

Fast Splint Matrix® Dental Fiber Matrix System

Synca
337 Marion, Le Gardeur,
QC, Canada, J5Z 4W8

For professional use only. Caution:
Federal (U.S.A.) Law restricts this device
to sale by or on the order of a dentist.

Description

Fast Splint Matrix® is a series of methacrylate-reinforced glass fiber splints in a non-polymerized state. Fast Splint Matrix® fibers can be custom shaped and then polymerized by light curing.

Composition

Preformed fiber:

Glass fiber, dimethacrylate urethane (UDMA), triethylene glycol dimethacrylate (TEGDMA), inorganic loading matter, pigments, catalysts/stabilisers.

Indications

Can be applied directly or indirectly to natural teeth using a bonding technique to provide stability:

- For creating orthodontic lingual retainers
- Periodontic and traumatic splinting
- Single tooth space maintainers/flippers

Appropriate Fast Splint Matrix® fiber: Select the appropriate Fast Splint Matrix® fiber according to the space available.

Contraindications

- Allergy to methacrylate
- Active-phase periodontal disease
- Progressive caries
- Use for inlay bridges or molar fixed bridges.

Side effects

- No side effects reported in the existing literature.

Fast Splint Matrix® precautions

- Isolation of the working site with dental dam is recommended wherever possible. If not possible it is crucial to maintain a dry, uncontaminated field when applying bonding agents, composites and/or fibers to tooth surfaces.
- For processing the splinting, use a methacrylat flowable composite, associated with a compatible dental adhesive showing a high bonding strength on enamel.
- Avoid contact of unpolymerized materials with soft tissues.
- Wear gloves; avoid handling of splints with fingers.
- Unpolymerized resin can be an irritant to human eyes; sensitization from long-term exposure to the resin should not be ruled out as a possible hazard.
- Follow instructions carefully to ensure complete light-curing of the retainers.
- Cut to length prior to polymerization using scissors. Cut the fiber while still in its protective film to obtain smooth cuts.
- In case intra-oral finishing is required, be sure to work with irrigation and suction: glass-fiber particles could mechanically irritate soft tissues. The irritation can be soothed with water.
- After opening packaging, the pre-impregnated fiber Fast Splint Matrix® should be molded quickly without exposing it to a light source (such as sunlight), as it will harden prematurely.

Fast Splint Matrix® implementation using a MANUAL TECHNIQUE

A. Creation of an orthodontic lingual retainer or a periodontal or traumatic splint (Direct Chairside Method)

- 1) Maintain an isolated field of the working site with your preferred technique.
- 2) Examine the patient's inner and outer arches and make an outline of the intended splint area. Create a "blueprint" (using wax or other substance) to determine the length of splint required; set aside.
- 3) Clean the area to be bonded on the teeth with pumice and water. Air-dry the teeth surfaces after cleaning. Instead of using pumice and water, you can micro-etch each tooth with aluminum oxide for 5 seconds, in order to increase the bond strength. After micro-etching, rinse with water and air-dry the bonding surfaces on the teeth. (If possible, place transparent wedges into the interproximal spaces to maintain good access for cleaning.)
- 4) Etch the bonding surfaces of the teeth with ortho phosphoric acid. The etched area should be large enough for the full length of the fiber bundle and overlying composite. Interproximal spaces should be etched too and the etching time should be long enough (approx. 45–60 sec.). After etching, rinse and dry the tooth surfaces. Keep the area dry before applying adhesive resin.
- 5) Apply unfilled solvent-free light cure bonding agent (not included) over the whole area where the retainer will be bonded. Light cure the bonding material according to the manufacturer's instructions.
- 6) Apply a continuous, thin layer (0.5mm) of flowable composite onto the surfaces of the teeth in the intended area for the retainer, also in the interproximal areas. Do not light cure the composite layer at this point.
- 7) While the Fast Splint Matrix® fiber is still in the protective sleeve, cut the Fast Splint Matrix® fiber to the desired length. Remove the Fast Splint Matrix® fiber bundle from the protective covering.
- 8) The retainer should be placed on the lingual surface as close to the incisal edges of the teeth as possible while taking the occlusion into consideration. Adapt one end of the Fast Splint Matrix® fiber bundle into the flowable composite, by pressing it down with a hand instrument. Light cure this end (spot cure) for 5–10 seconds, but protect the rest of the fiber bundle from the curing light with a wide instrument. Continue curing the rest of the fiber bundle one tooth at a time by pressing it down with a hand instrument. Light cure for only 5 seconds on each tooth at this point. Do not press and contour the Fast Splint Matrix® fiber bundle into the embrasures too close to the gingiva to allow good oral hygiene.
- 9) After the whole Fast Splint Matrix® fiber bundle has been positioned and initially cured, cover it with a layer of flowable composite and make sure it is totally enclosed. Then light cure for 40 seconds on each tooth. If necessary, fill in any mesial-distal gaps with composite and light cure again.
- 10) Polish. Leave an opening at the embrasure for good hygiene, but be careful not to cut the transparent Fast Splint Matrix® fiber bundle when finishing and polishing the flowable composite.
- 11) Control occlusal conditions.

