment.

Sufficient space

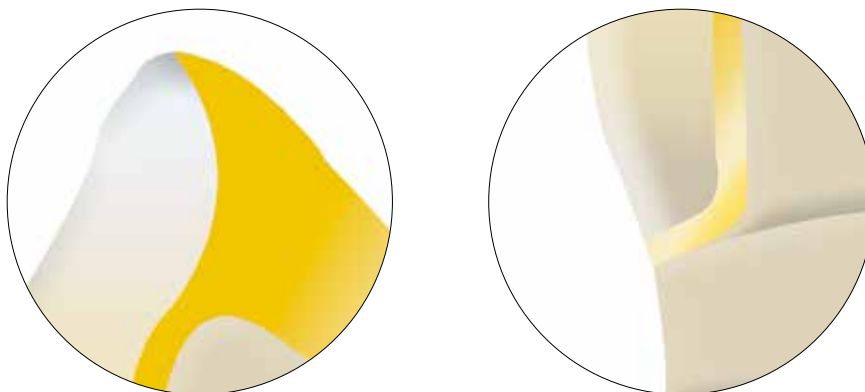


Limited space



4. Interface between metal and composite

The interface between the metal framework and the lab composite must be clearly defined, incorporate a right angle finish line and use a chamfer or wraparound technique whenever possible. The transition areas between the metal framework and the lab composite must not be located in the contact point areas nor on surfaces involved in masticatory functions. Furthermore, make sure that the interface between metal and lab composite in the cervical area does not come into contact with the gingiva, particularly if a tapered crown margin is designed (i.e. no metal margin). In this way, irritation of the gingiva can be prevented. The interface in the interdental area must be designed in such a way that cleaning of these difficult-to-access areas is possible.



5. Correct application of retention beads

It is generally advisable to apply retention beads to provide mechanical retention in addition to the chemical bond with SR Link. If space is limited, it may not always be possible to apply retention beads or they may only be applied in certain areas. Therefore, retention beads can be applied locally to the bonding surfaces without compromising the space available or the esthetic appearance of the restoration in particular. The retention adhesive should be applied in as thin a coating as possible so that the retention beads are not completely immersed in adhesive and enough surface area for mechanical retention is provided. After casting, the retention beads may be reduced by half of their size (equator) to preserve a sufficiently large retentive area.



Metal framework fabrication

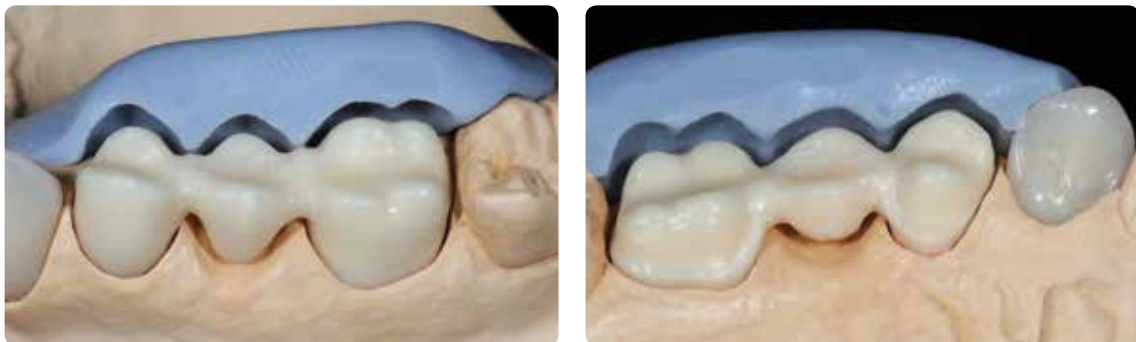
There are two types of frameworks, i.e. frameworks for full-coverage veneers (ideal space) and frameworks for partial veneers (limited space). Basically, it is advisable to design a full wax-up and then fabricate a silicone key to check the space conditions during contouring. When fabricating the frameworks, make sure that the minimum wall thickness after finishing is 0.3 mm for single crowns and 0.5 mm for bridge abutments. These dimensions are the prerequisite for a stable metal framework and a durable bond between the metal and composite. If the stipulated framework and connector dimensions are not observed, delamination and cracking may occur.



Full contouring of the anatomical tooth shape

Contouring

The framework reflects the reduced anatomical tooth shape (see page 26 for tooth shape-supporting contouring). As a result, the lab composite can be applied in an even layer and will consequently be appropriately supported. The requirements of the different alloys have to be taken into account.



Reducing the model portions and checking using the silicone key.



If the metal framework is too small, the veneering composite is not adequately supported, which may lead to cracks, delamination and esthetically compromised results. Mechanical retentions are generally beneficial and advisable, as they support the chemical bond between metal and composite.

Casting and finishing

After having cast the framework (e.g. with Academy Gold XH), carefully divest, sandblast/pickle and fit it on the model. After separating, the metal framework is finished using tungsten carbide burs. If softer alloys are used, it is recommended to work with limited pressure. A correct marginal design is paramount to attaining a reliable composite-metal bond. If possible, create a tapered chamfer or wraparound design in the cervical area.

You are recommended to polish those parts of the restoration which are not veneered with SR Nexco (e.g. palatal or lingual areas, metal scallops, etc.) before you start the veneering work or before the framework is conditioned. If this is done after veneering, the quality may be compromised.



Carefully divest, blast/pickle and fit the framework on the model.



Create the cervical margin as a tapered chamfer using a tungsten carbide bur.

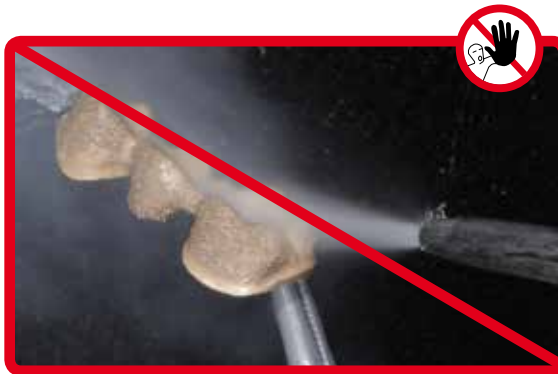
Conditioning of the framework

Conditioning with SR Link

After finishing, carefully blast the framework with aluminium oxide Al_2O_3 (80–100 μm) at 2–3 bar (29–44 psi) pressure (see Instructions for Use of the corresponding alloy). Sandblasting improves the mechanical bond. It roughens and thus substantially increases the surface of the alloy. After blasting, remove blasting medium residue from the framework by **tapping off** and not by **cleaning with steam** or an **air gun**. Apply SR Link immediately after having tapped off the residue. Apply SR Link with a clean disposable brush and allow it to react for 3 minutes. Do not "soak" metal surface in SR Link.



Carefully blast the framework with Al_2O_3 (80–100 μm) and 2–3 bar (29–44 psi) pressure and tap off with an instrument.



Immediately after the blasting procedure, tap off blasting medium residue, apply SR Link using a disposable brush and allow to react for 3 minutes.



- When using SR Link, do NOT clean the framework with steam or with an air gun after blasting.
- Do not touch the surfaces once they have been cleaned!
- Do not use SR Link in conjunction with alloys that contain more than 50% silver and/or copper or alloys with more than 90% gold, palladium and platinum.

Layering diagram

In order to achieve an appropriate shade match, a minimum layer thickness of 1 mm is required.

The brightness value of the restorations varies depending on the layer thickness of the Incisal material

Full-coverage veneer



Framework



Opaquer application



Dentin build-up

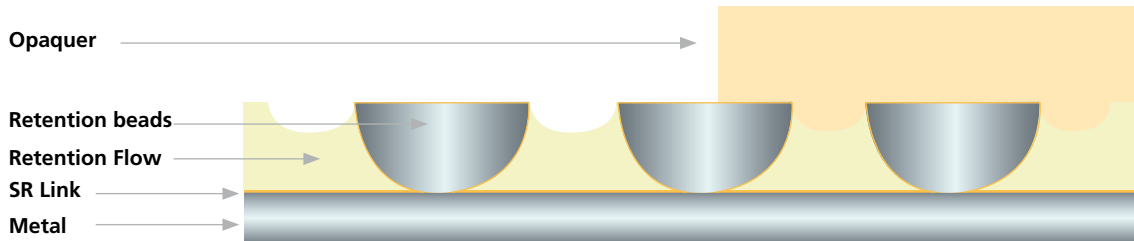


Completion of the layering using Incisal materials

OPTIONAL: Application of SR Nexco Retention Flow

Application of SR Nexco Retention Flow

Apply SR Nexco Retention Flow in the undercuts of the retention beads using a brush and light-cure with the Quick for 20 seconds. After light-curing, apply the first Opaquer layer.



