Telio CS
Telio CAD

Instructions for Use

CE 0123

ivoclar vivadent technical

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Telio –
The 3-in-1 solution for temporary restorations

Telio is a comprehensive, fully integrated product system for temporary restorations designed for dentists, CAD/CAM users and dental technicians.

- **Telio** CS
  For dentists: Self-curing temporary C&B materials, including a desensitizer and cement.
- **Telio** CAD
  For CAD/CAM users: Acrylate polymer blocks for the CAD/CAM manufacture of temporary crowns and bridges.
- **Telio** Lab
  For dental technicians: Resin for temporary crowns and bridges, including a light-curing composite for additional individualizations.

The materials are compatible with each other and their shades are optimally coordinated.

All materials are out of one hand:
Telio is a system of compatible materials for temporary restorations.

Material

The Telio products are compatible with each other and their shades are optimally coordinated.

Telio CS C&B

is a self-curing composite material for high-quality temporary crown and bridge restorations and is supplied in five shades (BL3, A1, A2, A3, A3.5). Telio CS C&B provides a high accuracy of fit and allows stress-free restorations to be fabricated even in multi-unit constructions, as, in addition to the high stability, the material features low polymerization shrinkage and absorbs little water.

Telio CS Desensitizer

is a solution to prevent and/or reduce dentinal hypersensitivity and postoperative sensitivity. In general, Telio CS Desensitizer is suitable to condition and desensitize exposed or ground dentin surfaces (dressing for prepared cavities and teeth). Dentin wounds may be treated before the incorporation of the Telio temporary restorations in order to prevent and minimize hypersensitivity. The desensitizer can be applied with temporary restorations, cementation of prosthetic work, during direct restorative therapy as well as for sensitive cervicals.

Telio CS Link

is a dual-curing (light- and self-curing) temporary composite cement used to seat temporary restorations (wear period of less than 6 weeks). Due to the two translucent shades (A3 & Transparent), an esthetic integration of the restoration is achieved. Telio CS Link is free of eugenol and therefore also suitable if all-ceramic restorations or lab-fabricated composite restorations are adhesively placed later.

Telio CAD

Telio CAD are cross-linked PMMA blocks for the fabrication of long-term temporaries by means of the CAD/CAM technique. As a result of the industrial polymerization process, the blocks feature a high material homogeneity. There is neither polymerization shrinkage nor an inhibited layer. Given the CAD/CAM fabrication, the temporary can be easily reproduced at any time. Stains and/or layering materials can be used to apply final esthetic optimizations.

Flexural strength [MPa]	130 ± 10
Modulus of elasticity [MPa]	3200 ± 300
Water absorption [µg/cm²]	< 28
Water solubility [µg/cm²]	< 0.6
Ball indentation hardness [MPa]	180 ± 5

In accordance with ISO 10477
Source: Ivoclar Vivadent R&D, Schaan/Liechtenstein, 2009

Uses

Telio CS C&B

Indications
- Temporary crowns, bridges, inlays, onlays, post temporaries and veneers
- Relining of lab-fabricated resin temporaries (e.g. Telio CAD, Telio Lab)
- Relining of prefabricated polycarbonate crowns

Contraindication
- Do not use if a patient is known to be allergic or intolerant to any of the ingredients of Telio CS C&B.

Telio CS Desensitizer

Indications
Prevention and reduction of dentinal hypersensitivity and postoperative sensitivity in conjunction with:
- temporary restorations
- cementation of indirect restorations
- direct restorative therapy
- sensitive tooth necks

Contraindication
- Do not use if the pain is caused by pulpitis or inflammation.
- Do not use if a patient is known to be allergic or intolerant to any of the ingredients of Telio CS Desensitizer.

Telio CS Link

Indications
- Temporary incorporation of temporary restorations (max. 6 weeks)

Contraindication
- The material should not be used if a patient is known to be allergic to any of the ingredients of Telio CS Link.

Telio CAD

Indications
- Anterior and posterior crowns with a maximum wear period of 12 months
- Anterior and posterior bridges with up to 2 pontics with a maximum wear period of 12 months
- Implant temporaries with a maximum wear period of 12 months
- Therapeutic restorations to correct TMJ problems and occlusal adjustments

Contraindication
- Use for permanent restorations
- Bridge reconstructions with more than two pontics
- Patients with parafunctions, e.g. bruxism

Important processing restrictions
If the following restrictions are not observed, successful working with the Telio materials cannot be ensured:

- Telio CS C&B and Telio CAD must not be used to fabricate final restorations.
- Telio CS Link must not be used for the permanent cementation of restorations.
- The Telio material should not be used if a patient is known to be allergic to any of its ingredients.
- The required minimum thicknesses must be observed.
- Staining/layering of Telio CAD using materials that are not approved and/or recommended.
- Milling the Telio CAD blocks in a non-compatible/non-authorized CAD/CAM system.
- Do not inhale grinding dust during finishing. Use exhaust air discharge and dust mask.

Prevention of premature loss of retention:
Apart from a retentive preparation design, the reliable cementation of Telio CAD restorations using a temporary luting material (e.g. Telio CS Link) depends on the accuracy of fit, which is determined by the CAD/CAM system used.

Composition

- **Telio CS C&B**
  Components: Polyfunctional methacrylates (48 wt.%), inorganic fillers (47 wt.%), additives, initiators, stabilizers and pigments (5 wt.%).

- **Telio CS Desensitizer**
  Components: Polyethylene glycol dimeth-acrylate and glutaraldehyde in an aqueous solution.

- **Telio CS Link**
  Components: Bismethacrylates (56 wt.%), fillers (43 wt.%), initiators, stabilizers, pigments.

- **Telio CAD Blocks**
  Components: Polymethyl methacrylate (PMMA), pigments.

- **Telio Stains**
  Components: Bis-GMA, urethane dimeth-acrylate and triethylene glycol dimethacrylate (86 wt.%), fillers and pigments (13 wt.%), catalysts, stabilizers.

