Mouthguard Fabrication Technique

Single & Dual Laminate Techniques

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.

Single Laminate Technique

1. Apply liquid separator to all model surfaces that will come into contact with the formed material.

2. Place the platform on the inner cup lip of the Biostar or Ministar machine. Place the model in the center of the platform with the heel facing the open chamber on the left.

3. Secure a sheet of 3mm thick mouthguard material on the pressure chamber. Move the heating lamp over the material to start the heating cycle. Heat 3mm thick mouthguard or Bioplast material for 80-90 seconds (Biostar code: 234).

4. Once the heating cycle is complete, remove the lamp and swing the pressure chamber over the model on the platform. Rotate the locking handle to the front of the machine. Cool the formed material under pressure for 3 minutes.

5. Release the pressure and unlock the chamber. Release the material on the chamber by sliding the clamping frame arm to the left. Open the chamber. Remove the model with formed mouthguard material.
6 Rough-trim equipment including a lab knife and Blazer torch are used to cut away excess material. Heat the lab knife with Blazer torch.

7 With the hot lab knife, cut the formed material on the model facially along the vestibule and 3-5mm below the gingival margin on the lingual (palatal) side. Remove excess material after cut out is complete.

8 Remove the appliance from the model. Trim the appliance at the distal surface of the last tooth on each side of the arch (second molars) with #55 plate shears or a hot lab knife.

**Dual Laminate Technique**

**Continue with Dual Laminate process or proceed to trimming procedure**

9 Place the model with the formed material on the platform with the heel facing the open chamber on the left. Secure 1mm or 2mm clear Mouthguard material on chamber. Enter the heating time or code into the Biostar. Swing the lamp over the clamped material to begin the heating cycle.

10 Heat the previously-formed material on model with heat gun during final 30 seconds of heating clear material.

11 Prior to forming the materials, place reinforcement aids, nametag, and decals (if desired) on the material heated on the model about 5 seconds before swinging the chamber onto the platform. Once the heating cycle is complete, remove the lamp and swing the chamber over the model on the platform. Lock the chamber to begin the pressure molding process.

12 Let the material cool under pressure for 2 minutes.
Evacuate air pressure in chamber, unlock chamber and clamped material. Open chamber and remove formed material. Do not trim or remove material from model until cooled.

**Trimming Procedure**

**Trim and finish the mouthguard following the Single Laminate procedure.**

14 Cut the mouthguard to its proper shape using #55 plate shears or a hot lab knife. The facial border should extend into the sulcus, reducing it to 3-5mm below the gingival margin around the first or second permanent molars. Reduce the material along the lingual (palatal) area to maintain a 1mm depth below the gingival margin.

15 A variety of trimming mandrels can be used on a dental lathe with a quick chuck system. A splash pan with adequate suction is recommended for all trimming procedures.

16 With an acrylic grinding stone on a high-speed dental lathe, detail the trimmed mouthguard borders to the references outlined in Step 14. Relieve facial soft tissue areas where muscle attachments are present.

17 Smooth all trimmed areas with a chamois buff or a high strength Roloc disc on high speed.

18 If a lathe is not available, a handpiece may be used to trim the mouthguard.
19 A carbide taper bur is used to trim the palatal and facial areas following the same protocol that was used during the lathe trimming procedure (outlined in Step 14).

20 A Dimo Wheel, a 1" chamois or satin buff is used to smooth trimmed surfaces. Use a medium speed on the lab handpiece with the finishing wheels.

21 The shine is recaptured by lightly flaming the surface of the dull material with a butane-soldering torch. Place the mouthguard on the model and re-shine the material by using the blue tip of the flame. Keep the flame setting low. Overheating will distort appliance.

22 After one or two applications with the butane torch, cool the mouthguard on the model in water. Repeat this process as necessary.

Finished mouthguard
Items featured in technique:

- 235-010 - Astro Spec Safety Glasses (reg./blue)
- 235-062 - N-Dex Non-latex Gloves (Med)
- 205-008 - Great Lakes Model Trimmer
- 060-025 - Diamond Wheel for Single Wheel Trimmer
- 215-016 - Whimpix Orthodontic Stone
- 215-020 - Snap Stone
- 075-004 - Model Brush
- 175-034 - Liquid Stone
- 075-007 - Separator Brushes
  Mouthguard Materials
- 030-025 - Assorted Multi-Colored Bioplast
- 080-006 - Micro Torch
- 080-009 - Gas Refill
- 170-004 - Lab Knife
  1100-1200 watt Heat Gun (Home Depot/Lowes)

Trimming & Finishing Items

- 180-002 - Lathe with Quick Chuck
- 105-060 - Handler Portavac
- 105-061 - Handle Portavac Replacement Filters
- 086-019 - Grinding Stone
- 180-013 - Lathe Mandrel for Stone
- 180-003 - Stone Truer
- 086-001 - Chamois Buff
- 180-016 - Threaded Lathe Mandrel
- 150-025 - Lab Handpiece
- 145-008 - Air Handpiece
- 085-009 - Carbide Taper Bur
- 086-037 - Miniature Satin Buff
- 086-043 - Dimo-Wheel
- 220-023 - No. 55 plate shears
- 080-006 - Micro Torch
- 080-009 - Gas Refill

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