As an option, SR Nexco Retention Flow can be applied in the undercuts of the retention beads.

| Polymerization Retention Flow | Device | Time | Program |
|-------------------------------|--------|------|---------|
| Precuring time per segment | Quick | 20 s | – |

For the parameters of other curing devices, please go to page 71.

Important: SR Nexco Retention Flow must be applied in a very thin film along the transition between the metal framework and the veneer. If this is not properly executed, a visible thin Retention Flow line may be visible after the reduction by grinding of said transition.

Opaquer application

1st Opaquer application

Extrude the desired amount of the ready-to-use Opaquer paste from the syringe and spread it out slightly on the mixing pad using a disposable brush. Apply the first opaquer layer (wash) thinly using a brush. Make sure to thoroughly smooth out any roughness and the retention beads (micro- and macroretention beads) on the metal surface, since the wash layer represents the most important bond between the metal and the composite. Subsequently, precure the wash for 20 seconds per segment using the Quick.



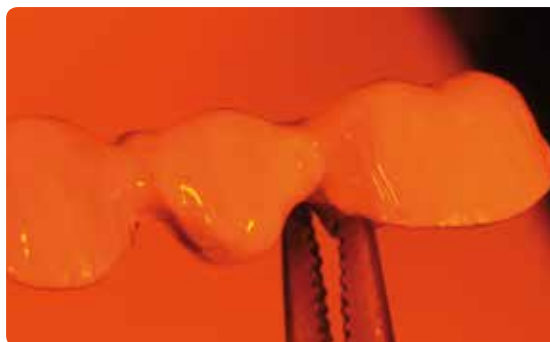
Apply the first Opaquer layer (wash) thinly using the brush. Level or fill retentions or roughness and subsequently precure using the Quick curing light.



If SR Nexco Retention Flow is used, thinly apply the first Opaquer layer (wash) on the surface with a brush and precure with the Quick.

2nd Opaquer application

Apply the second opaquer layer in such a way that the metal framework and the retention beads in particular are entirely covered with opaquer, i.e. as much as necessary and as little as possible. After that, pre-cure the opaquer for 20 seconds per segment using the Quick and then directly polymerize it in the Lumamat 100.



Entirely cover the retention beads with the second Opaquer layer and pre-cure each segment for 20 seconds.

Procedure for the bridge pontic with Pontic Fill

Apply the second opaquer layer in such a way that the framework is completely covered and pre-cure each segment for 20 seconds. Next, build up the hollowed out space on the bridge pontic to the level of the abutment teeth using Pontic Fill and pre-cure for 40 seconds using the Quick curing light. Subsequently, apply an Opaquer layer directly to the inhibition layer of Pontic Fill, pre-cure for 20 seconds and then directly polymerize it in the curing device.

Polymerizing the Opaquer

| Opaquer polymerization | Device | Time | Program |
|-----------------------------|-------------|--------|---------|
| Pre-curing time per segment | Quick | 20 s | – |
| Final polymerization | Lumamat 100 | 11 min | P2 |

For the parameters of other curing devices, please go to page 71.



- To obtain a smooth transition between the metal and composite, thin out the opaquer at the metal margin.
- If a smooth surface is preferred, lightly tap top of the surface with a spatula.
- Using a probe, check opaquer for complete polymerization in critical areas and cure again as necessary.

Cervical, dentin and incisal layering

Sealing the model

Isolate all areas of the model which come into contact with SR Nexco prior to the dentin and incisal layering. This step helps to prevent the lab composite from sticking to the model. Use SR Model Separator to seal adjoining parts of the model (e.g. stone die and pontic rests). Apply SR Model Separator in a thin layer, allow to react for a short time, and remove excess with oil-free compressed air.



Removal of the inhibition layer

Thoroughly remove the resulting opaquer inhibition layer using a disposable sponge (do not use a solvent); make sure that the Opaquer surfaces are free of residue. Make sure that the Opaquer shows a slightly shiny surface.



TIP

Characterizing the Opaquer

After the inhibition layer has been removed, you may individualize/modify the shade of sections of the Opaquer surface with SR Nexco Stains. It is advisable to apply a thin layer of Stains in the marginal and interdental area, particularly if space is limited, to enhance the in-depth shade effect. Subsequently, precure SR Nexco Stains for 20 seconds using the Quick.



Tips regarding the different layers



Before layering, avoid mixing and overlapping the pastes to prevent air from being trapped. Do not dilute the pastes with SR Modelling Liquid or low-viscosity components. As a general rule, use only small amounts of SR Modelling Liquid.



It is advisable to apply highly opaque pastes, e.g. Mamelon light, to the pontic rest to ensure adequate shade stability. After that, layer these areas using Margin and Dentin materials.



It is recommended to build up the veneer segment by segment (tooth by tooth), to separate them from each other and then to precure. Finally, the individual veneers are joined.



Opal Effect pastes provide a true-to-nature opalescent effect in the incisal third. Opal Effect 1 is applied to the cut-back dentin as extension of the dentin core and then precured.



Use the shaded Transpa materials to complete and enhance the vitality in the incisal area. Transpa blue is suitable for the mesial and distal aspects.



Use Mamelon materials to create a lifelike shade effect in the incisal third. They are applied on the completed incisal area. Create smooth transitions. Avoid edges, since they may look like stubs after polymerization and the mamelons may appear too pronounced.

Dentin/incisal layering

The layering procedure of the individual SR Nexco Paste materials is carried out either in accordance with the layering diagram (shade guide layering) or individually. Adapt the first layer firmly (press into place) to ensure an effective bond between the composite and the opaquer surface and precure each segment for 20 seconds using a Quick curing light. Margin material may be applied in a half-moon shape to cervical areas, pontics and crown margins that are thinning towards the metal. Pontic Fill is particularly suitable for the pontic area. Adapt firmly and create smooth, rounded transitions between the layers (Margin–Dentin–Mamelon–Incisal) using SR modelling instruments or synthetic brushes.

After that, build up the dentin layers step by step and precure each segment for 20 seconds with the Quick curing light. The shade effect in the interdental area may be enhanced by means of chromatic materials, such as Occlusal Dentin orange. Design the dentin core in such a way that the mamelon shape remains outlined. Make sure to provide adequate space for the subsequent application of the Incisal and Transpa materials. The mamelons can be individually designed with either Mamelon material or SR Nexco Stains. Next, complete the restoration step by step using Incisal and Transpa materials.

The coordinated consistency of the material ensures that modelled contours are maintained and enables easy layering. The Incisal materials are coordinated with the Dentin materials so that delicate transitions can be designed. Subsequently, precure each segment for 20 seconds using the Quick.



Stabilize pontic areas with Pontic Fill. Occlusal Dentin to increase the occlusal shade effect.



Intermediate curing with the Quick. Completing the dentin core.



Stains applied into the fissures and covered with Incisal material.



An optimum shade reproduction is achieved if the SR Nexco layer is 1 mm thick.

Final polymerization

After the layering procedure has been completed, all layers must be precured. To make sure that this is the case, you may precure each segment again for 20 seconds. Next, apply SR Gel on the **entire** veneering surface ensuring that all areas are fully covered and the layer is **not too thick**.



| Polymerization metal-supported bridge | Device | Time | Program |
|---------------------------------------|-------------|--------|---------|
| Precuring time per segment | Quick | 20 s | – |
| Final polymerization | Lumamat 100 | 11 min | P2 |

For the parameters of other curing devices, please go to page 71.

Finishing/polishing

Finishing

After completion of the polymerization procedure, completely remove SR Gel from the restoration using running water and/or a steamer. Finish the restoration with cross-cut tungsten carbide burs, fine diamonds and flexible disks. It is advisable to use low speed and light pressure. Make sure to rework the entire restoration to remove the inhibition layer of approximately 30 microns from all surfaces. Fit the restoration on the model and adjust proximal and occlusal contact points. Subsequently, recreate a lifelike tooth shape and surface structure. The inhibition layer must be removed from the entire SR Nexco surface.



Remove SR Gel. Using cross-cut burs and discs, remove the inhibition layer and create a lifelike shape.

Finishing

Smooth out the surface (convex areas) of the natural structures, as well as the marginal ridges with rubber polishers and silicone polishing wheels so that they exhibit an extra lustre after high-gloss polishing. Silicone polishing wheels are also ideally suitable for finishing metal-composite interfaces.



Polish the restoration using customary polishers, such as rubber polishers and silicone wheels.

Prepolishing and high-gloss polishing

The restorations are prepolished and polished to a high gloss using a goat hair brush, cotton or leather buff as well as Universal Polishing Paste. Use low speed and limited pressure for prepolishing and high-gloss polishing. Adjust the pressure with the handpiece, not the polishing motor. In order to optimally polish the interdental areas and occlusal surfaces, we recommend modifying the goat hair brushes to become star-shaped so that only the desired areas can be polished due to the smaller size of the brush. Depending on the type of high gloss desired, leather buffing wheels can be used to achieve a high shine, while cotton buffers are used to achieve a lesser degree of lustre.