- **Telio Add-On Flow**
  Bis-GMA, urethane dimethacrylate and decandiol dimethacrylate (40.5 wt.%), fillers (59 wt.%), catalysts, stabilizers and pigments (0.5 wt.%).

- **Telio Activator**
  Components: Methyl methacrylate (86-87%), dimethacrylate (13%) and catalyst (<1%).

Note
Do not use in case of known hypersensitivity to methyl methacrylate. Do not use products containing methyl methacrylate intraorally.

Storage instructions
- Protect the materials from direct sunlight.
- Observe the storage instructions and the expiry date on the secondary packaging.
- Do not use the products after the indicated expiry date.
- Keep out of the reach of children!
- Telio CS C&B
  Use only at room temperature (cooled material is more viscous and takes longer to cure). Leave the used mixing tip on the syringe as a cap until the next application.
- Telio CS Desensitizer
  Close bottle immediately after use.
- Telio Stains and Telio Add-On Flow
  Syringes should be closed immediately after use. Exposure to light causes premature polymerization.
- Telio CS Link
  Storage at 2-8°C / 36-46°F. Use only at room temperature (cooled material is more viscous and takes longer to cure). After use, leave the mixing tip on the syringe as a closure.

Warning
- Prevent contact of uncured Telio CS C&B and Telio CS Link with the skin and eyes. Minimize contact of uncured Telio CS C&B with the mucous membrane.
- Uncured Telio CS C&B and Telio CS Link may cause slight irritation and in rare cases may lead to a sensitization to methacrylates after repeated skin contact.
- Commercially available medical gloves do not provide protection against the sensitizing effect of methacrylates.
- Telio CS Desensitizer contains glutaraldehyde and is harmful if inhaled or swallowed. Prevent contact with skin, mucous membranes and eyes. If the material should accidentally come in contact with the eyes, immediately rinse with copious amounts of water and consult a physician. Repeated skin contact and inhalation may cause sensitization.
- Telio Activator contains methyl methacrylate (MMA). Skin contact may cause sensitization.
- Telio Activator is only for extra-oral application.
- MMA is highly flammable and irritating (flash point: +10 °C/50 °F).
- Irritating to eyes, respiratory organs and skin.
- Do not inhale vapours.
- Keep away from sources of ignition. Do not smoke.
- Prevent contamination of the sewage system.
- Take measures against electrostatic charge.
- Do not inhale resin dust during finishing of Telio CAD – use exhaust air discharge and mouth protection.

CAD/CAM partners

Telio CAD is processed by means of CAD/CAM systems from authorized partners.
Please read the respective handbooks on the hard- and software of your CAD/CAM device carefully before fabricating the restorations.
The CAD-Waxx Starter Kit (Sirona) with a modified tank and reinforced filter system is required for the processing in the Sirona systems.

For questions regarding the different systems, please contact the respective cooperation partners.

For further information, please contact
Sirona Dental Systems GmbH
Fabrikstrasse 31
64625 Bensheim
Germany
E-mail: contact@sirona.de
www.sirona.com

Clinical working steps, fabrication process

Working step	Ivoclar Vivadent Products
Preparation, shade determination	A-D shade guide
Intraoral imaging / impression-taking	OptraGate Contrast Spray Chairside Virtual Vival NF
Temporary restoration	Telio CS C&B Telio CAD
Characterization, cut-back technique, corrections, addition of material	Telio Stains Telio Lab LC Veneer Telio Add-On Flow Telio Activator
Preparing for cementation	Telio CS Desensitizer (optional) OptraGate
Cementation	OptraGate Telio CS Link bluephase
Polishing	Astropol OptraPol

Shade determination

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 (e.g. cervical shade). In order to achieve the best possible true-to-nature results, shade determination should be carried out at daylight. Furthermore, the patient should not wear clothes of intensive colours and/or lipstick.

Minimum material thicknesses / layer thicknesses

The design of the restoration is the prerequisite for successful temporary restorations and also paves the way for the incorporation of the permanent restoration.

The following basic guidelines have to be observed:

- In large preparations and for partially veneered restorations, the excess available space must be compensated by the correspond-ing dimensions of the stable Telio CAD component and not by the layering material.
- The transition to the layering material must not be located in the area of the functional contact points.
- With Telio CAD the design of the restoration generated by the software has to be individually adjusted in accordance with the clinical situation using the design tools. The build-up of missing areas to support and reinforce the shape and cusps of the restoration is constructed with the integrated design tools of the different types of software used.

Material thicknesses	Telio CAD
Minimum wall thicknesses	
occlusal	1,5 mm
circular	0,8 mm
Connector dimensions anterior bridges	
with 1 pontic	min. 12 mm²
with 2 pontics	min. 12 mm²
Connector dimensions posterior bridges	
with 1 pontic	min. 12 mm²
with 2 pontics	min. 16 mm²

Failure to observe the stipulated framework design criteria, minimum thicknesses and minimum connector dimensions may result in clinical failures, such as fracture of the restoration.

Prevention of premature loss of retention:
Apart from a retentive preparation design, the reliable cementation of Telio CAD restorations using a temporary luting material (e.g. Telio CS Link) depends on the accuracy of fit, which is determined by the CAD/CAM system used.

Telio CS Desensitizer

Application

Telio CS Desensitizer makes the temporary restoration phase more comfortable for patients, since it reduces the sensitivity of prepared, and in some cases exposed, dentin surfaces.

- Prepare cavity / abutment
- You may take the impression at this stage or wait until you have applied the desensitizer (see notes).
- The dentin surfaces should be dry and clean. Keep working field dry (e.g. cotton rolls).
- Apply Telio CS Desensitizer:
  Brush it into the dentin for 10 seconds using a suitable instrument (brush, applicator brush).
- Carefully disperse excess to a thin layer / dry with an air syringe. Do not overdry the dentin.
- Fabricate the temporary restoration / provisionally cement restoration (see notes).