Fast Splint Matrix® implementation using a TRANSPARENT SILICONE MATRIX TECHNIQUE

NOTE: Use a bite registration transparent silicone. (Setting time of 30 seconds or 60 seconds)

B. Creation of an orthodontic lingual retainer or a periodontal or traumatic splint (Direct Chairside Method)

- 1) Remove the protective covering from the adhesive side of the wax strip and position the Fast Splint Matrix® wax strip onto the dried tooth surfaces to be retained – adhesive side facing inward. Apply firm pressure to ensure the wax strip is placed securely. Ensure that the wax is positioned in the same place that the fiber retainer will be, avoiding the gingival embrasures and typically running across the interproximal contacts.
- 2) **For an orthodontic lingual retainer:** Register the position of the wax on the tooth surface by creating an index with a silicone material. Inject the silicone onto the lingual surface of the teeth, carrying slightly over the incisal edge for an orthodontic lingual retainer. Before completely covering the tooth surfaces, insert the Matrix Tip into the silicone and add more silicone, ensuring the Matrix Tip is properly imbedded in the silicone.
For a periodontal or traumatic splint: For anterior teeth, you can use the Matrix Tip. For posterior teeth, it will be easier not to use the Matrix Tip, just make the silicone a little thicker.
- 3) Leave the index in-mouth for 1.5 minute to permit curing.
- 4) Remove the index from the mouth and carefully remove the wax strip from the index, as it will be used to gauge the correct length of fiber.
- 5) Trim excess silicone material from the index, removing any undercuts or obstructions, to facilitate reinsertion.

Instructions for Use

- 6) While the Fast Splint Matrix® fiber is still in the protective sleeve, cut the appropriate Fast Splint Matrix® fiber to length using the length of the wax strip as a guide.
- 7) Apply a thin layer of flowable composite into the silicone index negative.
- 8) Remove the fiber from the protective sleeve and carefully place the Fast Splint Matrix® fiber into the silicone index. Set the index aside protected from direct lighting in order to avoid premature curing.
- 9) Isolation of the working site with dental dam is recommended wherever possible. If not possible it is crucial to maintain a dry, uncontaminated field when applying bonding agents, composites and/or fibers to tooth surfaces.
- 10) Clean and polish surfaces of all teeth to be included in the retainer.
- 11) Clean interdental spaces with abrasive strips
- 12) Etch the lingual tooth surfaces for 30 seconds using phosphoric acid. Be sure to apply etch into the interproximal spaces. Rinse and Dry.
- 13) Apply unfilled solvent-free light cure bonding agent (not included) to the lingual tooth surfaces including the interproximal spaces. Light cure with a standard dental light for 40 seconds.
- 14) Optionally, you can apply a very thin layer of flowable composite to the lingual tooth surfaces in the same position where the fiber will be placed. Be careful to avoid over-application and avoid the gingival and incisal embrasures, as this will speed up and simplify clean-up once the retainer is bonded into place. DO NOT LIGHT CURE. If you choose not to apply a flowable composite to the tooth surfaces ensure the fibers in the matrix are sufficiently wetted – this will help prevent air bubbles in the bonded retainer.
- 15) Carefully place the silicone index against the teeth, using the Matrix Tip for assistance, applying a firm pressure to compress the index intimately to the tooth surfaces.
- 16) Using any standard dental light curing unit light cure the materials through the silicone index, while holding it in place. Light cure for 40 seconds, ensuring all surfaces are polymerized.
- 17) Remove the silicone index. The lingual retainer is now bonded to the teeth.
- 18) Cover the fiber retainer with a very thin layer of flowable composite and light cure for 60 seconds. Only a layer sufficient to cover any exposed fibers is required. The flowable composite can be applied directly from the syringe or applied with a brush.
- 19) Verify occlusion and make final adjustments as required.
- 20) Polish the retainer using a composite bur, disc, or polisher. All intra-oral finishing and polishing should be completed with proper irrigation and suction.
- 21) Ensure that all embrasures are free of excess resin and that floss can be passed through them.