Polish the surface with Universal Polishing Paste and e.g. goat hair brush.



- Microroughness on the finished veneering surface is conducive to plaque accumulation. Therefore, polish carefully.
- Pay particular attention to crown margins, interdental areas, occlusal surfaces and the basal rest of pontics.

Results



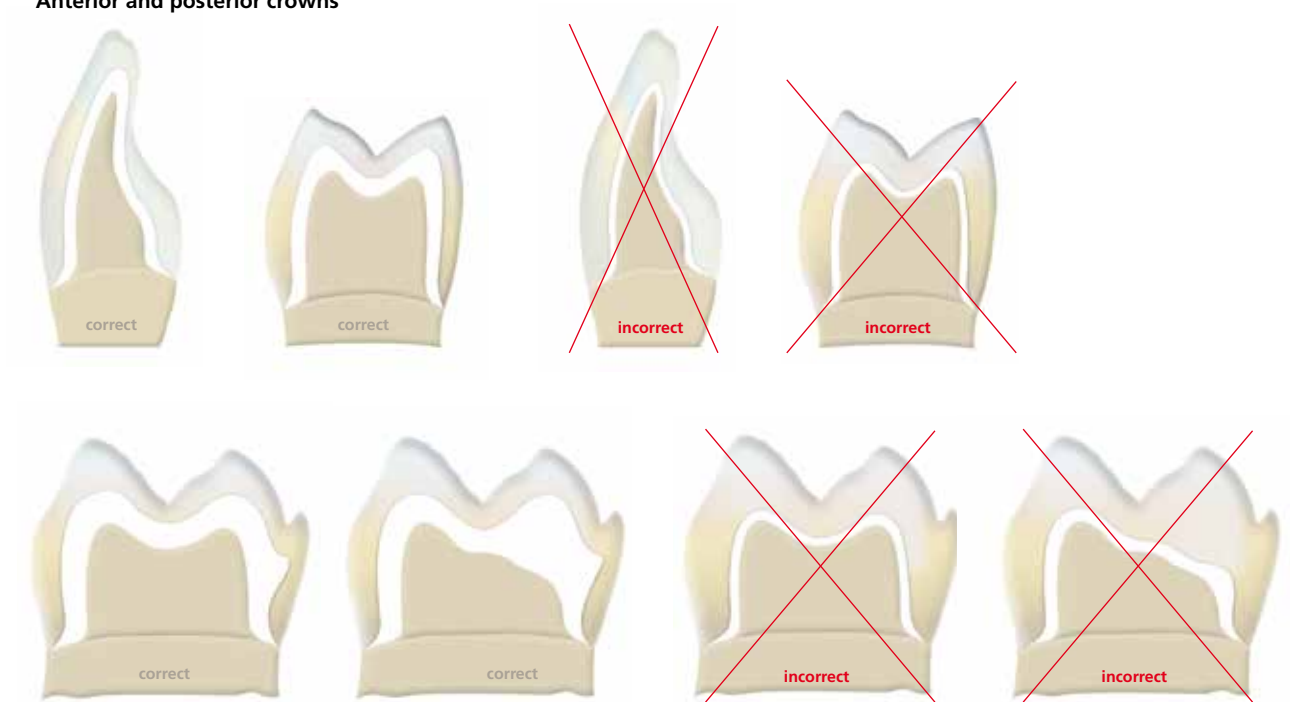
SR Nexco Paste bridge polished to a high gloss

Fixed, zirconium oxide-supported restorations

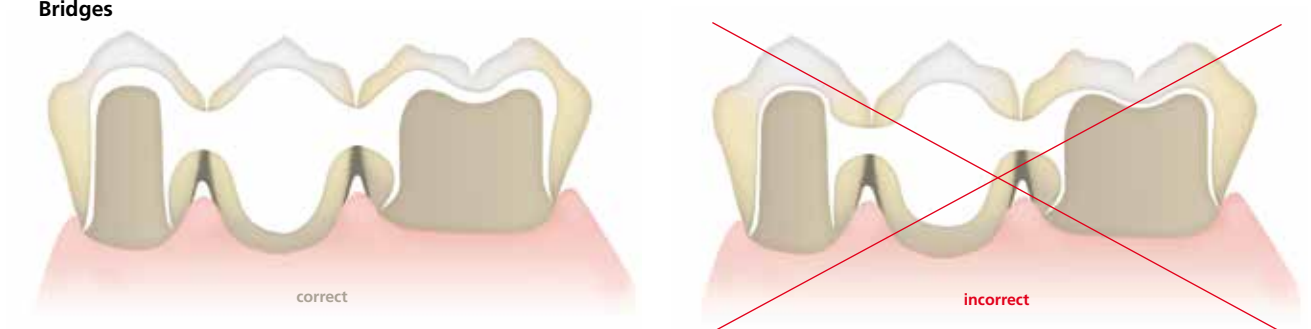
Framework design

Design the framework in a reduced supported shape. As a result, the composite can be applied in an even layer and will consequently be appropriately supported.

Anterior and posterior crowns



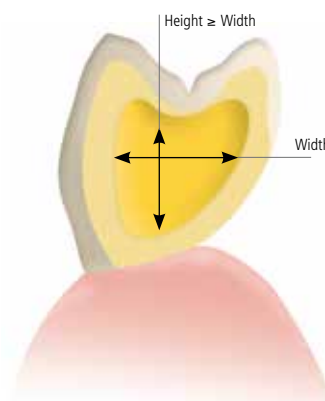
Bridges



Framework stability

Always observe the relation between width and height as well as the suitable dimensions when designing the connectors.

In general, the following applies: $\text{Height} \geq \text{Width}$



Framework fabrication

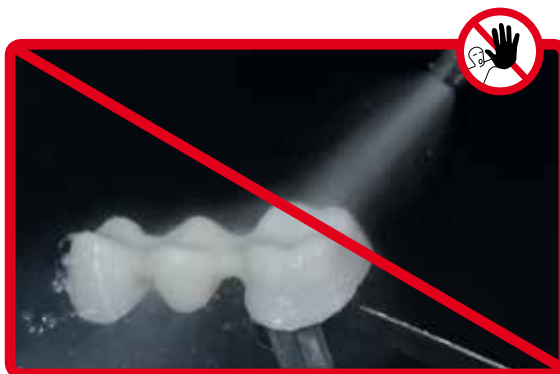
Design the framework in a reduced supported shape. As a result, the composite can be applied in an even layer and will consequently be appropriately supported.



Framework conditioning zirconium oxide (ZrO₂)



Carefully blast the previously sintered framework with Al₂O₃, 80–100 microns at max. 1 bar pressure.



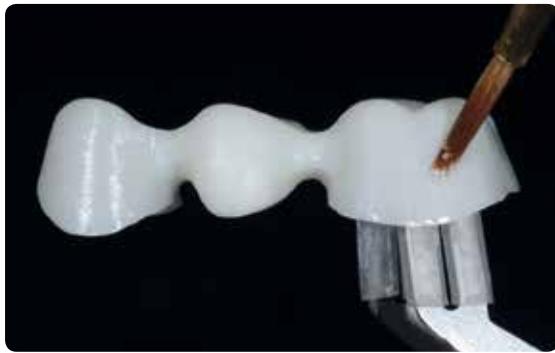
When using SR Link, do **NOT** clean the framework with steam or with an air gun after blasting. Do not touch the surfaces once they have been cleaned!



- Do not blast the zirconium oxide framework with an air gun or clean with steam after sand blasting!
- Do NOT touch the cleaned surface!
- After that, SR Link must be applied.

Conditioning with SR Link

Apply SR Link immediately after having tapped off the blasting medium residue. Use a clean disposable brush to apply SR Link to the veneering surfaces and allow to react for 3 minutes. Do not "soak" zirconium oxide surface in SR Link.



Apply SR Link immediately after the blasting procedure ...



... and allow it to react for 3 minutes.



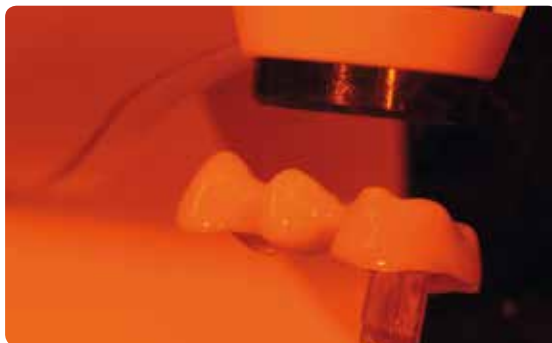
Do not blast the zirconium oxide framework with compressed air or clean with water when using SR Link!
Do not touch the surfaces once they have been cleaned!