Notes

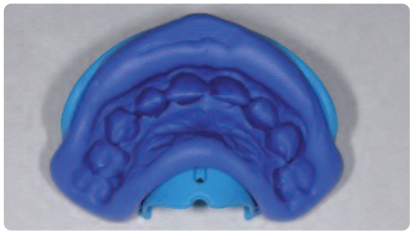
- The application of Telio CS Desensitizer somewhat increases the adhesion of the light-curing temporary inlay and onlay materials from Ivoclar Vivadent to the cavity walls. Nevertheless, they can be removed at the second appointment without difficulty.
- If light-curing temporary C&B materials are used, Telio CS Desensitizer should be applied after the fabrication of the temporary. If you apply Telio CS Desensitizer prior to fabricating the temporary, the material may stick to the tooth structure when the impression is repositioned into the oral cavity during the setting/light-curing procedure and may be difficult to remove.
- The application of Telio CS Desensitizer during temporary fabrication does not affect or limit the choice of the cementation system or the success of the cementation procedure in the second appointment. Both conventional and adhesive cementation systems can be used for cementation purposes.
- The application of Telio CS Desensitizer to enamel does not create any problems and does not affect the subsequent steps of the treatment or the materials being used (thoroughly remove excess desensitizer / dry).
- Telio CS Desensitizer can be applied before or after impression-taking. The layer thickness is very thin, so that the accuracy of fit is maintained even if the desensitizer is applied after the impression-taking. Interaction of the desensitizer with impression materials are not known (if applied before impression-taking).

Telio CS C&B
Fabrication of temporary crowns and bridges

Fabrication of an alginate or silicone matrix

If the unprepared teeth exhibit a suitable occlusal morphology that may be transferred to the provisional restoration or even the planned permanent restoration, and if abutment teeth in suitable position are available, a preliminary impression can be made to serve as a matrix for the fabrication of the temporaries. Prior to the preparation or extraction of the teeth, an impression of the preoperative situation is made using addition-cured silicone impression material (e.g. Virtual; dimensionally stable impressions) or alginate (e.g. Vival NF, impressions that are dimensionally stable for a limited period of time).
Adjusting the impression and creating an additional recess for the lip frenulum ensure that the impression can be repositioned in the patient's oral cavity without difficulties.
To do so, trim the interdental gingival areas and remove undercuts in the impression (e.g. using a scalpel), if necessary. If the occlusion is defective, the fabrication of a wax-up in the laboratory may additionally be required prior to taking the impression.

Impression of the preoprative situation prior to tooth preparation



Dimensionally stable preoperative impression made with Virtual

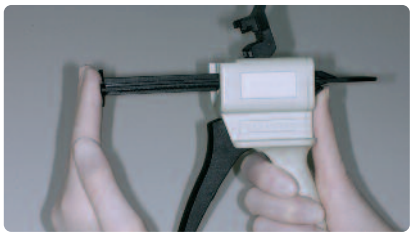
Finishing of the impression

Finished impression that can be easily repositioned in the patient's oral cavity

Note regarding plastic templates
When using a vacuum-formed plastic matrix, care should be taken that the plastic material does not bond to Telio CS C&B. Suitable plastic sheets (e.g. polyethylene sheets) should be selected, so that the vacuum-formed matrix can be reused. If a bond between the plastic and Telio CS C&B is desired, plastic sheets should be chosen that are especially designed for this purpose. Condition the inner aspect of the sheet with AdheSE® Bond.

Preparing the double cartridge

1. Press the black release lever located below the plunger on the back of the dispenser and pull the plunger as far back as possible.

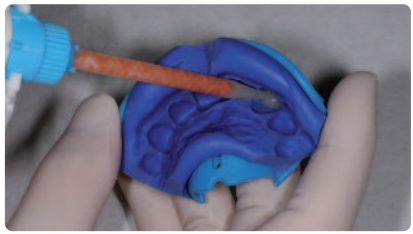


2. Lift the cartridge lock and insert the cartridge. Lower the cartridge lock. Push the plunger forward until it touches the cartridge.

3. Remove the sealing cap or used mixing tip by turning it in a 1/4 turn counter clockwise and discard it; do not reuse it.

4. Insert a new mixing tip. Push the tip down until the notch on the mixing tip touches the notch on the cartridge.
While gripping the coloured base, and not the mixing tip, turn the mixing tip base 1/4 turn clockwise.

5. The material is mixed and dispensed through the mixing tip by pulling the trigger and can be applied directly into the matrix.

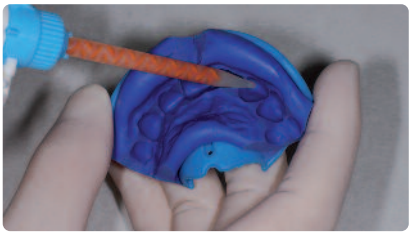


Removal of the cartridge
Lift the release lever below the plunger on the back and pull the plunger as far back as possible.
Lift the cartridge lock on the front side on top of the dispenser and remove the cartridge.
Leave the used mixing tip on the syringe as a cap until the next application.

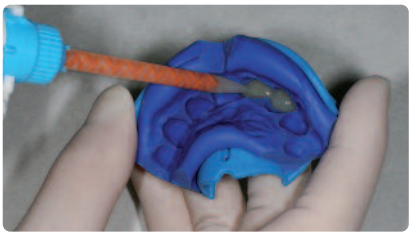
Application

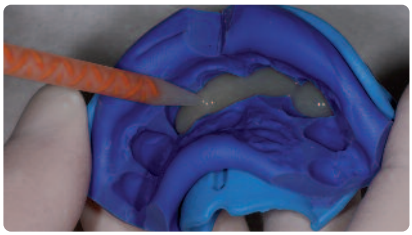
Telio CS C&B is automatically mixed when it is dispensed directly into the impression or vacuum-formed matrix with slight pressure. Prior to each application, extrude and discard an approximately pea-sized amount of material.
Telio CS C&B is automatically mixed when it is dispensed directly into the impression or vacuum-formed matrix with slight pressure.
To prevent voids, apply the material to the occlusal surfaces first, then proceed by filling the gingival areas. Keep the mixing tip immersed in the material to prevent bubbles. If required, the material may also be syringed around the prepared teeth to avoid bubble formation along the preparation margin. The processing time is approx. one minute at room temperature (23 °C / 73 °F).

