

SR Adoro®

CLINICAL GUIDE



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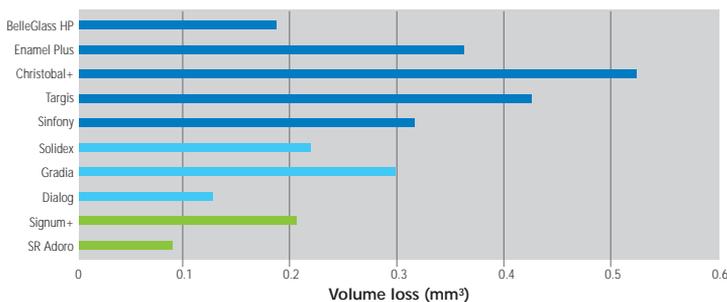
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Ivoclar Vivadent has further complemented its product range by introducing SR Adoro. A coordinated range of products, encompassing alloys, metal-free framework materials, ceramics, denture teeth, light furnace, cements and composite veneering materials, enables the dental technician to cover the entire range of prosthetic reconstructions, from fixed and removable to combined denture prosthetics.

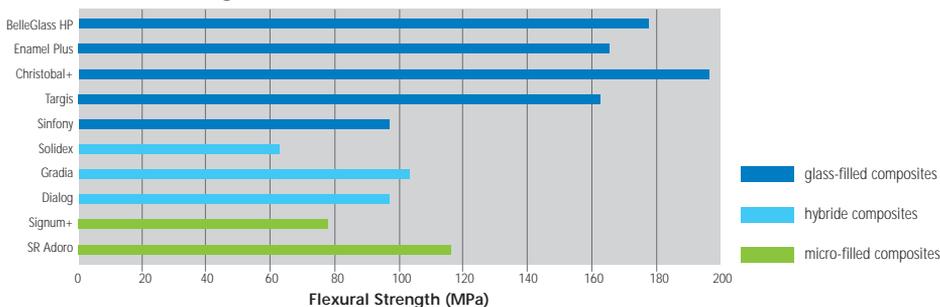
The new SR Adoro has been designed from scratch. The result is a composite veneering system that offers several advantages over hybrid composite materials as regards wear, handling, plaque resistance and surface finish. The advantageous properties of SR Adoro can be attributed to the high proportion of inorganic fillers in the nanoscale range. Furthermore, the matrix is based on a urethane dimethacrylate (UDMA), which has also been newly developed and which is characterized by its toughness, which is higher than that of its predecessors or the frequently used Bis-GMA. The material demonstrates colour stability as well as outstanding enamel-like lustre and natural opalescence. The aesthetic appearance that can be achieved is impressive. A coordinated range of products, encompassing alloys, metal-free framework materials, ceramics, denture teeth and cements enables to cover the entire range of prosthetic reconstructions, from fixed and removable to combined denture prosthetics. The field of veneering composites has been expanded due to metal-free tooth-coloured translucent frameworks, which help provide a life-like aesthetic appearance. The range of indications of the SR Adoro veneering composite includes removable denture prosthetics (e.g. telescope crowns, model cast dentures) and fixed dental reconstructions (veneering material for metal or fibre-reinforced frameworks).



Wear (Willytec chewing simulator) – Volume loss



Flexural Strength



"Veneering Composites for Dental Indirect Restorations": A COMPARATIVE STUDY OF PHYSICAL AND MECHANICAL PROPERTIES: Stina Wigren und Philip Chaabane, Luleå University of Technology, Schweden

The prosthetic restoration was placed in the course of the SR Adoro study at the University of Bologna (Italy) by Dr. Monaco and P. Miceli.

INDICATION

FIXED PROSTHETICS

Metal Supported

Conventional cementation

- Veneering of metal supported restorations using SR Adoro Thermo Guard
- Veneering of combined dentures (e.g. telescope veneers) using SR Adoro Thermo Guard
- Veneering of partially removable implant superstructures using SR Adoro Thermo Guard
- Veneering of gingival parts in partially removable implant superstructures using SR Adoro Thermo Guard
- Fabrication of long-term temporaries using SR Adoro Thermo Guard
- Masking of model cast frameworks with SR Adoro Opaquer pink