Opaquer application

1st Opaquer application



Apply the first Opaquer layer (wash) thinly using the brush ...



... and cure using the Quick curing light.

2nd Opaquer application



Apply the second opaquer layer as a covering layer and precure with the Quick curing light.



Then polymerize in the Lumamat 100.

Polymerizing the Opaquer

| Polymerization Opaquer | Device | Time | Program |
|----------------------------|-------------|--------|---------|
| Precuring time per segment | Quick | 20 s | – |
| Final polymerization | Lumamat 100 | 11 min | P2 |

For the parameters of other curing devices, please go to page 71.

Dentin/incisal layering

Sealing the model

Isolate all areas of the model which come into contact with SR Nexco prior to the dentin and incisal layering. This step helps to prevent the lab composite from sticking to the model. Use SR Model Separator to seal adjoining parts of the model (e.g. stone die and pontic rests). Apply SR Model Separator in a thin layer, allow to react for a short time, and remove possible excess with oil-free compressed air.



Removal of the inhibition layer

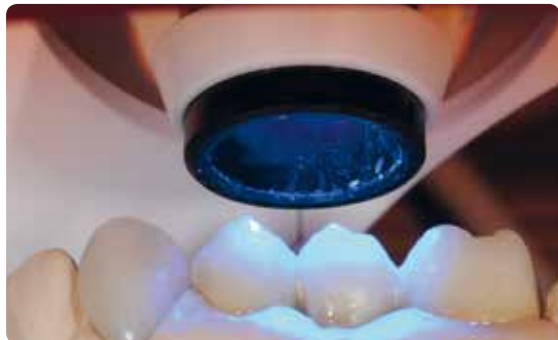
Thoroughly remove the resulting opaquer inhibition layer using a disposable sponge (do not use a solvent); make sure that the opaquer surfaces are free of residue. Make sure that the Opaquer shows a slightly shiny surface.



Dentin/incisal layering



The layering procedure of the individual SR Nexco Paste materials is carried out either in accordance with the layering diagram (shade guide layering) or individually. Subsequently, precure each segment for 20 seconds using the Quick.



Intermediate curing with the Quick. Completing the dentin core.

Tips

on individual layering can be found on page 37.

Final polymerization



Apply a fully covering but not inappropriately thick coat of SR Gel on the entire veneering surface. Then, conduct final polymerization.

| Polymerization zirconium oxide-supported bridge | Device | Time | Program |
|---|-------------|--------|---------|
| Precuring time per segment | Quick | 20 s | – |
| Final polymerization | Lumamat 100 | 11 min | P2 |

For the parameters of other curing devices, please go to page 71.

Finishing/polishing

Finishing



Remove SR Gel. Using cross-cut burs and discs, remove the inhibition layer and create a lifelike shape.



Make sure to rework the entire restoration to remove the thin inhibition layer from the entire surface.

Finishing



Finish the restoration using customary polishers, such as rubber polishers and silicone wheels.

Prepolishing and high-gloss polishing

The restorations are prepolished and polished to a high gloss using a goat hair brush, cotton or leather buff as well as Universal Polishing Paste.



Polish the surface with Universal Polishing Paste and e.g. goat hair brush.



- Microroughness on the finished veneering surface is conducive to plaque accumulation. Therefore, polish carefully.
- Pay particular attention to crown margins, interdental areas, occlusal surfaces and the basal rest of pontics.

Results



Framework-supported combination dentures

Procedure for combination dentures

Veneering with SR Nexco **before** setting up and completing the denture saddles

1. Fabricate the primary and secondary components (e.g. telescope crowns)
2. Fabricate the model casting (e.g. transversal connector, sublingual saddle bar)
3. Connect the secondary components with the model casting by adhesive joining, soldering or laser technique.
4. Veneer the secondary components with SR Nexco Paste.
5. Polymerize, finish and polish the SR Nexco veneer.
6. Mask the retentions of the model casting with SR Nexco Gingiva Opaquer.
7. Set up and complete the denture with cold-curing denture base material (e.g. ProBase Cold).

Masking of model cast retentions with Gingiva Opaquer

Conditioning with SR Link

After finishing the model casting, carefully blast the retentions with aluminium oxide (Al_2O_3), 80–100 microns at 3 bar (44 psi) pressure (see Instructions for Use of the corresponding alloy). Sandblasting improves the mechanical bond. This measure roughens and thus substantially increases the surface of the metal. After blasting, remove blasting medium residue from the framework by tapping off and not by cleaning with steam or an air gun. Apply SR Link immediately after having tapped off the residue. Apply SR Link with a clean disposable brush and allow it to react for 3 minutes. Do not "soak" metal surface in SR Link.



Carefully blast the retentions with Al_2O_3 , 80–100 microns at max. 3 bar (44 psi) pressure; then remove any residue by careful tapping with an instrument.



Apply SR Link immediately after the blasting procedure using a disposable brush and allow to react for 3 minutes.

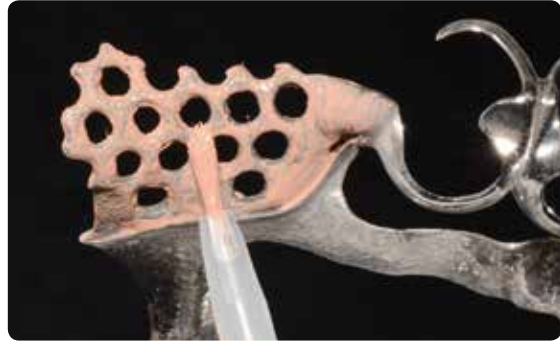


- When using SR Link, do NOT clean the framework with steam or with an air gun after blasting.
- Do not touch the surface once it has been cleaned!

Applying Gingiva Opaquer

1. Gingiva Opaquer layer (wash)

Extrude the desired amount of the ready-to-use Opaquer paste from the syringe and spread it out slightly on the mixing pad using a disposable brush. Apply the first opaquer layer (wash layer) thinly using a disposable brush. Make sure to thoroughly smooth out any roughness on the metal surface, since the wash layer represents the most important bond between metal and composite. Subsequently, precure the wash for 20 seconds per segment using the Quick.



Apply the first Opaquer layer (wash) thinly with a disposable brush and level/fill any roughness ...



...and precure for 20 seconds with the Quick

| Polymerization Gingiva Opaquer (Wash) | Device | Time | Program |
|--|--------|------|---------|
| Precuring time per segment | Quick | 20 s | – |

For the parameters of other curing devices, please go to page 71.

2. Applying Gingiva Opaquer

Apply the second opaquer layer in such a way that the metal framework is entirely covered with Opaquer, i.e. as much as necessary and as little as possible. After that, precure the Opaquer for 20 seconds per segment using the Quick, immediately mount the restoration on the object holder (without model), and polymerize it in the Lumamat 100 using Program 2.



Apply a fully covering 2nd Opaquer layer and precure each segment for 20 seconds.



When positioning the model casting on the object holder, make sure that enough light can reach them (no shadow casting). After polymerization, check the curing depth with a probe. If necessary, repeat the polymerization cycle in a Lumamat 100.

| Polymerization Gingiva Opaquer (Wash) | Device | Time | Program |
|--|-------------|--------|---------|
| Precuring time per segment | Quick | 20 s | – |
| Final polymerization | Lumamat 100 | 11 min | P2 |

For the parameters of other curing devices, please go to page 71.

Preparing for completion

After polymerization check the degree of curing with a probe. Then, remove the inhibited layer using the monomer of the corresponding denture base material and a disposable sponge. This is necessary to prevent streak formation in the composite while completing the restoration. Make sure that the Opaquer shows a slightly shiny surface. The monomers of cold-curing denture base materials, such as ProBase® Cold, are best suited to remove the inhibition layer.

It is recommended to secure the denture teeth to the model cast by means of a cold-curing denture base resin material. Heat polymerization may negatively influence the bond between the metal framework and the SR Nexco veneering material.



Matching the shade of SR Nexco® to the shade of SR Phonares® II

In combination denture prosthetics, matching the shade of composite veneers and denture teeth is very important. As the shades of SR Nexco and SR Phonares® II are coordinated, matching shades can be achieved in an efficient manner.

SR Phonares II teeth represent a new generation of true-to-nature esthetics in the field of denture prosthetics. The texture of the vestibular surfaces reproduces the natural wavelike pattern of the enamel surface. The perikymata (horizontal growth lines) ensure the true-to-nature vitality of the tooth shapes.

In order to achieve matching shades, we recommend that the individual SR Nexco Pastes should be applied in accordance with the layering diagram of the A–D shade guide.