Discard a pea-sized amount of Telio CS C&B.

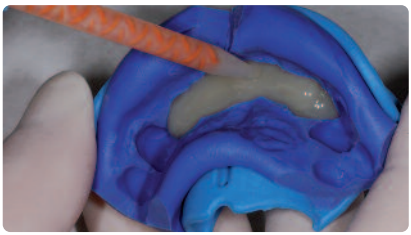


Application directly into the impression or the plastic template under exerting slight pressure.





Apply the material to the occlusal surfaces and proceed by filling the gingival areas.



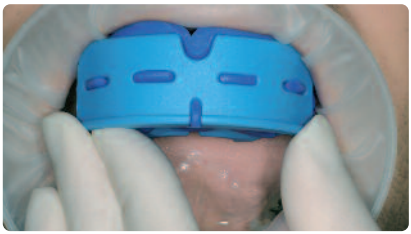
To prevent voids, keep the tip immersed in the material.

Shaping of temporaries

a) Fabrication in the mouth

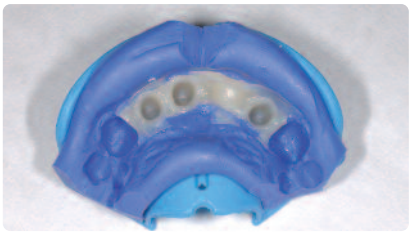
The prepared teeth should be slightly moist. This can be achieved by painting them with water-soluble glycerine gel (e.g. Liquid Strip). Undercut areas of the tooth preparation or adjacent teeth may have to be blocked out with appropriate materials (e.g. with kneadable rope wax).
Carefully reposition the impression filled with Telio CS C&B on the prepared teeth. The setting time is approx. 1 to 2 minutes at a temperature of 37 °C / 98 °F. At room temperature (23 °C / 73 °F), e.g. when the restoration is fabricated on a model, the material takes longer to cure (approx. 3 minutes).
When the material is nearly cured (hard-elastic, partially cured state) the impression can be removed from the patient's oral cavity. Remove the unfinished Telio CS C&B temporary from the impression using a spatula (e.g. OptraSculpt).

Reposition the filled impression on the prepared teeth.

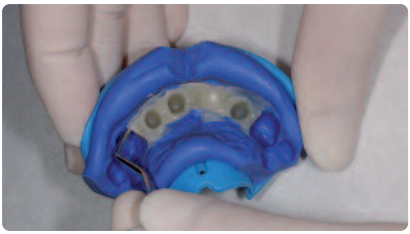


The setting time in the mouth is approx. 1-2 minutes.

Removing the impression



Removed impression with non-finished Telio CS C&B restoration



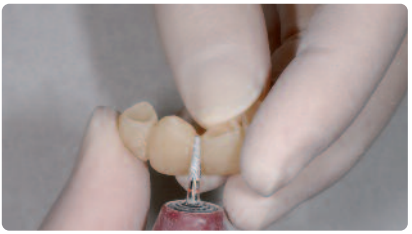
Remove the unfinished Telio CS C&B temporary from the impression using a spatula.

b) Fabrication on the model

Isolate the preparation area of the model (e.g. using Vaseline). Carefully reposition the impression filled with Telio CS C&B on the model. After approx. 3 minutes (at 23 °C / 73 °F), Telio CS C&B attains a hard-elastic, partially set consistency and can be removed from the model together with the impression.

Curing and finishing

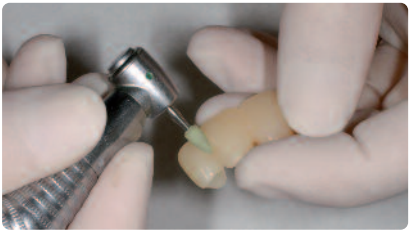
After removing the temporary restoration from the impression (or from the tooth preparation), remove excess material using rotary instruments once the material is cured completely (after approx. 4 to 5 minutes). Cross-cut tungsten carbide burs are suitable for finishing. Remove the inhibition layer with alcohol or by polishing. Silicon carbide rubber polishers (e.g. OptraPol) should be used for polishing.



Finish the temporary restoration with rotary instruments (cross-cut tungsten carbide burs).

Use diamond disks to finish the interdental areas.

Polishing with a cotton buffing wheel



Polishing with silicon carbide rubber polishers (e.g. OptraPol).

Repairing of temporaries

If Telio CS C&B temporaries are relined, repaired or adjusted, the following procedure is recommended:
Telio CS C&B temporaries can be repaired with freshly mixed Telio CS C&B after having conditioned them with AdheSE Bond or Heliobond.