Metal free

Adhesive Cementation

- Inlays / Onlays / Veneers
- Anterior crowns without Vectris framework
- Anterior and posterior crowns with Vectris framework
- 3-unit anterior and posterior bridges with Vectris framework
- 3-unit inlay-retained bridges with Vectris framework



Conventional Cementation

- Long-term temporaries with Vectris framework for a maximum duration of wear of 12 months



REMOVABLE PROSTHETICS

- Surface characterization of Ivoclar Vivadent denture teeth with SR Adoro Stains. Surfaces must subsequently be covered with SR Adoro layering material
- Shade and shape modifications of Ivoclar Vivadent denture teeth with SR Adoro layering material in conjunction with SR Composiv

Contraindication

- Veneering of metal supported restorations without using SR Adoro Thermo Guard
- 4- and multiple-unit anterior and posterior bridges in conjunction with Vectris
- Posterior crowns without framework support (e.g. alloys, Vectris)
- Cantilever or extension bridges with Vectris
- More than 4 SR Adoro veneers with Vectris framework per quadrant
- Rehabilitation of quadrants without sufficient support by the remaining tooth structure
- Veneering of long span, metal supported bridges (full arch bridges) without sufficient support by the remaining tooth structure
- Veneering of other metal-free frameworks fabricated of materials other than Vectris
- Conventional cementation of fixed metal free restorations
- Long-term metal-free temporaries intended for a wear period longer than 12 months
- Patients with occlusal dysfunctions or parafunctions, such as bruxism, etc
- Patients who practice insufficient oral hygiene
- All uses not explicitly listed as indications by the manufacturer

General notes

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.

WORKING PROCEDURE

Starting situation

Treatment of a female patient with a missing lower first molar: The missing tooth will be replaced with an inlay-retained bridge made of FRC framework material (Vectris) and a microfilled veneering composite (SR Adoro).

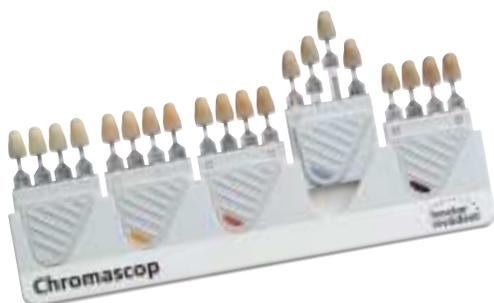


Mesial abutment tooth with composite restoration
Distal abutment tooth with amalgam filling and carious defect

Shade selection

After tooth cleaning, the shade of the cleaned, unprepared tooth and/or the adjacent dentition is determined with the help of an Ivoclar Vivadent Chromascop or an A-D shade guide. Do not overdry the tooth.

Pay attention to patient-specific characteristics when selecting the shade. If a crown preparation is planned, the incisal and cervical shades should also be determined. In order to achieve an optimum shade match, the shades should be determined in daylight. Furthermore, patients should not wear brightly coloured clothes or lipstick during shade selection.



Preparation

The following preparation guidelines should be observed to ensure quality restorations. These guidelines provide a basic overview of the preparation requirements for indirect SR Adoro restorations.

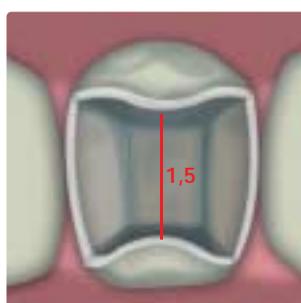
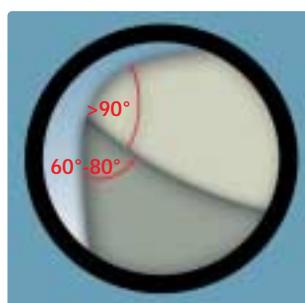
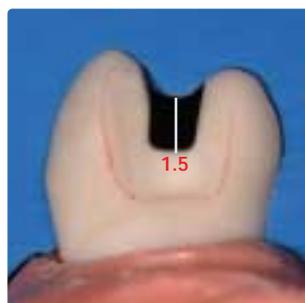
Basic rules:

- Preparation of crowns: circular chamfer/shoulder with rounded inner edges. The width of the chamfer/shoulder should be at least 0.8 mm
- Inlay/onlay preparation: Do not prepare slice-cut or feather edge margins
- Block out undercuts using block-out resin
- Avoid sharp edges and angles to prevent stress and to facilitate placement
- Defect-oriented preparation is possible in conjunction with an adhesive cementation technique
- If the restoration is seated in the adhesive cementation technique, the preparation margins should be supragingival or level with the gingival margins to ensure optimum application of the adhesive
- Strictly observe the necessary minimum wall thickness in order to ensure suitable stability of the restoration
- Complete the preparation with even reduction and maintain the anatomical contours