The Incisal Pastes of SR Nexco Paste have to be selected individually in line with the selected SR Phonares II denture teeth in order to match the shade of SR Nexco to the shade of SR Phonares II. The brightness value of the restorations varies depending on the layer thickness of the Incisal material.



Framework



Opaquer application



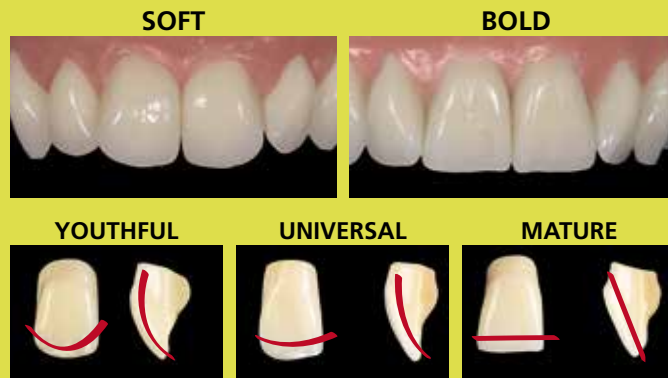
Dentin build-up



Completion of the layering using Incisal materials

Tip

As the tooth mould concept of SR Phonares II has been designed to match the age and characteristics of the patient, the incisal layer thickness may vary.



Practical Procedure

Modification and characterization of denture teeth

Denture teeth can be modified and characterized with SR Connect and SR Nexco. SR Connect is a light-curing conditioner to bond light-curing veneering materials to PMMA, heat- or cold-curing polymers and resin denture teeth.

Conditioning of the surface

Sandblast the surface to be characterized with Al_2O_3 (80–100 μm) at 2 bar (29 psi) pressure. Remove residue with oil-free air. Do not clean with steam! Apply SR Connect in a thin layer and let it react for **2–3 minutes** and **subsequently polymerize in a Lumamat 100 using Program 2**. Do not destroy the inhibition layer. After this, you can apply the SR Nexco veneering material.



Create the cut-back. Sandblast the surface with Al_2O_3 (80–100 μm) at 2 bar (29 psi) pressure.



Remove residue with oil-free air.

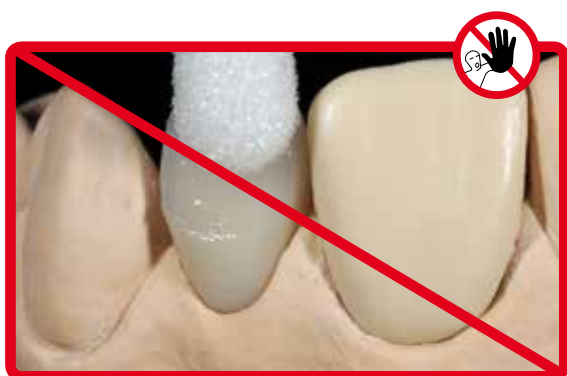


Do not clean with steam!



Apply SR Connect in a thin layer and allow to dry for approximately 2–3 minutes. Then polymerize in a Lumamat 100.





Do not destroy the inhibition layer.

Characterization and customization using e.g. Effect and Incisal materials



Characterize with Effect Shades and adjust the shape and shade. Cover with Incisal material.

Final polymerization



Apply a covering but not inappropriately thick coat of SR Gel and conduct the final polymerization.

| Polymerization Dentin/Incisal | Device | Time | Program |
|-------------------------------|-------------|--------|---------|
| Precuring time per segment | Quick | 20 s | – |
| Final polymerization | Lumamat 100 | 11 min | P2 |

For the parameters of other curing devices, please go to page 71.

Finishing/polishing/outcome



Carefully smooth out the surfaces with rubber polishers and silicone polishing wheels.



Pre-polishing is done with goat hair brushes and Universal Polishing Paste.



High-gloss polishing with a cotton buffing wheel



Denture tooth characterized with SR Nexco and polished to a high gloss.



The applied SR Nexco material is more wear resistant than PMMA denture teeth, for instance. This fact must be taken into account during finishing and polishing. If this is not observed, a "step" may develop in the transition areas between SR Nexco and PMMA resin during polishing, for example.

Practical Procedure

Restorations with gingiva portions

The SR Nexco Paste Gingiva shades are coordinated with the Ivoclar Vivadent Gingiva concept of IPS InLine®, IPS d.SIGN® and IPS e.max® Ceram. In this way, the shade design of true-to-nature gingiva components, particularly in conjunction with implant superstructures, is possible according to the same method with all veneering systems.

In addition, SR Nexco offers the shades Basic Gingiva 34 and Intensive Gingiva 5. Especially in implant prosthetics and in conjunction with metal-ceramic restorations, the use of SR Nexco Paste permits an efficient treatment concept.

Framework design

The framework design should be meticulously planned and fabricated by means of a wax-up and silicone keys fabricated from it. This ensures that the SR Nexco veneering material features an even layer thickness. Make sure that the soft-tissue contacts consist entirely of SR Nexco, so that SR Nexco Paste Gingiva can be used to supplement the restoration in case of subsequent tissue recession.



Framework design by means of a wax-up and reduced shape.



Completely milled framework.

Conditioning of the framework

Conditioning with SR Link

After finishing, carefully blast the framework with aluminium oxide Al_2O_3 (80–100 μm) at 2–3 bar (29–44 psi) pressure (see Instructions for Use of the corresponding alloy). Sandblasting improves the mechanical bond. It roughens and thus substantially increases the surface of the object. After blasting, remove blasting medium residue from the framework by tapping off and not by cleaning with steam or an air gun. Apply SR Link immediately after having tapped off the residue. Apply SR Link with a clean disposable brush and allow it to react for 3 minutes. Do not apply too much SR Link to metal surfaces.



Framework blasted with Al_2O_3 (80–100 μm) and 2–3 bar (29–44 psi) pressure wetted with SR Link.



- When using SR Link, do NOT clean the framework with steam or with an air gun after blasting.
- Do not touch the surfaces once they have been cleaned!
- Do not use SR Link in conjunction with alloys that contain more than 50% silver and/or copper or alloys with more than 90% gold, palladium and platinum.

Opaquer application and layering of the dental portions

First, the dental framework portions are covered with two layers of the tooth-coloured Opaquer in paste form and intermediately cured. Final polymerization is conducted in a Lumamat 100. After removing the inhibition layer with a disposable sponge, the dental portions are completed with SR Nexco Paste.



First Opaquer layer as wash, second Opaquer application in a covering layer



Layering of the dental portions with Dentin, Effect and Incisal materials

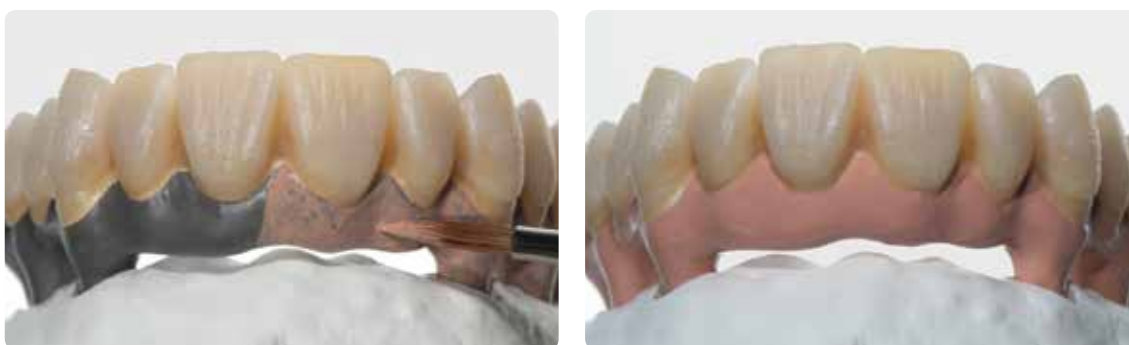


Basically, the dental veneers may be created first, before the gingival portions are designed. Optionally, the dental veneers and the gingival portions may also be created simultaneously.

Opaquer application to veneer the gingival portions

Applying Gingiva Opaquer

Extrude the desired amount of the ready-to-use Opaquer paste from the syringe and spread it out slightly on the mixing pad using a disposable brush. Apply the first Opaquer layer (wash) thinly using the brush. If retention beads are used, make sure to thoroughly smooth out or fill up any roughness on the metal surface, since the wash layer represents the most important bond between the metal and the composite. Subsequently, precure the wash for 20 seconds per tooth using the Quick. Apply the second Opaquer layer. The metal framework should now be entirely covered with Opaquer. Make sure to apply as much material as necessary and as little material as possible. Subsequently, polymerize in a Lumamat 100.