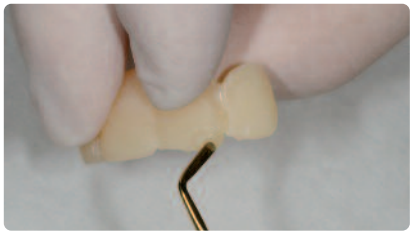
1. Grind the areas of the Telio CS C&B temporary which need to be relined, repaired or adjusted with a coarse diamond.
2. Apply AdheSE Bond / Heliobond.
3. Disperse AdheSE Bond / Heliobond with a very weak stream of air. Avoid pooling! Care should be taken not to blow away the bonding agent. All the prepared surfaces must be adequately coated with AdheSE Bond / Heliobond.
   Note: AdheSE Bond / Heliobond does not contain a solvent that has to be evaporated!
4. Polymerize AdheSE Bond / Heliobond for 10 s using an LED or halogen curing light with a light intensity of more than 500 mW/cm² (e.g. bluephase in the LOP mode). If other curing lights are used, the recommendations of the respective manufacturer must be followed to obtain fully polymerized results. The curing time depends on the light intensity and the wavelength range of the light emitted by the different curing units. Curing times of less than 5 s are not recommended.
5. Apply Telio CS C&B.
6. If necessary, finish the relined, repaired or adjusted areas of the Telio CS C&B temporary with e.g. cross-cut tungsten carbide burs and subsequently polish them with silicon carbide rubber polishers (e.g. OptraPol®).

Alternatively, Telio CS C&B temporaries can be repaired or adjusted directly with a light-curing Ivoclar Vivadent composite (e.g. Telio Add-On Flow, Tetric EvoFlow). In this case, the respective Instructions for Use must be observed.
Telio Add-On Flow is cured with a high-power curing light (>1000 mW/cm²; e.g. bluephase) in 15 s per segment or with a standard curing light (>500 mW/cm²) in 30 s per segment. Tetric EvoFlow® is cured with a high-power curing light (1000 mW/cm²; e.g. bluephase) in 10 s per segment or with a standard curing light (500 mW/cm²) in 20 s per segment.

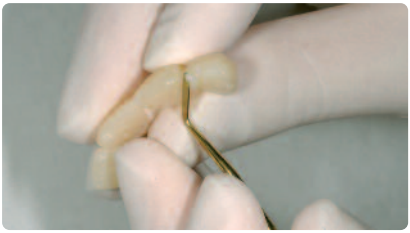
If the retention is insufficient or in the case of older temporary restorations, the bond to composites can be increased by carrying out the following pre-treatment:
Grind the area to be repaired or adjusted and subsequently apply Telio Activator extraorally. Agitate the Telio Activator for at least 30 s over the entire surface using an application brush in order to achieve even distribution and quick penetration. Subsequently, allow the Activator to react for another 30-60 seconds (total reaction time 1-2 minutes). Now apply the Heliobond bonding agent, thinly disperse it with blown air, and polymerize for 10 seconds (650 mW/cm², e.g. bluephase using the LOP mode).
Apply Telio Add-On Flow or another light-curing Ivoclar Vivadent composite (e.g. Tetric EvoCeram or Tetric EvoFlow) and cure according to the Instructions for Use.

Filling of air bubbles or chippings

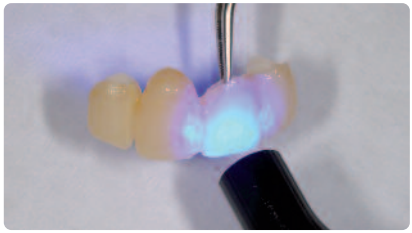
A light-curing Ivoclar Vivadent composite (e.g. Telio Add-On Flow/Tetric EvoFlow) is used to directly fill or cover the areas that need to be modified.
The Telio Add-On Flow material is applied with a spatula (e.g. OptraSculpt) and shaped. Telio Add-On Flow is cured with a high-power curing light (>1000 mW/cm²; e.g. bluephase) in 15 s per segment or with a standard curing light (>500 mW/cm²) in 30 s per segment.
Finally, polish using silicon carbide rubber polishers (e.g. Astropol).



Apply Telio Add-On Flow and sculpt with a spatula (e.g. OptraSculpt) …



… to the desired shape.



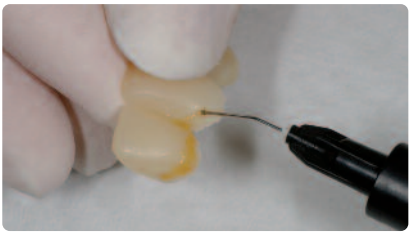
Light-cure

Polishing with silicon carbide rubber polishers (e.g. OptraPol)

Characterizing temporaries

Telio Stains are light-curing stains for individual characterization of Telio restorations. The Stains are applied in very thin layers of max. 0.5 mm with a brush or other suitable instrument (e.g. thin probe). The shade intensity may be reduced and the consistency thinned by mixing the stains with Heliobond. Telio Stains are cured with a high-power curing light (2000 mW/cm²; e.g. bluephase 20i) in 5 s per segment or with a high-power curing light with an intensity of >1000 mW/cm² (e.g. bluephase) in 10 s per segment. If a standard curing light is used (intensity: 800 mW/cm²; e.g. bluephase C8), the curing time is 15 s.

Important
The material should have room temperature so that a smooth consistency is ensured. Do not expose Telio Stains to intensive light during application, since this clearly shortens the processing time.
Telio Stains must not be left at the surface of restorations, they have to be covered (application of a methyl methacrylate-based varnish or application of light-curing Telio Lab LC Veneer materials).



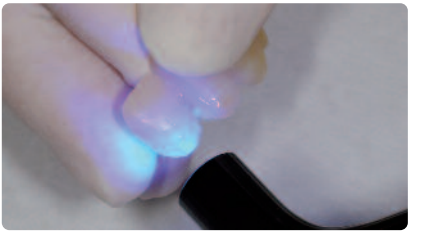
Application of Telio Stains (orange) and …

… dispersing with a brush to characterize the cervical area.

Light-curing of Telio Stains

Application of Telio Stains (white) and …

… dispersing them to imitate enamel cracks and white spots.



Light-curing of Telio Stains

Apply a light-curing varnish…

… and cure according to the instructions of the manufacturer.

Optional

Application of a desensitizer

Telio CS Desensitizer makes the temporary restoration phase more comfortable for patients, since it reduces the sensitivity of prepared, and in some cases exposed, dentin surfaces. The dentin surfaces should be clean and dry for the application of Telio CS Desensitizer.