Inlays/Onlays/Veneer

Inlays

Provide a preparation depth of at least 1.5 mm in the fissure area (central fissure). The isthmus width should be at least 1.5 mm. The walls of the boxes should be slightly flared. Round out internal line angles to enable an accurate fit of the inlay. Avoid occlusion or articulation points at the preparation margins. Avoid proximal contact areas. Do not prepare slice-cut or feather edge margins.

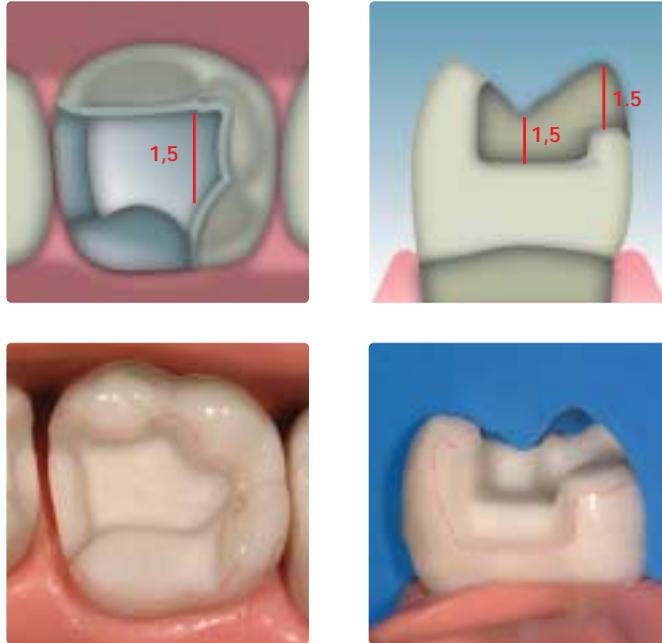


WORKING PROCEDURE

Preparation

Onlays

Allow for a preparation depth of at least 1.5 mm in the area of the fissures, an isthmus width of at least 1.5 mm and provide 1.5 mm space in the area of the cusps. The shoulder may be prepared with an incline (10-30°) to enhance the aesthetic appearance of the transitional area between the composite and tooth. An onlay preparation is indicated if the preparation margins are no more than 0.5 mm away from the cusp tip or if the enamel is severely undermined.



Veneer

If possible, the preparation should be entirely located in the enamel. Two preparation designs are possible. The first involves a wraparound technique onto the lingual surface and the other stopping at the top of the incisal edge. The incisal margins should not be located at occlusion or articulation points.

The minimum preparation thickness is approx. 0.6 – 1 mm, depending on the preparation technique chosen. Eliminating proximal contacts is not necessary. Discoloured teeth may require more extensive reduction, depending on the degree of translucency desired. The more translucent the incisal edge of the veneer should appear, the more reduction is required.

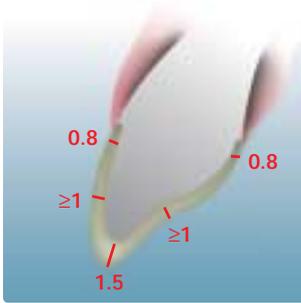


Preparation

Full crowns

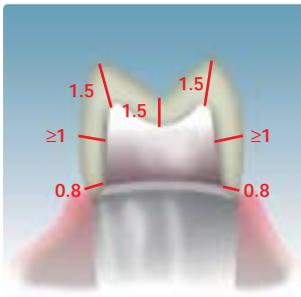
Anterior crowns

Evenly reduce the anatomical shape and observe the stipulated minimum thickness. Prepare a circular chamfer/shoulder with rounded inner edges. The width of the chamfer/shoulder should be at least 0.8 mm. For anterior crowns, the labial and/or palatal/lingual surfaces should be reduced by at least 1.0 mm. Reduce the incisal crown third by at least 1.5 mm. Prepare smooth, rounded transitions so that no internal line angles or edges are present.