Apply the first Gingiva Opaquer layer (wash) thinly with a brush and precure with a Quick curing light. Entirely cover the gingival area with the second Opaquer layer and polymerize in a Lumamat 100.

| Polymerization Opaquer | Device | Time | Program |
|----------------------------|-------------|--------|---------|
| Precuring time per segment | Quick | 20 s | – |
| Final polymerization | Lumamat 100 | 11 min | P2 |

For the parameters of other curing devices, please go to page 71.



- If a metal margin has been designed, thin out the Opaquer towards the metal margin to ensure a clean transition between metal and composite.
- If a smooth surface is preferred, lightly tap top of the surface with a spatula.
- Using a probe, check opaquer for complete polymerization in critical areas and cure again as necessary.

Gingiva layering

After the application and the polymerization of the SR Nexco Gingiva Opaquer, you can directly begin with the application of SR Nexco Gingiva materials. Given the different gingiva thickness, blood circulation, and pigmentation, the gingiva exhibits different shade effects. This effect has to be recreated with SR Nexco material. A lifelike esthetic appearance is created by applying individual layers with different Gingiva shades.

First, apply Basic Gingiva 34 as the basic material to the entire area from the papilla contours to the model. To achieve an appropriate depth effect, Gingiva materials with a more intensive shade may be layered. In the process, papilla and the spaces between the alveolas can be layered in a lifelike fashion. To achieve a natural-looking outcome, use brighter, more translucent materials towards the surface. Subsequently, precure each individual layer for 20 seconds per segment – using the Quick curing light.



Apply Basic Gingiva BG34 in combination with IG2 and IG4 as the basic material. Characterizations with Intensive Gingiva



Completion with translucent Gingiva materials

Final polymerization

To minimize the inhibition layer, apply a covering but not too thick layer of SR Gel prior to polymerization in a Lumamat 100. The final finishing of SR Nexco Gingiva is limited to minor adjustments of shape and polishing of the surface.



Apply a covering but not inappropriately thick coat of SR Gel and conduct the final polymerization.

| Final polymerization | Device | Time | Program |
|----------------------------|-------------|--------|---------|
| Precuring time per segment | Quick | 20 s | – |
| Final polymerization | Lumamat 100 | 11 min | P2 |

For the parameters of other curing devices, please go to page 71.

Finishing/polishing

Finishing

After completion of the polymerization procedure, completely remove SR Gel from the restoration using running water. Use regular tungsten carbide burs and polishers to design and finish the surface and the surface texture. The inhibition layer must be removed from the entire SR Nexco surface.



Finish with cross-cut tungsten carbide burs and stippling instruments. Subsequently, polish with Universal Polishing Paste.

Polishing

To finish the surface, polish the surface in the usual manner with rubber polishers and silicone polishing wheels. The restorations are prepolished and polished to a high gloss using a goat hair brush, cotton or leather buff as well as Universal Polishing Paste. Use low speed and limited pressure for prepolishing and high-gloss polishing. Adjust the pressure with the handpiece, not the polishing motor.



- Microroughness on the finished veneering surface is conducive to plaque accumulation. Therefore, polish carefully.
- Make sure to polish crown margins, interdental areas, occlusal areas, gingiva portions and direct basal gingiva rests carefully to a high gloss.

Result



SR Nexco® Flask

The flask for the press technique with laboratory composites



Model design / investment in the flask

Positioning the wax-up in the flask base

Place the bridge to be veneered with the wax-up in the base part of the flask filled with putty silicone. Fill the inner aspects of the crowns with putty silicone and place them in the correct height in the base part. Smooth and spread out the silicone during setting. Make sure that the bridge is positioned upright in the flask and as close as possible to the bottom edge of the flask cover.



Wax-up in the flask base filled with putty silicone



Block-out for smaller restorations

Tip

For smaller restorations, the block-out can be used to minimize material consumption.

Finishing the set silicone

Once the silicone is completely set, remove the bridge and finish the silicone using rotary instruments. Shorten protruding margins and smooth out the surface, if required.



The set silicone is finished with rotary instruments.

Filling the flask with Transil F clear silicone.

Replace the bridge on the silicone base and isolate the silicone with a thin layer of Vaseline or a suitable silicone isolation material. It is recommended to fabricate a silicone matrix of the wax-up to control the subsequent cut-back. After that, the flask cover is positioned and screwed shut. The flask can now be filled with clear silicone.

The cannula tips of Transil F clear silicone exactly fit into the openings in the flask cover intended for this purpose.



Fill the flask with Transil F clear silicone.



Transil F clear silicone with cannula tips

Conditioning of the framework

Removing the wax-up

Once the Transil F clear silicone has set, open the flask and remove the wax-up from the bridge framework. The metal/zirconium oxide bridge framework is now conventionally prepared for veneering. For that purpose, the wax is removed.

Tip

Best remove the wax in slices using a scalpel in the vertical direction. This provides additional control of the subsequent layer thickness of the veneer.

Conditioning with SR Link

Thoroughly clean the metal framework with the steam jet and blast with 80–110 µm aluminium oxide at 2–3 bar (29–44 psi) pressure. Subsequently, jet medium residue is tapped off the metal framework.



Only tap off jet medium residue on the framework. DO NOT clean with steam and DO NOT blast with compressed air.

Immediately apply SR Link on the metal framework using a clean disposable brush and allow to react for 3 minutes. Do not "soak" metal surface in SR Link.



Application of SR Link on the metal framework

Opaquer application

1st and 2nd Opaquer application

Now, apply the first, thin "wash" opaquer layer and intermediately cure with the Quick curing light for 20 seconds per segment. Then, apply a second, covering layer of the opaquer and polymerize in the Lumamat 100 (Program P2). Remove the inhibition layer after polymerization in the Lumamat 100 using a disposable sponge.



Metal framework after the opaquer firing

Polymerizing the Opaquer

| Polymerization Opaquer | Device | Time | Program |
|----------------------------|-------------|--------|---------|
| Precuring time per segment | Quick | 20 s | – |
| Final polymerization | Lumamat 100 | 11 min | P2 |

For the parameters of other curing devices, please go to page 71.

After placing the excess sprues in the silicone of the lower flask half, replace the opaquerized bridge framework in the flask.

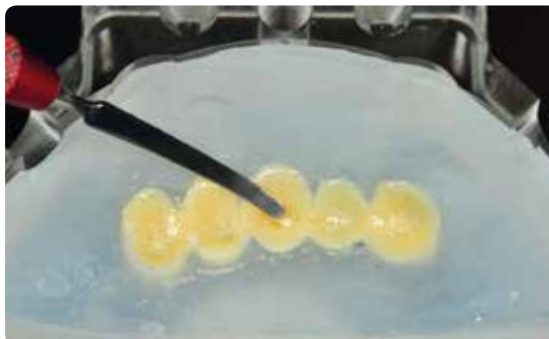


Designing excess sprues in the set silicone.

Dentin pressing

Applying the Dentin

The veneering parts in the clear silicone of the upper flask half are now filled with a sufficient amount of the selected SR Nexco Dentin material. The flask halves are then brought together until a perceptible resistance can be felt and are then secured with the three locking screws.



Filling the upper flask half with Dentin material.



Fill the composite into the upper flask half without overlaps or entrapping air. Only in this way can homogeneous, bubble-free pressing be ensured.

Closing the flask

Insert the three locking screws and tighten them with 1–2 turns per screw one after the other. This ensures even, slow lowering of the flask cover and homogeneous distribution of the composite in the flask.



Closing the flask

Light-curing

Once the three locking screws are tightened as far as possible, the flask is light-cured in the Lumamat 100 (Program P2).

After curing, open the flask and remove the first Dentin pressing. To ensure thorough curing, remove the bridge from the model and repeat curing in the Lumamat 100 (Program P2).

If the upper flask half was optimally filled with SR Nexco Dentin composite, thin, short press flash will be present.



Press flash after the first Dentin pressing

Verifying the accuracy of fit and cut-back

After removal of the press flash, verify the fit of the pressed dentin by means of the silicone matrix.

Perform the cut-back to provide space for the incisal layer using rotary instruments, tungsten carbide metal burs or separating discs. The cut-back can be checked against the silicone matrix.

Blast the reduced dentin with 80–100 µm aluminium oxide at approximately 2 bar (29 psi) pressure.



Checking the cut-back with a silicone key

Individualization and pressing the incisal area

Individualization

If desired, the restoration can be individualized using SR Nexco Stains and Effect materials.



Individualization with SR Nexco Stains

Incisal pressing

For pressing the incisal area, the veneering parts in the clear silicone in the upper flask half are filled with the corresponding SR Nexco Incisal material and the bridge is replaced in the base part. The two flask halves are then brought together and secured with the screws. The flask is then again cured in the Lumamat 100 (Program P2).

Subsequently, the flask is opened, the cured bridge is removed and again cured in the Lumamat 100 (Program P2) to ensure thorough curing.