Rinse the preparation with water.

Subsequently, dry with an air syringe and oil-free air. (Do not overdry the dentin.)

Apply Telio CS Desensitizer and brush it into the dentin for 10 s using a suitable instrument (e.g. brush, applicator brush).

Carefully disperse excess to a thin layer and dry with an air syringe. (Do not overdry the dentin.)

After the desensitizer has been applied on the prepared teeth, the temporary restoration is fabricated.

Telio CS Link
Seating/cementation of temporaries

Telio CS Link is a dual-curing (light- and self-curing) temporary composite cement to be used for the esthetic temporary cementation of provisional restorations.

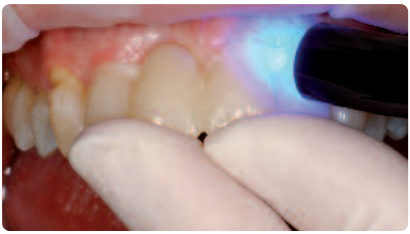
1. Remove the cap of Telio CS Link (double-push syringe) by turning it 1/4 turn counter clockwise (discard the cap, do not re-use it!) and replace it with a mixing tip. If the double-push syringe has been used before, mount a new mixing tip directly before the application of Telio CS Link.
2. When attaching the mixing tip to the syringe, make sure that the guidance of the double-push syringe is aligned with that of the mixing tip. Push the tip completely down until the notch on the mixing tip is aligned with that of the double-push syringe. Secure the mixing tip in place by gripping the coloured base and turning 1/4 turn clockwise. The double-push syringe contains pre-dosed amounts of Telio CS Link base and catalyst, which are automatically mixed and dispensed when the two components are extruded. Thus, Telio CS Link can be applied directly into the temporary restoration.
3. Apply Telio CS Link on the dry inner surfaces of the temporary restoration and/or the prepared, cleaned and dried tooth surface. The processing time is approx. 2 1/2 to 3 minutes at room temperature (23 °C / 73 °F). Incorporation of Telio CAD temporary restorations: Abrade the inside surfaces of the restoration with Al_2O_3, 100 µm grit at 1-2 bar /15-29 psi pressure or roughen with a rough diamond bur.
4. Seating of the temporary restoration and removal of excess cement. Seat the temporary restoration on the prepared teeth with light pressure. Excess cement can be removed using different methods:
   a. *Removal of excess with additional light-activation (quarter technique)*
   Light-cure excess material with the polymerization light (>650 mW/cm², e.g. bluephase in the LOP mode) for 2-4 seconds per quarter surface (mesio-oral, disto-oral, mesio-buccal, disto-buccal) at a distance of approx. 0-10 mm. Following this, the excess material can be easily removed with a scaler, as it features a visco-plastic consistency. Subsequently, light-cure all margins again for 10 seconds (>1000 mW/cm²; e.g. bluephase in the HIP mode).
   b. *Removal of excess in the unpolymerized state*
   Remove uncured excess material immediately after seating using a microbrush / brush / foam pellet / dental floss or scaler. Subsequently, wait until the self-curing process is finished (approx. 3 min) or accelerate the polymerization process by light-curing the cement layer with a curing light (>1000 mW/cm²; e.g. bluephase in the HIP mode) for 10 s per aspect.
   c. *Removal of excess in the polymerized state*
   Approx. 3 minutes after having seated the restoration, remove excess material carefully with a scaler or other instruments.
5. Long-term temporaries (wear periods of >4 weeks) have to be checked and re-examined at regular intervals so that the restoration can be recemented, if necessary.

Leave the used mixing tip on the syringe as a cap until the next application.

Prevention of premature loss of retention:
Apart from a retentive preparation design, the reliable cementation of Telio CAD restorations using a temporary luting material (e.g. Telio CS Link) depends on the accuracy of fit, which is determined by the CAD/CAM system used.


Direct application of Telio CS Link into the temporary restoration


Seating on the prepared teeth




Accelerated curing of the cement using the curing light


Removal of excess material with a scaler and dental floss

Final result

The image shows a completed Telio CS C&B temporary restoration.
The air bubble and chipping that occurred during fabrication were repaired/adjusted with Tetric EvoFlow. The incisal area of the temporary restoration was individualized with Telio Stains, and a glaze varnish based on methyl methacrylate was subsequently applied.
The temporary restoration was cemented using Telio CS Link (Transparent). Telio CS Desensitizer was applied to the prepared teeth prior to seating of the restoration.

Relining of Telio CAD restorations or lab-fabricated temporary crowns or bridges

(e.g. Telio Lab)

Relining of Telio CAD restorations

Carefully remove the restorations from the prepared teeth. Remove excess cement from the prepared teeth and the inner aspects of the restorations. Abrade the inner surfaces with Al_2O_3, 100 µm grit at 1–2 bar /15–29 psi pressure or roughen with a rough diamond bur.

Roughen the inner aspects

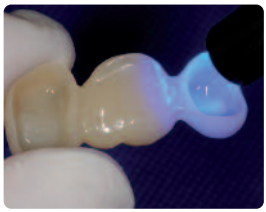
Thoroughly rinse with water and dry with oil-free compressed air. Then wet the bonding areas extra-orally with Telio Activator. Agitate the Telio Activator for at least 30 s over the entire surface using an application brush in order to achieve even distribution and quick penetration. Subsequently, allow the Activator to react for another 30-60 seconds (total reaction time 1-2 minutes).

Agitate the Telio Activator and allow to react.

Now apply the light-curing bonding agent Heliobond with a brush, a spherical instrument or by means of the snap-on cannula. Thinly disperse the material and polymerize for ≥ 10 s (> 650 mW/cm²; e.g. blue-phase in the LOP mode).

Apply Heliobond…

… and disperse with air.



Light-cure the Heliobond bonding agent.