Posterior crowns

Evenly reduce the anatomical shape and observe the stipulated minimum thickness. Prepare a circular chamfer/shoulder with rounded inner edges. For posterior crowns, the labial and/or palatal/lingual surfaces should be reduced by at least 1.0 mm. Reduce the occlusal crown third by about at least 1.5 mm. Create rounded transitional areas and edges.



WORKING PROCEDURE

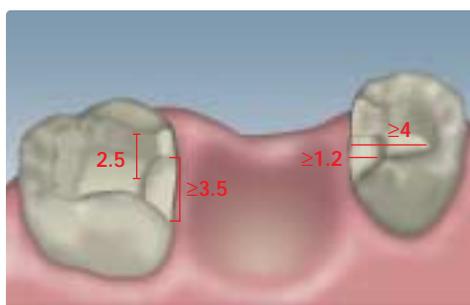
Preparation

Inlay-retained bridge with Vectris framework

The preparation of inlay-retained bridges is carried out taking the requirements for composite inlays into account.

- Allow for a preparation depth of at least 2.5 mm in the area of the fissures, and an isthmus width of at least 2 mm. This is necessary to allow enough support for the Vectris framework in the cavity
- The mesio-distal length of the prepared cavity floor should be at least 4 mm
- Prepare a proximal shoulder of 1.2 mm in width; a defect- and tooth-oriented preparation design may be possible
- The bucco-lingual cavity width should be at least 3.5 mm in the area of the proximal box. (The walls of the box should be slightly flared.)

Round out internal edges to allow for an optimum fit. Do not locate preparation margins at occlusion or articulation points. Eliminate proximal contacts. Do not prepare slice-cut or feather edge margins.



Preparation



Isolate the entire quadrant with a rubber dam and remove the amalgam filling by means of a tungsten carbide bur and diamonds



Re-prepare the cavity and excavate the caries



Preparation prior to impression taking

Preparation after removal of the rubber dam and soft tissue management (a retraction cord has been packed into the sulcus at the distal abutment tooth)

WORKING PROCEDURE

Impression taking

The impression can be taken with an addition-reaction silicone (e.g. Virtual) or by utilizing another suitable impression material or preferred impression-taking technique. For further information on the Virtual impression-taking material please refer to the Virtual technique guide.



Temporary restorations

Individually fabricated crown or bridge temporaries of PMMA or Bis-GMA composite (e.g. Systemp c&b) are employed for temporarization. Quality temporary crowns or bridges should be fabricated, enabling proper periodontal hygiene. Furthermore, the surfaces of the temporaries should be polished to a smooth finish. A eugenol-free temporary cement is used to place the temporary, if the subsequent final restoration is seated in the adhesive technique.

In specific cases, Vectris Pontic may be applied intraorally to provide mechanical support for the temporary restoration and to stabilize the initial clinical situation (inherent movement of abutments).



Vectris – employed as temporary framework material – is tried in



The Vectris fibres are covered with light-curing composite

Placement

Cleaning and try-in

Remove the temporary restoration and clean the abutment teeth with a fluoride-free cleaning paste. After completing the try-in and occlusal check, isolate the working field by means of a rubber dam. Conduct another try-in to ensure that the final restoration can be seated smoothly and effortlessly.



Clean the abutment teeth



After placing a rubber dam, try in the inlay bridge one more time



Lateral view of the bridge; proper fit

WORKING PROCEDURE

Placement

Cementation

Adhesive Cementation

Adhesive cementation of metal-free restorations results in a tight bond between the restoration and prepared tooth. Such a bond enhances the fracture resistance of the restoration. The translucent shade of the adhesive and the virtually invisible margins promote the aesthetic appearance of the restoration.

The following materials are suitable for the adhesive cementation method:

- Variolink II (CEM Kit – Professional Set or CEM Kit – Esthetic Cementation System)
- Multilink



Conventional Cementation

Zinc phosphate, hybrid ionomer and glass ionomer cements can be used for the conventional cementation of metal-supported restorations, e.g. PhosphaCEM®, Vivaglass® CEM. The inside of the metal framework needs to be

sandblasted with type 100 Al₂O₃ at 1 bar pressure in the laboratory.



Temporary cementation of long-term temporaries

Zinc oxide containing temporary cements are suitable for metal-free long-term temporaries that are intended to be worn for a maximum length of 12 month. Depending on the wear period a regular re-cementation with temporary cement is necessary.