Filling the upper flask half with Incisal material.

Finishing/polishing

If desired, the restoration can be individualized using SR Nexco Stains and Effect materials.

Polishing

Perform the pre-polishing and high-gloss polishing with a goat hair brush and cotton buffing wheels as well as Universal Polishing Paste. Use only low speed and light pressure for polishing.



Polishing the restoration with a goat hair brush



Completed, polished bridge restoration



The SR Nexco Flask Cover High provides the ideal height to invest large framework structures including the model. In this way, various prosthetic restorations may be fabricated even more efficiently. The framework is pressed over as usual. The cover has been designed to fit SR Nexco Flask and can be ordered separately.



SR Nexco Flask Cover High is supplied with three locking screws.

Pictures in this chapter (SR Nexco Flask) courtesy of:
Annette von Hajmasy, MDT

SR Nexco® Paste

General Information

Cementation

Possibilities for esthetic cementation are decisive for the harmonious shade effect of a lab composite restoration. Depending of the indication, SR Nexco restorations can be seated using either adhesive, self-adhesive or conventional cementation.

| Material | SR Nexco (framework-free) | SR Nexco (metal-supported) | | SR Nexco (zirconium oxide-supported) | |
|-----------------------------|---|--|---------------------------------|---|--------------------------------|
| | Indication | Inlays, onlays, veneers, anterior crowns | Crowns, bridges | | Crowns, bridges |
| Cementation method | adhesive | adhesive | self-adhesive/ conventional* | adhesive | self-adhesive/ conventional |
| Blasting | Cleaning with Al ₂ O ₃ at a maximum pressure of 1 bar | Cleaning with Al ₂ O ₃ according to the instructions of the alloy manufacturer | | Cleaning with Al ₂ O ₃ , 80–100 microns at max. 1 bar | |
| Conditioning/ silanizing | 60 s with Monobond® Plus | 60 s with Monobond® Plus | – | – | |
| Cementation system | Multilink® Automix, Variolink® Esthetic | Multilink® Automix | SpeedCEM® Plus, Vivaglass® CEM | Multilink® Automix | SpeedCEM® Plus, Vivaglass® CEM |

The range of available products may vary from country to country.

* No conditioning is required for conventional cementation.



Please observe the corresponding Instructions for Use.

Finding your way out of the cements maze



The Cementation Navigation System, a new multimedia application from Ivoclar Vivadent, offers dentists practical orientation and guidance in the selection of the best luting material for each case.

www.cementation-navigation.com

Zinc oxide temporary cements are used for the provisional cementation of framework-supported long-term temporaries with a maximum wear period of 12 months.

Polymerization parameters

| Device | Manufacturer | Opaquer* | Dentin** | Liner, Incisal, Effect**, Margin** | Gingiva** | Stains*** | SR Connect | Final polymerization |
|--------------------------|---------------------|-----------------------------------|------------------------------|------------------------------------|------------------------------|------------------------------|------------------------------|-----------------------------------|
| Quick Lumamat 100 | Ivoclar Vivadent AG | 20 s Quick P2 / 11 min | 20 s Quick | 20 s Quick | 20 s Quick | 20 s Quick | P2 / 11 min | P2 / 11 min |
| Spectramat | Ivoclar Vivadent AG | 5 min | 5 min | 2 min | 5 min | 2 min | 2 min | 5 min |
| Labolight LV-III | GC | 5 min | 2 min | 2 min | 5 min | 2 min | 3 min | 5 min |
| Solidilite V | Shofu | 3 min | 1 min | 1 min | 3 min | 1 min | 3 min | 5 min |
| Visio Beta Vario | 3M Espe | 7 min without vacuum | 4x 20 s Visio Alfa | 4x 20 s Visio Alfa | 4x 20 s Visio Alfa | 4x 20 s Visio Alfa | 4x 20 s Visio Alfa | 2x 7 min without vacuum |
| HiLite Power | Heraeus Kulzer | 180 s | 90 s | 90 s | 90 s | 90 s | 90 s | 180 s |

* Thinly apply the first opaquer layer and intermediately cure. Apply the second covering layer and cure according to the polymerization table.

** Observe the maximum layer thickness! Conduct intermediate curing, if necessary.

*** Apply Stains only in the thinnest of layers – very low curing depth of darker shades.



– Regular maintenance and functional checks of the curing appliances are required.

– Device for tack-curing: Quick (Ivoclar Vivadent AG), HiLite pre (Heraeus Kulzer), Visio Alfa (3M ESPE), Sublite V (Shofu), Steplight SL-I (GC).

Subsequent adjustments

Subsequent adjustments, e.g. during cut-back or after final polymerization in the lab

Adjustments with SR Nexco components

1. Roughen the areas to be adjusted with a coarse diamond or carefully blast with aluminium oxide Al_2O_3 (80–100 μm , disposable blasting medium) at 2 bar (29 psi) pressure. Sandblasting improves the mechanical bond. This measure roughens and thus substantially increases the surface.
2. After blasting, remove blasting medium residue with oil-free compressed air.
3. Do not apply Connector, Bonder or Modelling Liquids to the sandblasted surfaces.
4. Immediately after blasting, apply the SR Nexco materials and precure each segment for 20 seconds with the Quick.
5. Cover the entire veneer evenly with a thin layer of SR Gel.
6. Place the restoration on the object holder.
7. Conduct final polymerization (see Polymerization table)
8. After final polymerization, remove SR Gel under running water.
9. Finish and polish the restoration as described above.

Intraoral adjustments

Subsequent adjustments which may become necessary can be applied with SR Nexco material or a micro-filled direct restorative (e.g. Heliomolar®). If composite materials are used for adjustments, polishing might cause a step to develop due to the different hardness of the materials.

Repair/adjustments of SR Nexco veneers

Adjustments with SR Nexco material or Heliomolar

1. Clean the entire veneer for shade determination.
2. Adequate isolation is required, preferably with a rubber dam.
3. Roughen the areas to be adjusted with a coarse diamond (80–100 μm) with water irrigation and bevel the composite margins. Clean the restoration with water and carefully blow dry.
4. Then apply Heliobond, disperse to a thin layer and light-cure for 10 seconds (e.g. Bluephase®).
5. Subsequently, apply the selected SR Nexco or Heliomolar materials and cure with a curing light.
6. After curing, finish the excess material with suitable finishers.
7. Use water irrigation for polishing with Astropol® or OptraPol® NG. Make sure to observe the individual polishing steps in order to obtain a smooth surface with a high gloss.

Repairing/adjusting metal areas entirely surrounded by composite

1. Clean the entire veneer for shade determination.
2. Adequate isolation is required, preferably with a rubber dam.
3. Roughen the areas to be adjusted with a coarse diamond (80–100 μm) with water irrigation and bevel the composite margins. Clean the restoration with water and carefully blow dry. Alternatively, the metal surface may be roughened with an intraoral sandblasting device or by means of silicoating (observe manufacturer's instructions).
4. Use a brush to apply Monobond® Plus to the areas to be repaired and allow to react for 60 seconds. Subsequently, dry with oil-free air.
5. Apply Heliobond, disperse to a thin layer and light-cure for 10 seconds (e.g. Bluephase).
6. Subsequently, apply the selected SR Nexco or Heliomolar materials and cure with a curing light.
7. After curing, finish the excess material with suitable finishers.
8. Use water irrigation for polishing with Astropol or OptraPol NG. Make sure to observe the individual polishing steps in order to obtain a smooth surface with a high gloss.

Repairing exposed metal surfaces which are not entirely surrounded by composite

1. Clean the entire veneer for shade determination.
2. Use a rubber dam.
3. Bevel the margins of the areas to be repaired with a diamond grinding instrument with water irrigation. Roughen the metal surface with an intraoral sandblasting device or by means of silicoating (observe manufacturer's instructions). Clean the restoration with water and carefully blow dry.
4. Use a brush to apply Monobond Plus to the areas to be repaired and allow to react for 60 seconds. Subsequently, dry with oil-free air.
5. Apply Heliobond, disperse to a thin layer and light-cure for 10 seconds (e.g. Bluephase).

6. Subsequently, apply the selected SR Nexco or Heliomolar materials and cure with a curing light.
7. After curing, finish the excess material with suitable finishers.
8. Use water irrigation for polishing with Astropol or OptraPol NG. Make sure to observe the individual polishing steps in order to obtain a smooth surface with a high gloss.