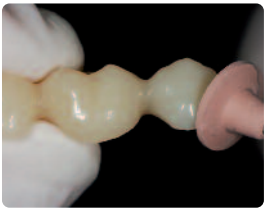
For the relining, apply the mixed Telio CS C&B to the inner aspect of the crowns. Keep the mixing tip immersed in the material to prevent bubbles. If required, the material may also be syringed around the prepared teeth to avoid bubble formation along the preparation margin.

Application of Telio CS C&B

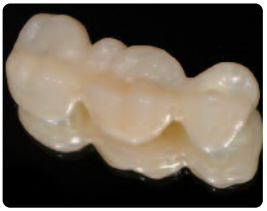
Seated Telio CAD bridge with excess Telio CS C&B material

The curing time is approx. 3 min at room temperature (23 °C / 73 °F). After that, Telio CS C&B is in a hard-elastic, partially cured state and can be removed from the oral cavity together with the Telio CAD restoration. After complete curing (4-5 min), finishing is carried out extraorally. Cross-cut tungsten carbide burs are suitable for finishing; for polishing, use silicon carbide rubber polishers (e.g. Astropol, OptraPol).

Extraoral removal of excess material…



… with burs and polishers.



Completed Telio CAD restoration

If necessary, apply Telio CS Desensitizer prior to cementation. Then cement the relined temporary restoration with Telio CS Link (see page 34).

Completed and cemented Telio CAD restoration

Lab-fabricated Telio Lab restorations may of course also be relined with Telio CS C&B material. The procedure is the same as for Telio CAD.

Telio CAD – Fully anatomical fabrication and final polishing

In this processing technique, the restoration is polished and incorporated immediately after milling in the CAD/CAM system. In the process, the surface lustre is achieved by manual polishing. This processing technique is very efficient and leads to an esthetic result quickly and easily.

Depending on the CAD/CAM system used, spray the preparation with IPS Contrast Spray Chairside in order to ensure optimum scanning results. Subsequently, scan the preparation. Then clean the preparation with the water jet, air syringe – additionally use rotary brushes and water spray if necessary.

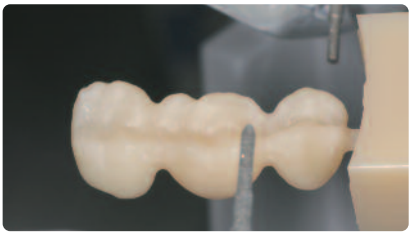
Starting situation

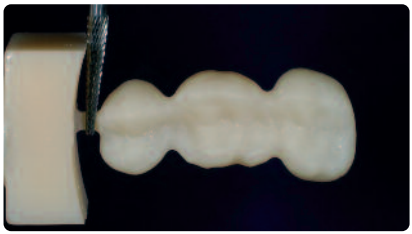
Preparation

Select Telio CAD in the material selection of the software and construct the long-term temporary using the software. In doing so, observe the minimum thickness for the intended application.

Note on the fabrication in Sirona units
Use the "Reduced design bridge technique" to be able to check the connector surface.

Clamp the Telio CAD block in the CAD/CAM unit and mill with the appropriate grinding tools.
After milling the restoration is separated from its holder with a fine tungsten carbide bur or a diamond separating disk and fitted on the model.





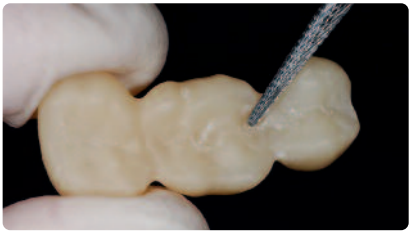
Telio CAD restoration after milling in the CAD/CAM unit and being detached from the holder

Remove any possible white spots on the restoration that developed during milling in the CAD/CAM machine using a tungsten carbide bur.

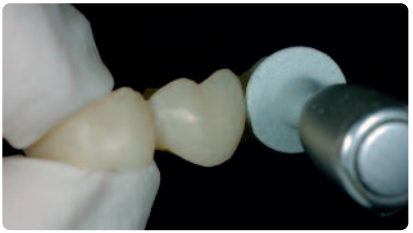
Finishing

Use (fine) cross-cut tungsten carbide burs to finish Telio CAD blocks.

Observe the following procedure for finishing Telio CAD restorations:
- Use cross-cut tungsten carbide burs to smooth out the attachment point.
- Carry out shape adjustments with cross-cut tungsten carbide burs or customary diamonds.
- Overheating of the material must be avoided.
- Surface-grind the entire occlusal surface with a fine diamond to smooth out the surface texture created by the CAD/CAM procedure.
- Make sure that the minimum thicknesses are maintained even after the minor adjustments.
- Make sure to thoroughly clean the restoration before further processing and to remove any residue of the milling additive of the CAD/CAM milling unit. Residue of the milling additive remaining on the surface may result in bonding problems.
- Try in the restoration and adjust the occlusion/articulation, if necessary.



Finishing with tungsten carbide burs…



… and disks

Polishing

Careful polishing is the prerequisite for an optimum esthetic result. Polishing reduces plaque accumulation and the resulting shade disturbances. Pay special attention to crown margins, interdental areas, occlusal surfaces and the basal rest area of pontics.

In order to achieve a lifelike surface gloss, please observe the following procedure:
– Use the appropriate speed (7500-10,000 rpm) and water spray for the polishing.
– Avoid an excessive heat build-up.

Polishing is carried out with the 3-step polishing system Astropol F, P and HP:
1st step: Finishing with Astropol F (grey)
With the Astropol F finisher, excess is removed and a smooth surface can be achieved.
2nd step: Polishing with Astropol P (green)
Polishing with Astoropol P results in a very delicate surface finish.
3rd step: High-gloss polishing with Astropol HP (pink)
With the microfine Astropol HP diamond finisher, a high gloss can be achieved quickly. Do not apply pressure.