C. Creation of an orthodontic lingual retainer or a periodontal or traumatic splint (Indirect Method)

Laboratory:

- 1) Pour a stone model from a recent impression.
- 2) Remove the protective covering from the adhesive side of the wax strip and position the Fast Splint Matrix® wax strip on to the tooth surfaces to be retained – adhesive side facing inward. Apply firm pressure to ensure the wax strip is placed securely. Ensure that the wax is positioned in the same place that the fiber retainer will be, avoiding the gingival embrasures and typically running across the interproximal contacts. You may choose to mark the model with a pencil to precisely record the desired position.
- 3) **For an orthodontic lingual retainer:** register the position of the wax on the tooth surface by creating an index with a silicone material. Inject the silicone onto the lingual surface of the teeth, carrying slightly over the incisal edge. Before completely covering the tooth surfaces, insert the Matrix Tip into the silicone and add more silicone, ensuring the Matrix Tip is properly imbedded in the silicone.
For a periodontal or traumatic splint: if it is on the anterior teeth, you can use the Matrix Tip. If it is on the posterior teeth, it will be easier not to use the Matrix Tip, just make the silicone a little thicker.
- 4) Leave the index in place for 1.5 minute to permit curing.
- 5) Remove the index from the model and carefully remove the wax strip from the index, as it will be used to gauge the correct length of fiber.
- 6) Trim excess silicone material from the index, removing any undercuts or obstructions, to facilitate repositioning/reinsertion.
- 7) Apply stone/model separator to the lingual and interproximal tooth surfaces to be treated on the model and allow to dry.
- 8) While the Fast Splint Matrix® fiber is still in the protective sleeve, cut the appropriate Fast Splint Matrix® fiber to length using the length of the wax strip as a guide.
- 9) Apply a very thin layer of flowable composite into the silicone index negative.
- 10) Remove the fiber from the protective sleeve and carefully place the Fast Splint Matrix® fiber into the silicone index.
- 11) Carefully place the silicone index against the teeth on the model, using the Matrix Tip for assistance, applying a firm pressure to compress the index intimately to the tooth surfaces.

- 12) Using any standard dental light curing unit light cure the materials through the silicone index, while holding it in place. Light cure for 40 seconds, ensuring all surfaces are polymerized.
- 13) Remove the silicone index. The fiber retainer will be imbedded in the index or may stay on the model.
- 14) Carefully remove the fiber retainer and trim away any excess resin. Very lightly sandblast the tooth-facing surface with 50 micron Aluminum Oxide.
- 15) Reinsert the fiber retainer into the index and deliver to the dentist for Chairside insertion.

Chairside:

- 1) Isolation of the working site with dental dam is recommended wherever possible. If not possible it is crucial to maintain a dry, uncontaminated field when applying bonding agents, composites and/or fibers to tooth surfaces.
- 2) Clean and polish surfaces of all teeth to be included in the retainer.
- 3) Clean interdental spaces with abrasive strips
- 4) Etch the lingual tooth surfaces for 30 seconds using phosphoric acid. Be sure to apply etch into the interproximal spaces. Rinse and Dry.
- 5) Apply unfilled solvent-free light cure bonding agent (not included) to the lingual tooth surfaces including the interproximal spaces. Light cure with a standard dental light for 40 seconds.
- 6) Optionally, you can apply a very thin layer of flowable composite to the lingual tooth surfaces in the same position where the fiber will be placed. Be careful to avoid over-application and avoid the gingival and incisal embrasures, as this will speed up and simplify clean-up once the retainer is bonded into place. DO NOT LIGHT CURE. If you choose not to apply a flowable composite to the tooth surfaces, ensure the side of the fibers that will be in contact with the teeth are sufficiently wetted – this will help prevent air bubbles in the bonded retainer.
- 7) Carefully place the silicone index with the fiber retainer in place against the teeth, using the Matrix Tip for assistance, applying a firm pressure to compress the index intimately to the tooth surfaces.
- 8) Using any standard dental light curing unit light cure the materials through the silicone index, while holding it in place. Light cure for 40 seconds, ensuring all surfaces are polymerized.
- 9) Remove the silicone index.
- 10) The lingual retainer is now bonded to the teeth.
- 11) Cover the fiber retainer with a very thin layer of flowable composite and light cure for 60 seconds. Only a layer sufficient to cover any exposed fibers is required. The flowable composite can be applied directly from the syringe or applied with a brush.
- 12) Verify occlusion and make final adjustments as required.
- 13) Polish the retainer using a composite bur, disc, or polisher. All intra-oral finishing and polishing should be completed with proper irrigation and suction.
- 14) Ensure that all embrasures are free of excess resin and that floss can be passed through them.

D. Creation of space maintainer or temporary replacement for extracted teeth (Direct Chairside Method)

- 1) Adjust a denture tooth or fabricate a composite tooth (either hereafter referred to as "temporary tooth") to fill the missing space. Adjust the fit of the temporary tooth in the open interdental space. Using a pencil, mark the temporary tooth with the position of the fiber retainer, avoiding the gingival embrasures and typically running across the interproximal contacts
- 2) Create a horizontal groove (2mm deep x 2mm wide) completely across the lingual side of the temporary tooth to accommodate the Fast Splint Matrix® fiber rope. The groove should have a retentive form.
- 3) Cut a vertical groove (1mm deep x 1.5mm wide) in the middle on the lingual side of the temporary tooth from the horizontal groove to the apical end.
- 4) Isolation of the working site with dental dam is recommended wherever possible. If not possible it is crucial to maintain a dry, uncontaminated field when applying bonding agents, composites and/or fibers to tooth surfaces.
- 5) Remove the protective covering from the adhesive side of the wax strip and position a Fast Splint Matrix® wax strip across the dried lingual surfaces of one abutment tooth mesially and one distally of the interdental space being maintained, adhesive side facing inward, and passing across the empty interdental space. Apply firm pressure to ensure the wax strip is placed securely. Ensure that the wax is positioned in the same place that the fiber splint will be, avoiding the gingival embrasures and typically running across the interproximal contacts.
- 6) Position the temporary tooth so that it is held in place by the wax strip.

Continue on reverse ...