Repairing exposed ZrO₂ surfaces which are not entirely surrounded by composite

1. Clean the entire veneer for shade determination.
2. Use a rubber dam.
3. Bevel the margins of the areas to be repaired with a diamond grinding instrument <100 µm with water irrigation. Blast the zirconium oxide surface intraorally with Al₂O₃ (50–100 µm) with max. 1 bar. Clean the restoration with water and carefully blow dry. Cleaning can also be performed with Ivoclean. Observe the corresponding Instructions for Use.
4. Use a brush to apply Monobond Plus to the areas to be repaired and allow to react for 60 seconds. Subsequently, dry with oil-free air.
5. Apply Heliobond, disperse to a thin layer and light-cure for 10 seconds (e.g. Bluephase).
6. Subsequently, apply the selected SR Nexco or Heliomolar materials and cure with a curing light.
7. After curing, finish the excess material with suitable finishers.
8. Use water irrigation for polishing with Astropol or OptraPol NG. Make sure to observe the individual polishing steps in order to obtain a smooth surface with a high gloss.

Modifying the shade/adjusting artificial SR Nexco Gingiva parts

Adjustments with SR Nexco material

























































1. Clean the artificial gingiva portions for shade determination.
2. Roughen the areas to be adjusted with a coarse diamond (80–100 µm), clean with water and carefully blow dry.
3. Apply Heliobond, disperse to a thin layer and light-cure for 10 seconds (e.g. Bluephase).
4. Subsequently, apply the selected SR Nexco or Heliomolar materials and cure with a curing light.
5. After curing, finish the excess material with suitable finishers.
6. Use water irrigation for polishing with Astropol or OptraPol NG. Make sure to observe the individual polishing steps in order to obtain a smooth surface with a high gloss.



- Read the respective Instructions for Use of Heliomolar®, Monobond® Plus, and Heliobond.
- Use only suitable pastes (e.g. Proxyt® fine) which do not roughen the surface to clean SR Nexco veneers during oral hygiene procedures.
- Observe the maximum layer thicknesses for SR Nexco (max. 2 mm; see page 7 – Curing depths).
- If curing lights with an output of 650 mW/cm² are used, the curing time is 20 seconds for SR Nexco Paste Incisal and 40 seconds for SR Nexco Paste Dentin.
- Given the low curing depth, the Opaquer should be applied in very thin layers (e.g. by means of a brush). The application of a second layer may be necessary after light curing.

SR Nexco[®] Paste

Materials combination table

| Shade group | BL | | A | | | | | | | |
|----------------------------|---|---|---|---|---|---|---|---|---|---|
| Tooth shade | BL3 | BL4 | A1 | A2 | A3 | A3.5 | A4 | B1 | B2 | |
| SR Nexco Liner |  | |  |  |  |  |  |  |  | |
| | BL | | L1 | L2 | L2 | L3 | L4 | L1 | L2 | |
| | | | | | | | |  | | |
| SR Nexco Retention Flow | | | | | | | | | | |
| SR Nexco Opaquer |  |  |  |  |  |  |  |  |  | |
| | BL3 | BL4 | A1 | A2 | A3 | A3.5 | A4 | B1 | B2 | |
| SR Nexco Paste Margin | | |  |  |  |  |  |  |  | |
| | | | M1 | M2 | M2 | M3 | M4 | M1 | M2 | |
| SR Nexco Paste Pontic Fill | | | | | | | | | | |
| SR Nexco Paste Dentin |  |  |  |  |  |  |  |  |  | |
| | BL3 | BL4 | A1 | A2 | A3 | A3.5 | A4 | B1 | B2 | |
| SR Nexco Paste Incisal |  | | |  |  |  |  |  |  |  |
| | BL | | | I1 | I2 | I3 | I4 | I5 | I1 | I2 |
| SR Nexco Paste Effect | Occlusal Dentin |  |  | Mamelon |  |  | Opal Effect |  |  | |
| | | orange | brown | | light | yellow-orange | | OE 1 | OE 2 | |
| SR Nexco Stains | | |  | | |  |  | | | |
| | | | clear | | | white | chilli | | | |
| SR Nexco Paste Gingiva | Gingiva Opaquer |  | Basic Gingiva |  | Gingiva |  |  |  |  | |
| | | pink | Basic Gingiva | BG34 | Gingiva | G1 | G2 | G3 | G4 | |

| B | | C | | | | D | | |
|----------------|-------------------|-------------|----------|------|------------|-------------|-------|----|
| B3 | B4 | C1 | C2 | C3 | C4 | D2 | D3 | D4 |
| | | | | | | | | |
| L3 | L3 | L1 | L5 | L5 | L4 | L5 | L5 | L5 |
| | | | incisal | | | | | |
| | | | | | | | | |
| Retention Flow | | | | | | | | |
| | | | | | | | | |
| B3 | B4 | C1 | C2 | C3 | C4 | D2 | D3 | D4 |
| | | | | | | | | |
| M3 | M3 | M1 | M5 | M5 | M4 | M5 | M5 | M5 |
| | | | | | | | | |
| Pontic Fill | | | | | | | | |
| | | | | | | | | |
| B3 | B4 | C1 | C2 | C3 | C4 | D2 | D3 | D4 |
| | | | | | | | | |
| I3 | I4 | I2 | I3 | I4 | I5 | I2 | I3 | I4 |
| | | Transparent | | | | | | |
| OE 3 | OE 4 | | | blue | brown-grey | orange-grey | clear | |
| | | | | | | | | |
| | orange | maroon | mahogany | blue | | | | |
| | Intensive Gingiva | | | | | | | |
| G5 | | | IG1 | IG2 | IG3 | IG4 | IG5 | |

Frequently Asked Questions

Are the SR Nexco Paste materials radiopaque?

No, the SR Nexco Paste materials feature only a low radiopacity.

Is it possible to use SR Modelling Liquid as bonding agent?

No. SR Modelling Liquid must only be used for the wetting of instruments. The material has an unfavourable effect on the bond and might cause the restoration to fail if used excessively.

Is it possible to use SR Modelling Liquid as glaze?

No. It is intended for use during modelling and must not be used as glaze.

Is it possible to use SR Modelling Liquid to dilute the consistency?

No. The strength of the material would then no longer be warranted and the material would be internally inhomogeneous. As a result, the restoration would fail.

On which framework materials can SR Link be used?

- On alloys that contain up to 90% gold, palladium and platinum
- On alloys that contain up to 50% copper and/or silver
- On base metal alloys
- On titanium and titanium alloys
- On zirconium oxide (ZrO₂), such as 3Y-TZP-A

Can SR Link be used on high-gold and copper-free bio alloys and electroformed (galvano) frameworks?

Given the high precious metal content (Au, Pt, Pd, Ag) of bio alloys and the fine gold content (99.9%) of galvano frameworks SR Link cannot be used. Generally, the bond achieved on alloys containing copper is superior to the one on copper-free alloys.

What needs to be given particular attention during the sand-blasting procedure (conditioning)?

A grain size of 80–100 microns for the Al₂O₃ has to be used. The blasting pressure depends on the alloy used.

For zirconium oxide restorations, the blasting pressure must not exceed the maximum of 1 bar.

Is it possible to mix SR Nexco Pastes (high and low viscosity) with each other?

High- and low-viscosity pastes must not be mixed with each other as this would cause bubble formation and due to the different strength values. SR Nexco must not be mixed or processed with other veneering materials.

Up to what thickness is it possible to layer SR Nexco Paste?

A layer thickness of 2 mm in the incisal and occlusal area must not be exceeded.

Is it possible to apply SR Nexco Stains to the surface?

SR Nexco Stains must always be covered with layering materials such as Incisal or Transpa materials, the reason being that they are not wear-resistant and they would promote the accumulation of plaque.

Is it necessary to use Connector and Bonding Liquids for subsequent adjustments of SR Nexco veneers?

Roughening and sandblasting is sufficient to apply subsequent supplements to completed SR Nexco restorations.

Which devices may be used to polymerize SR Nexco?

SR Nexco Paste can be polymerized in a Lumamat 100 or Targis Power Upgrade and in all conventional curing devices which have been tested by Ivoclar Vivadent and which are listed in the polymerization table.

What happens if the indicated curing depths are not observed?

If the indicated curing depths are not observed, the material cannot thoroughly cure, which may result in chipping.

What distance to the light emission window of the Quick initial curing light must be observed to pre-cure the segments?

The smaller the distance between the light and the objects, the more thorough the polymerization of the material will be.

Must SR Gel always be used?

For the polymerization of SR Nexco Paste, SR Gel must always be used. If this is not done, the inhibited layer will be too thick, which may lead to clinical failure.

Is it possible to use SR Connect also for Telio?

Yes. SR Connect can be used for all cold- or heat-curing PMMA resins to which a light-curing composite is applied.

Do I always have to apply SR Nexco Retention Flow?

No, the application of SR Nexco Retention Flow is an option. The curing depths of the shaded SR Nexco Opaquer are sufficient to achieve a secure bond between the metal framework and the veneer. With the more flowable SR Nexco Retention Flow, it is easier to reach undercuts in the area of the retention beads and thus achieve additional security for the bond.

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