



## Indirect Bonding Tray Fabrication Technique

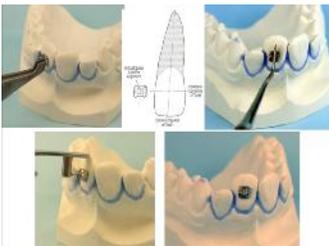
*Safety glasses should be worn for all lab procedures as well as gloves when handling acrylics. Items featured in this technique are found on the last page.*



- 1 To prepare the model for the indirect bonding process, trim the model base flat maintaining a 5mm thickness, then the anatomy is defined with a lab knife. Holes in the model as well as moderate undercuts are relieved with Great Lakes Blockout Gel. After the gel is applied, it is cured with a hand-held light for 20-30 seconds.



- 2 Secure the brackets to the model with water soluble glue (Elmers™ school glue) or custom base adhesive (Thermocure). If a custom base adhesive is used, apply a diluted liquid separator foil to the facial tooth structures.



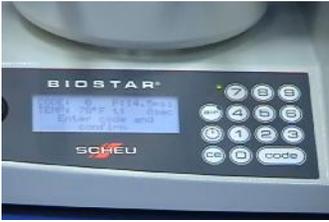
- 3 Remove the excess base adhesive surrounding the bracket base with an explorer. Check the bracket position using the Boone Gauge. Repeat this procedure to position the remaining brackets. Buccal tubes are also available which can be bonded to the first molars and in some cases to the second molars upon request. The buccal tubes stabilize the ends of the archwire on the patient's dentition. They can be secured to the work model, which will be transferred through the indirect bonding tray to the patient. In most cases, the buccal tubes are welded to molar bands that are directly cemented to the patient's tooth.



- 4 If hooks or other attachments are present, they should be relieved to prevent them from getting locked within the bonding tray. A syringe can be filled with a cake frosting and applied between the attachment and model for relief. Allow frosting to dry under a small fan for 15 minutes.



- 5 After the brackets have been secured to their proper reference positions, place the model on the Biostar platform. Place a sheet of 2mm thick Bioplast or mouthguard material into the clamping frame on the pressure chamber and lock it into place.



- 6 Adjust the air pressure to one atmosphere (or 15 psi). Lowering the pressure on the Biostar minimizes thorough forming of the Bioplast/mouthguard material around the brackets. The tray can be easily removed from the brackets after the bonding procedure on the patient.



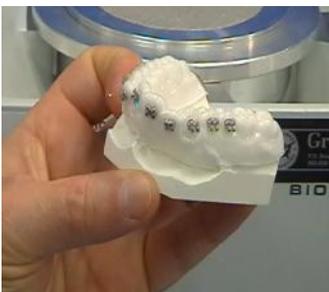
- 7 Heat the 2mm thick Bioplast/mouthguard material for 60 seconds with the lamp. Remove the heating source and swing the pressure chamber onto the model on the platform.



- 8 Enter the air pressure to form the heated material by engaging the air handle, which locks the chamber into position. Maintain pressure in the Biostar chamber for 2 minutes while the material cools. Once the formed material has cooled, evacuate the air pressure from the chamber, unlock the material being held in place, and open the pressure chamber. Remove the model with formed Bioplast/mouthguard material.



- 9 Using a Bunsen burner, heat a #7 laboratory knife and cut the material approximately 5-7mm subgingivally while on the model. Do not remove the formed Bioplast matrix from the model. Once the cut out is complete, peel away excess material.



- 10 The second stabilizing tray is fabricated over the previously formed material. Coat the original soft tray over the model with Pam Cooking Spray. For best results, spray the Pam onto a countertop and brush over soft material.



- 11 Remove the platform covering the pellet cup. Adjust the pellet level to accommodate the model with the matrix. The model is positioned in the cup with the base of the gingival margin at the same level as the cup's rim. Apply the pellets from the model's gingival margin to the rim.



- 12 Secure a 2mm thick sheet of splint Biocryl II material to the pressure chamber. Increase the air pressure to 3 atmospheres (bar) or 45 psi. Heat the splint Biocryl II material for 60 seconds, remove the heating lamp, and swing the chamber over the model and Bioplast matrix.



- 13 Apply the air pressure for two minutes while allowing the heated material to cool. Remove the formed materials on the model from the Biostar machine.



- 14 Soak the model in room temperature water for 30 minutes. Soaking the model dissolves the water soluble laboratory adhesive and provides for separation of the custom base adhesive from the model.



- 15 Carefully remove the tray(s) from the model with a lab knife. Gently, peel the soft tray from the top material.



- 16 Using a cutting bur in a high speed/high torque laboratory handpiece, cut the hard splint Biocryl II matrix at the junction where the pellets were applied to the model.



- 17 Trim the hard matrix with a carbide taper bur in a lab handpiece. Trim the matrix...
1. to the distal embrasure of the last tooth with a bracket or tube,
  2. lingually 1mm below the gingival margin, and
  3. facially to the midpoint of the bracket (slot).



- 18 Smooth all trimmed edges using a Dimo Wheel in a lab handpiece. A finishing procedure is recommended for the rigid tray to provide a professional result. Scrub the rigid tray clean with liquid dish soap and a toothbrush.



- 19 Trim the Bioplast soft matrix using a pair of laboratory shears. The soft tray should extend to the distal of the last tooth having a bracket, 1mm subgingivally on the lingual and 2mm below the brackets facially.



- 20 Clean the soft matrix with a liquid dish soap and a toothbrush. Check each bracket base for cleanliness. If custom bracket adhesive was used, check for a hard cure. The bracket bases containing the custom base adhesives should be lightly roughened with Microetcher to maximize bond strength. It is also recommended to apply plastic bracket conditioner (or monomer) to the bracket bases if a custom lab adhesive was used.

**Items featured in technique:**

235-010	Astro Spec Safety Glasses (reg./blue)	021-053	0.040"/1mm Invisacryl-A
235-062	N-Dex Non-latex Gloves (Med)	021-026	1.5mm Splint Biocryl
006-014	Blue-Blokker Light Cure Material	080-006	Micro torch
190-120	Bluephase Curing Lights (190-110, 190-130)	080-009	Gas refill
190-030	ProCure Light Cure Oven	150-025	Lab Handpiece
065-033	Thermo-Cure	085-027	Cutting Bur
065-032	Light Bond	085-009	Carbide Taper Bur
165-004	Spatula	086-043	Dimo-Wheel
175-034	Separator	086-037	Satin Buff
075-007	Separator Brushes	220-023	#55 Plate Shears
175-005	Lab Knife	220-025	Crown & Collar Scissors
021-030	1mm Clear Mouthguard Material	190-070	Microetcher
030-009	1.5mm Bioplast	175-049	Aluminum Oxide
		190-072	Macro Cab



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