Placement

	Adhesive Composites		Conventional Cements	
	Variolink® II Dual-curing, highly aesthetic luting system	Multilink® Self-curing, self-etching luting system	Vivaglass® CEM Translucent glass-ionomer cement	PhosphaCEM® Phosphate Cement (capsule/handmix)
SR Adoro metal-supported (retentive preparation)	-	✓✓	✓✓	✓
SR Adoro metal-supported (non-retentive preparation)	-	✓✓	-	-
SR Adoro metal-free	✓✓	✓	-	-

- ✓✓ particularly recommended combination of materials
- ✓ recommended combination of materials (2nd choice)
- combination of materials not recommended/not possible

Reliable isolation of the working field and reliable removal of excess material are prerequisites for the adhesive technique. The field should be isolated with a rubber dam, if possible. If the application of a rubber dam is not possible, relative isolation must be provided. The retraction cord should remain in the sulcus during adhesive cementation process.



Adhesive cementation with rubber dam



Relative isolation with retraction cords

Vectris-supported restorations have to be placed using the adhesive cementation technique. The contact surfaces of the restoration are roughened with type 100 Al₂O₃ in the laboratory to promote chemical bonding with the luting composite. Following the try-in in the dental practice and subsequent cleaning, the contact surfaces are again roughened using a 25 μm finishing diamond. This step is carried out immediately before adhesive cementation. Finally the surfaces are silanized (e.g. with Monobond S) to enable a chemical bond.

WORKING PROCEDURE

Placement

Conditioning and application of adhesive

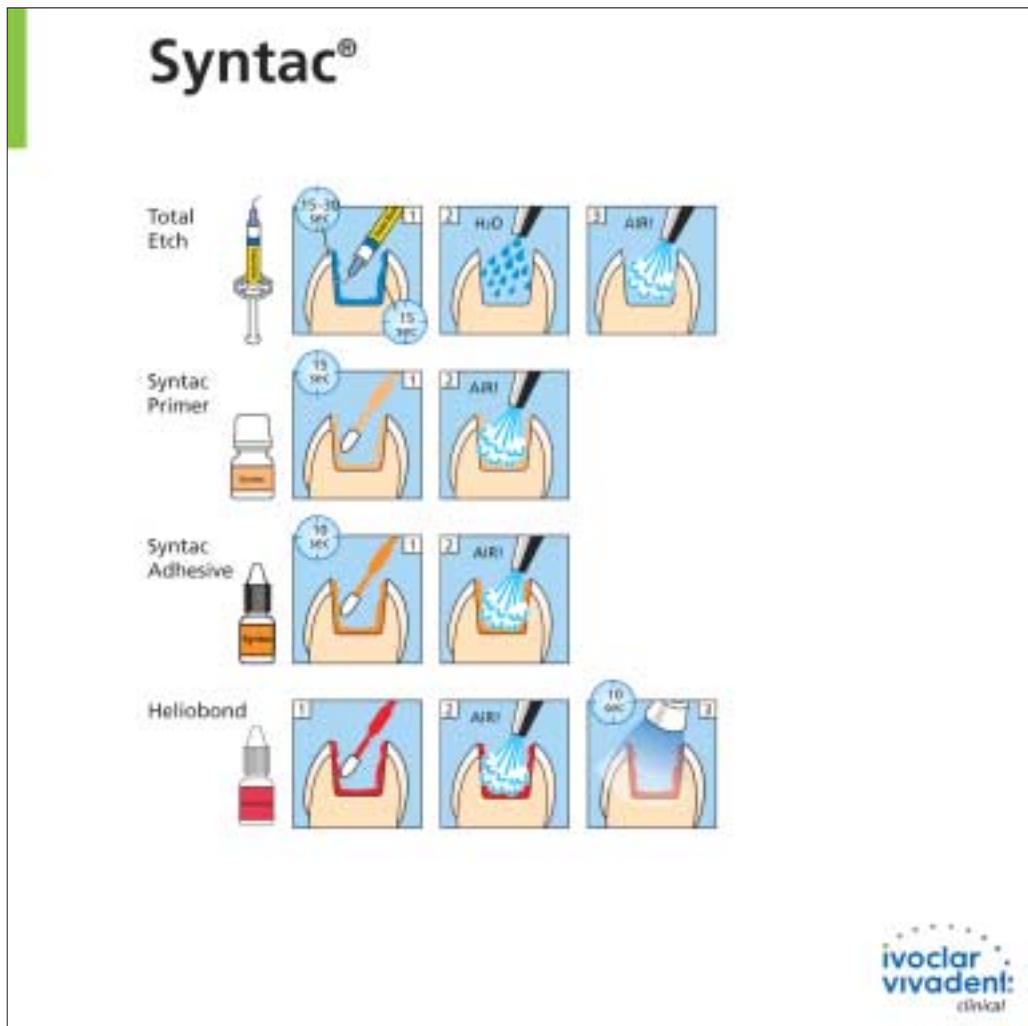
Conditioning of enamel and dentin and application of adhesive