Alternatively, the single-step polishing system OptraPol can be used.


Polishing with Astropol


Completed Telio CAD restoration


Seated Telio CAD restoration

Telio CAD
Cut-back technique

To fabricate highly esthetic temporary restorations, especially in the anterior region, the incisal/occlusal third may be veneered using the light-curing Telio Lab LC Veneer materials. The individual working steps are briefly described below. For a detailed description of the materials used and the individual working steps, please refer to the Instructions for Use of Telio Lab.

Partially reduced Telio CAD restorations fitted on the model.
The cut-back may be carried out by using a suitable CAD/CAM milling procedure or by manual reduction.

Telio Stains are applied in very thin layers and light-cured. Then the incisal edge is built up and the anatomical shape is completed using the Telio Lab LC Veneer materials. The materials are cured in a light-polymerization device (e.g. Spectramat). Finally, the restorations are finished and manually polished.

Application of Telio Stains…

… and Telio Lab LC Veneer materials

Individualized Telio CAD restorations before and after polymerization

Completed Telio CAD restoration characterized with Telio Veneer on the working model

Seating/cementation of temporaries

Telio CS Link is a dual-curing (light- and self-curing) temporary composite cement to be used for the esthetic temporary cementation of provisional restorations.

1. Remove the cap of Telio CS Link (double-push syringe) by turning it 1/4 turn counter clockwise (discard the cap, do not re-use it!) and replace it with a mixing tip. If the double-push syringe has been used before, mount a new mixing tip directly before the application of Telio CS Link.
2. When attaching the mixing tip to the syringe, make sure that the guidance of the double-push syringe is aligned with that of the mixing tip. Push the tip completely down until the notch on the mixing tip is aligned with that of the double-push syringe. Secure the mixing tip in place by gripping the coloured base and turning 1/4 turn clockwise. The double-push syringe contains pre-dosed amounts of Telio CS Link base and catalyst, which are automatically mixed and dispensed when the two components are extruded. Thus, Telio CS Link can be applied directly into the temporary restoration.
3. Apply Telio CS Link on the dry inner surfaces of the temporary restoration and/or the prepared, cleaned and dried tooth surface. The processing time is approx. 2 1/2 to 3 minutes at room temperature (23 °C / 73 °F). Incorporation of Telio CAD temporary restorations: Abrade the inside surfaces of the restoration with Al_2O_3, 100 µm grit at 1-2 bar / 15-29 psi pressure or roughen with a coarse diamond bur.
4. Seating of the temporary restoration and removal of excess cement
   Seat the temporary restoration on the prepared teeth with light pressure. Excess cement can be removed using different methods:
   a. *Removal of excess with additional light-activation (quarter technique)*
      Activate the cement excess with a polymerization light (>650 mW/cm², e.g. bluephase in the LOP-mode) at a distance of approximately 0–10 mm for 2-4 s per quarter surface (mesio-oral, disto-oral, mesio-buccal, disto-buccal). Excess may be easily removed with the help of a scaler once the material is in its highly viscous state. After that, polymerize all the margins again for 10 s. (>1000 mW/cm²; e.g. bluephase in the HIP mode).
   b. *Removal of uncured excess*
      Remove uncured excess cement immediately after incorporation with a micro-brush/brush/foam pellet/dental floss or scaler. After that, wait until the material has set due to the self-curing action (approximately 3 minutes) or, as an option, accelerate the setting process by means of light polymerization for 10 s per surface (>1000 mW/cm²; e.g. bluephase in the HIP mode).
   c. *Removal of cured excess*
      Carefully remove cement excess after approximately 3 minutes with a scaler or other instruments.
5. Long-term temporaries (wear periods of >4 weeks) have to be checked and re-examined at regular intervals so that the restoration can be recemented, if necessary.

Leave the used mixing tip on the syringe as a cap until the next application.

Prevention of premature loss of retention:
Apart from a retentive preparation design, the reliable cementation of Telio CAD restorations using a temporary luting material (e.g. Telio CS Link) depends on the accuracy of fit, which is determined by the CAD/CAM system used.

Supplementing Telio CAD restorations

Roughen the area to be supplemented or repaired by grinding and then wet extraorally with Telio Activator. Agitate Telio Activator for at least 30 seconds over the entire surface using an application brush in order to achieve even distribution and quicker penetration. Subsequently, allow the Activator to react for another 30-60 seconds (total reaction time 1-2 minutes). Now apply the Heliobond bonding agent, thinly disperse it with blown air, and polymerize for 10 seconds (650 mW/cm^2 e.g. bluephase using LOP). Apply Telio Add-On Flow or another light-curing Ivoclar Vivadent composite (e.g. Tetric EvoFlow, Tetric EvoCeram) and cure according to the Instructions for Use.

Add-ons and relines with Telio Add-On Flow

Relines and supplements of Telio Lab and Telio CAD restorations can be carried out using Telio Add-On Flow.

- Roughen the desired area of the Telio Lab / Telio CAD restoration with rotary instruments / diamonds.
- Then wet the roughened area (extraorally!) with Telio Activator.
  Agitate Telio Activator for at least 30 seconds over the entire surface using an application brush in order to achieve even distribution and quicker penetration. Subsequently, allow the Activator to react for another 30-60 seconds (total reaction time 1-2 minutes). Now apply a thin layer of Heliobond bonding agent with a brush, ball-shaped instrument, or using the snap-on plastic cannula, thinly disperse it with blown air, and polymerize for ≥10 seconds
  (>650 mW/cm^{2}e.g. bluephase using the LOP mode).
- Then apply Telio Add-On Flow and subsequently polymerize using a high-performance curing light (>1000 mW/cm^2; e.g. bluephase) for 15 seconds per segment, or a standard curing light (>500 mW/cm^2) for 30 seconds per segment.
- As an alternative, other light-curing Ivoclar Vivadent composites (e.g. Tetric EvoCeram) can be used.

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