- 7) Register the position of the wax on the tooth surface by creating an index with a silicone material. Inject the silicone onto the lingual surface of the tooth surfaces, carrying slightly over the incisal edge.
- 8) Leave the index in place for 1.5 minutes to permit curing.
- 9) Remove the index from the mouth and carefully remove the wax strip from the index, as it will be used to gauge the correct length of fiber. The temporary tooth is also removed from the index at this time.
- 10) Trim excess silicone material from the index, removing any undercuts or obstructions, to facilitate repositioning/reinsertion.
- 11) Apply a layer of unfilled solvent-free light cure bonding agent (not included) inside the grooves on the lingual of the temporary tooth and light cure for 40 seconds using a standard dental light curing unit.
- 12) While the Fast Splint Matrix® fiber is still in the protective sleeve, cut the appropriate Fast Splint Matrix® fiber to length using the length of the wax strip as a guide.
- 13) Apply a thin layer of flowable composite into the silicone index negative.
- 14) Remove the fiber from the protective sleeve and carefully place the Fast Splint Matrix® fiber into the silicone index. Set the index aside protected from direct lighting in order to avoid premature curing.
- 15) Clean and polish surfaces of all teeth to be included in the retainer.
- 16) Etch the lingual tooth surfaces for 30 seconds using phosphoric acid. Be sure to apply etch into the interproximal spaces. Rinse and Dry.
- 17) Apply unfilled solvent-free light cure bonding agent (not included) to the lingual tooth surfaces including the interproximal spaces. Light cure with a standard dental light for 40 seconds.
- 18) Optionally, you can apply a very thin layer of flowable composite to the lingual tooth surfaces in the same position where the fiber will be placed. Be careful to avoid over-application and avoid the gingival and incisal embrasures, as this will speed up and simplify clean-up once the retainer is bonded into place. DO NOT LIGHT CURE. If you choose not to apply flowable composite to the tooth surfaces ensure the fibers in the matrix are sufficiently wetted – this will help prevent air bubbles in the bonded retainer.
- 19) Carefully place the silicone index with the fiber splint in place against the teeth applying a firm pressure to compress the index intimately to the tooth surfaces.
- 20) Position the temporary tooth into the open interdental space while be careful to maintain the proper positioning of the fiber.
- 21) While holding the denture tooth and the silicone index in place, light cure the complete restoration for 40 seconds.
- 22) Remove the silicone index. The space maintainer is now bonded to the teeth.
- 23) Completely fill in the grooves on the lingual side of the temporary tooth with flowable composite and light cure for 60 seconds.
- 24) Cover the fiber “wings” on each abutment with a thin layer of flowable composite and light cure for 60 seconds.
- 25) Verify occlusion and make final adjustments as required.
- 26) Polish all surfaces of the space maintainer including the “wings” using a composite bur or disc. All intra-oral finishing and polishing should be done with proper irrigation and suction.
- 27) Ensure that all embrasures are free of excess resin and that floss can be passed through them.

E. Creation of space maintainer or temporary replacement for extracted teeth (indirect method)

Laboratory:

- 1) Adjust a denture tooth or fabricate a composite tooth (either hereafter referred to as “temporary tooth”) to fill the missing space. Adjust the fit of the temporary tooth in the open interdental space on the model. Using a pencil, draw the desired position of the space maintainer “wings” on the abutment teeth and mark the temporary tooth with the position of the fiber retainer.
- 2) Create a horizontal groove (2mm deep x 2mm wide) completely across the lingual side of the temporary tooth to accommodate the Fast Splint Matrix® fiber rope. The groove should have a retentive form.
- 3) Cut a vertical groove (1mm deep x 1.5mm wide) in the middle on the lingual side of the temporary tooth from the horizontal groove to the apical end.
- 4) Remove the protective covering from the adhesive side of the wax strip and position a Fast Splint Matrix® wax strip across the lingual surfaces of one abutment tooth mesially and one distally of the interdental space being maintained, adhesive side facing inward, and passing across the empty interdental space. Apply firm pressure to ensure the wax strip is placed securely. Ensure that the wax is positioned in the same place that the fiber splint will be, avoiding the gingival embrasures and typically running across the interproximal contacts. You may choose to mark the model with a pencil to precisely record the desired position.