System-specific application procedures may be required, depending on the dentin adhesive used. Excite DSC is used for dentin sealing in the clinical case presented in these guidelines.

After preparation and cleaning of the restoration, apply phosphoric acid gel (e.g. Total Tech) to the prepared enamel, then flow the etchant onto the prepared dentin and let react. Next, remove all etchant gel with a vigorous water spray and remove excess water. Do not overdry dentin; moist preparation surfaces should be apparent.

Saturate enamel and dentin with a generous amount of Excite DSC and gently agitate. Slightly disperse excess material and alcohol solvent.

If a pre-cure technique is preferred, Excite DSC may be cured with halogen lights.

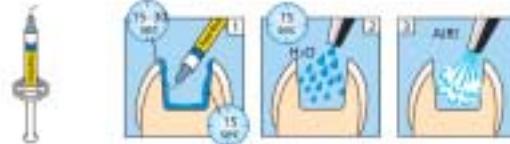


Excite® DSC

Dual-curing Single Component Dental Adhesive

Indirect Restoration

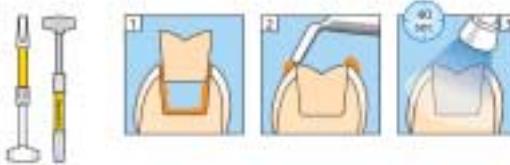
Total Etch



Excite DSC



Variolink II



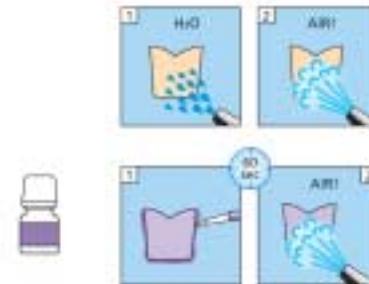
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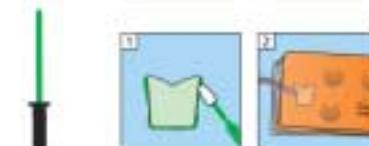
Indirect Restoration

Conditioning Composit

Monobond-S



Excite DSC

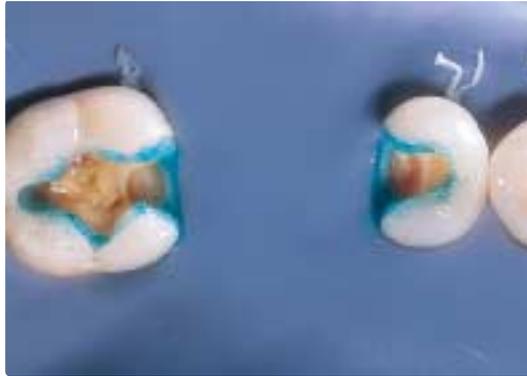


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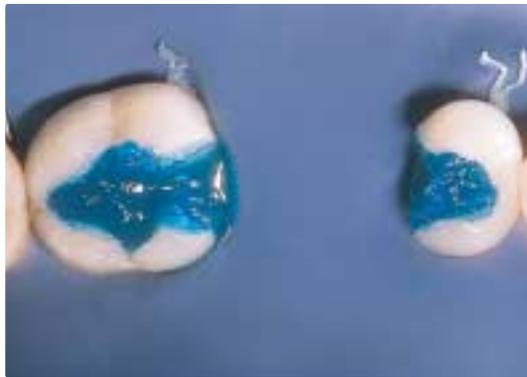


WORKING PROCEDURE

Placement



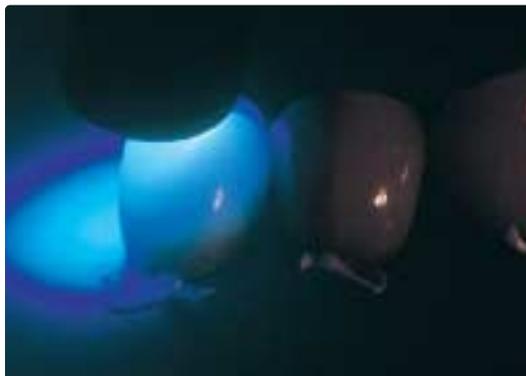
Condition the prepared enamel ...



... and the dentin area



Apply Excite DSC, disperse excess material



If preferred, light-cure the adhesive

Placement

Placing the restoration

A dual-curing luting composite, e.g. Variolink® II low viscosity, is employed to seat the inlay-retained bridge.

Following the try-in in the dental practice and subsequent cleaning, the contact surfaces are again roughened using a 25 µm finishing diamond. This step is carried out immediately before adhesive cementation. Finally the surfaces are silanized (e.g. with Monobond S) to enable a chemical bond.

– Inlays/Onlays

Apply mixed Variolink II to the preparation and, if necessary on the fitting surface of the restoration.

– Crowns and Bridges

Apply mixed Variolink II on the fitting surface of the restoration and, if necessary on the preparation.

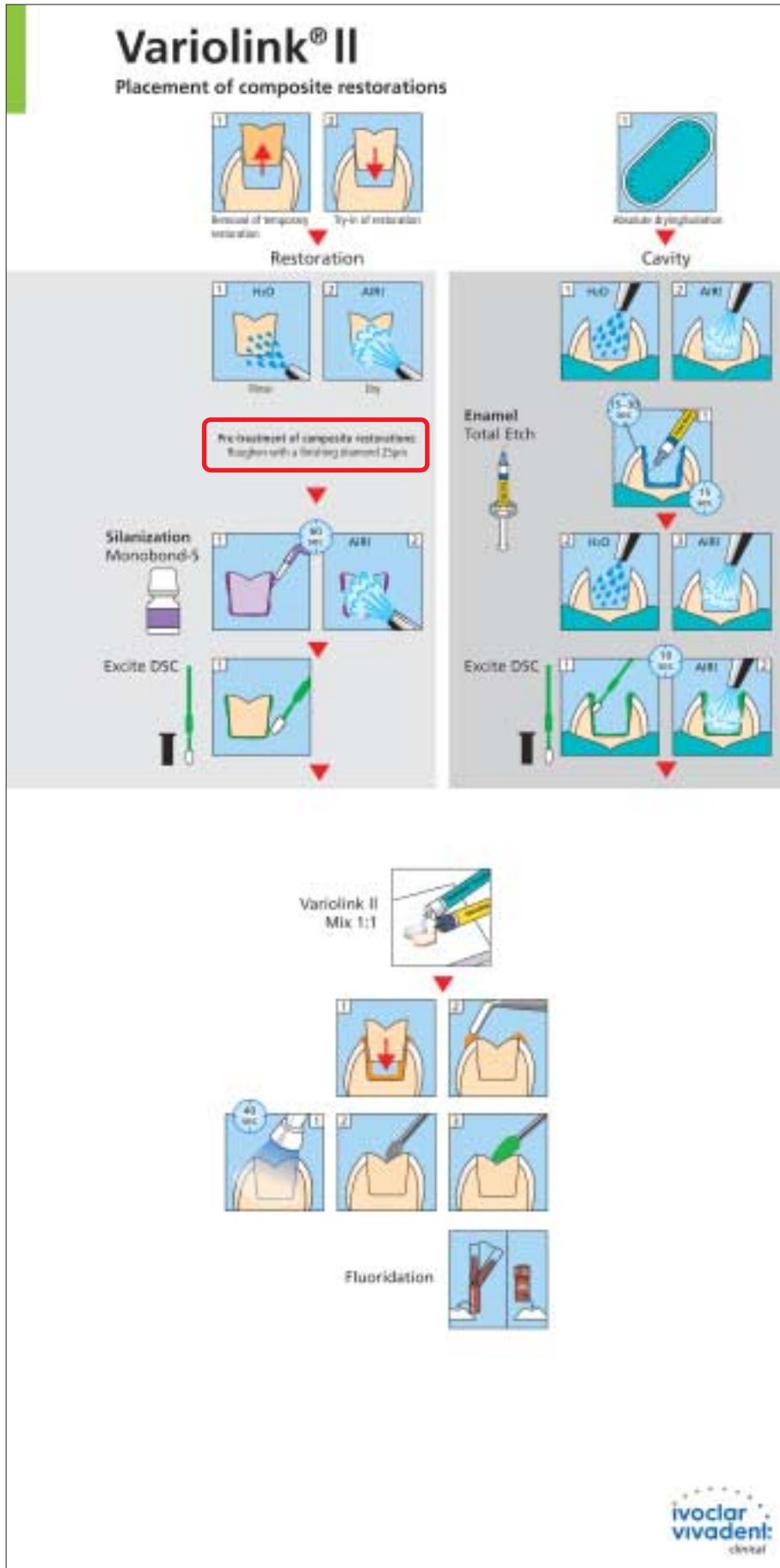
– Veneers

Apply mixed Variolink II directly on the preparation and, if necessary on the internal aspects of the restoration.



WORKING PROCEDURE

Placement



Placement

Excess material is removed while the material is still soft or partially set, depending on the luting composite used. A disposable brush and/or foam coated dental floss is utilized to remove excess.



Apply Variolink II into the cavity



Place inlay bridge in situ



Remove excess luting composite with the help of foam coated dental floss ...



... or a disposable brush.

WORKING PROCEDURE

Placement

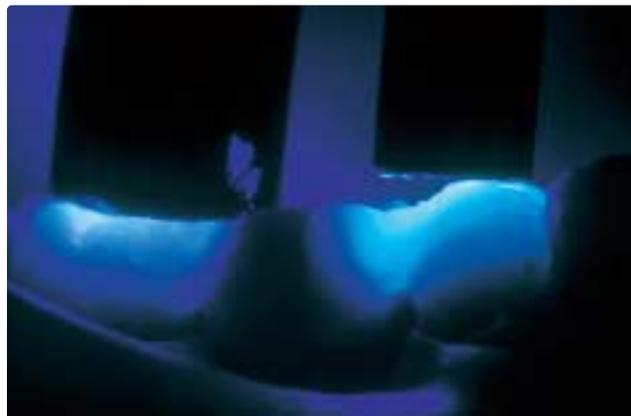
Polymerization

Polymerize the luting composite (Variolink II) with a high-performance polymerization lamp (900 mW/cm², e.g. Astralis 10) step by step for 40 seconds per segment.

To avoid oxygen inhibition either leave small amounts of excess of Variolink II or cover restoration margins with glycerine gel before polymerization.



Cover restoration margins with glycerine gel