- 5) Position the temporary tooth so that it is held in place by the wax strip.
- 6) Register the position of the wax on the tooth surface by creating an index with a silicone material. Inject the silicone onto the lingual surface of the tooth surfaces, carrying slightly over the incisal edge.
- 7) Leave the index in place for 1.5 minutes to permit curing.
- 8) Remove the index from the mouth and carefully remove the wax strip from the index, as it will be used to gauge the correct length of fiber. The temporary tooth is also removed from the index at this time.
- 9) Apply stone/model separator to the lingual and interproximal tooth surfaces to be treated on the model and allow to dry.
- 10) Trim excess silicone material from the index, removing any undercuts or obstructions, to facilitate repositioning/reinsertion.
- 11) Apply a layer of unfilled solvent-free light cure bonding agent (not included) inside the grooves on the lingual of the temporary tooth and light cure for 40 seconds using a standard dental light curing unit.
- 12) While the Fast Splint Matrix® fiber is still in the protective sleeve, cut the appropriate Fast Splint Matrix® fiber to length using the length of the wax strip as a guide.
- 13) Apply a very thin layer of flowable composite into the silicone index negative.
- 14) Remove the fiber from the protective sleeve and carefully place the Fast Splint Matrix® fiber into the silicone index.
- 15) Carefully place the silicone index with the fiber splint in place against the teeth on the model applying a firm pressure to compress the index intimately to the tooth surfaces.
- 16) Position the temporary tooth into the open interdental space while be careful to maintain the proper positioning of the fiber.
- 17) While holding the denture tooth and the silicone index in place, light cure the complete restoration for 40 seconds.
- 18) Remove the silicone index. The space maintainer will be imbedded in the index or held in position on the model.
- 19) Remove the space maintainer from the index or the model and completely fill in the grooves on the lingual side of the temporary tooth with flowable composite and light cure for 60 seconds.
- 20) Cover the fiber “wings” on each abutment with a thin layer of flowable composite and light cure for 60 seconds.
- 21) Verify occlusion and fit and make final adjustments as required.
- 22) Very lightly sandblast the tooth-facing surfaces of the “wings” with 50 micron Aluminum Oxide.
- 23) Polish all surfaces of the space maintainer including the “wings” using a composite bur or disc, and polishing paste.
- 24) Deliver the space maintainer to the dentist for Chairside insertion.

Chairside:

- 1) Isolation of the working site with dental dam is recommended wherever possible. If not possible it is crucial to maintain a dry, uncontaminated field when applying bonding agents, composites and/or fibers to tooth surfaces.
- 2) Check the fit of the space maintainer intra-orally and make any necessary adjustments.
- 3) Clean and polish surfaces of all teeth to be included in the retainer.
- 4) Etch the lingual tooth surfaces for 30 seconds using phosphoric acid. Be sure to apply etch into the interproximal spaces. Rinse and Dry.
- 5) Apply unfilled solvent-free light cure bonding agent (not included) to the lingual tooth surfaces including the interproximal spaces. Light cure with a standard dental light for 40 seconds.
- 6) Apply a thin layer of flowable composite onto the “wings” of the space maintainer, being careful to avoid over-application, which will facilitate clean-up.
- 7) Position the space maintainer into the open interdental space and maintain a firm pressure. Light cure for 60 seconds using a standard dental light curing unit.
- 8) The space maintainer is now bonded to the teeth.
- 9) Verify occlusion and make final adjustments as required.
- 10) Polish all surfaces of the space maintainer including the “wings” using a composite bur or disc. All intra-oral finishing and polishing should be done with proper irrigation and suction.
- 11) Ensure that all embrasures are free of excess resin and that floss can be passed through them.

Fast Splint Matrix® Removal:

Removing the splint involves undoing the bond to dental surfaces. Use a fine-grain diamond drill to create a small space between the composite and the enamel. Proceed accordingly for each support tooth. Insert a thin excavator into the space and carefully remove the splint with a slow rotating motion. Remove any residue on the tooth surface with a composite-polishing bur.

Curing Times:

Type of lamp	LED 5W light	Halogen, 1100mW/cm ²	Halogen, 550mW/cm ²	Xenon strobe light, 250mW/cm ²	Neon, 6800mW/cm ²	Mercury Vapor (Arc)
Required time	30 seconds	40 seconds	2 minutes	4 minutes	10 minutes	20 minutes

Note:

Product reserved exclusively for dental usage.

Keep out of the reach of children.



Single use product.



Avoid exposure to light.



See the instructions.



Can cause skin allergies



Fast Splint Matrix®

Store between 54°F and 86°F (12°C and 30°C), in its original closed packaging.

Limitation of liability

Except where prohibited by law, Synca will not be liable for any loss or damage arising from this product, whether direct, indirect, special, incidental or consequential, regardless of the theory asserted, including warranty, contract, negligence, or strict liability.

The information provided for Fast Splint Matrix® products is based on comprehensive research and experience in application technology. Results are furnished to the best of our knowledge, subject to technical changes within the framework of product development. However, users must comply with and consider all recommendations and information in connection with any use.

Disclaimer of all other Warranties:

THERE ARE NO OTHER WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, CONNECTED WITH THE SALE OF THIS PRODUCT, SYNCA SPECIFICALLY DISCLAIMS ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.