Polymerize all sides for 40 sec each

Finishing and polishing

After the luting material has been polymerized and the retraction cord removed, it is essential to check the occlusion and examine the restoration for complete removal of excess luting composite.

Remove polymerized excess with finishing diamonds (grit size below 25 μm) and flexible discs. Polish restoration margins with silicone polishers (e.g. Astropol®).



Polish with silicone polishers and Astrobrush



SR Adoro / Vectris inlay bridge after cementation

Fluoride the restoration after completion (e.g. with Fluor Protector).

RESULT



Starting situation



Completed restoration



Restoration after placement

SUBSEQUENT ADJUSTMENTS

If adjustments after cementation are required, microfilled restoratives of the Heliomolar® group can be used.

Adjustments with Heliomolar

1. Roughen the area to be modified with finishing diamonds (80–100 µm) and carefully clean without water.
2. Immediately after cleaning apply Heliobond and disperse to a thin layer.
Silanizing is not possible, as SR Adoro layering materials (e.g. Dentin, Incisal) are micro-filled and do not contain glass-fillers.
3. Next, apply Heliomolar and light cure for 40 seconds using a polymerization light (e.g. Astralis).
4. Build up the missing areas by applying Heliomolar in slight excess and light cure for 40 seconds using a polymerization light (e.g. Astralis).
5. After polymerization, finish excess with suitable finishing instruments.
6. Polish with Astropol. Observe the individual polishing steps to attain a smooth surface with a high gloss surface finish.



- Please observe the corresponding Instructions for Use of Heliomolar.
- Cleaning pastes used for professional tooth cleaning must not be used on SR Adoro restorations, as these pastes roughen the surface and cause loss of gloss.