PRESSURE MOULDING TECHNIQUE

Range of applications and Technical information

BIOSTAR®

MINISTAR®

SCHEU Dental Technology
<table>
<thead>
<tr>
<th>Indication</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adapter splint</td>
<td>25</td>
</tr>
<tr>
<td>Bite registration tray</td>
<td>7</td>
</tr>
<tr>
<td>Bleaching splint</td>
<td>12</td>
</tr>
<tr>
<td>Bracket transfer mask</td>
<td>20</td>
</tr>
<tr>
<td>Bracket transfer Matrix/Lingual technique</td>
<td>18</td>
</tr>
<tr>
<td>BRUX CHECKER® (Bruxism analysis)</td>
<td>14</td>
</tr>
<tr>
<td>Bruxism splint</td>
<td>15</td>
</tr>
<tr>
<td>Coating foil</td>
<td>26</td>
</tr>
<tr>
<td>Drilling/X-ray/Template for implants</td>
<td>11</td>
</tr>
<tr>
<td>Fluoride splint</td>
<td>13</td>
</tr>
<tr>
<td>Functional splint</td>
<td>15</td>
</tr>
<tr>
<td>Individual tray</td>
<td>6</td>
</tr>
<tr>
<td>MINIPLAST splint</td>
<td>15</td>
</tr>
<tr>
<td>Model duplication</td>
<td>5</td>
</tr>
<tr>
<td>Mould for temporary crowns and bridges</td>
<td>8</td>
</tr>
<tr>
<td>Mouthguard/Sports protection</td>
<td>24</td>
</tr>
<tr>
<td>Occlusal splint</td>
<td>15</td>
</tr>
<tr>
<td>OSAMU®-Retainer acc. to Dr. Osamu Yoshii</td>
<td>21</td>
</tr>
<tr>
<td>Positioner</td>
<td>22</td>
</tr>
<tr>
<td>Retainer/Orthodontic plate</td>
<td>17</td>
</tr>
<tr>
<td>Retention splint</td>
<td>15</td>
</tr>
<tr>
<td>Skin packaging</td>
<td>26</td>
</tr>
<tr>
<td>Splint retainer</td>
<td>16</td>
</tr>
<tr>
<td>Temporary plate/Partial denture</td>
<td>10</td>
</tr>
<tr>
<td>Temporary plate/Partial denture</td>
<td>9</td>
</tr>
<tr>
<td>Temporary splint</td>
<td>9</td>
</tr>
<tr>
<td>TMJ splint</td>
<td>15</td>
</tr>
</tbody>
</table>

On our website www.scheu-dental.com you will find videos on various applications described in this manual.
GENERAL HINTS

We have written this manual to give you a general view of the various application techniques for our pressure moulding machines. Each chapter is divided into working steps with pictures to quickly understand and realise by yourself the shown application examples with your pressure moulding machines. With little variation, you will be able to apply these techniques to make a wide range of applications. With only slight variations, this manual is applicable for all BIOSTAR®, MINISTAR® and MINISTAR S® machines.

Since 1988, temperature, heating and cooling time in BIOSTAR® pressure moulding machines are programmed via key-pad, barcode scanner or manually and precisely controlled and monitored. For best heating and pressure moulding results we recommend to use our barcode and material codes respectively. You may also program individual codes or heating times. When working with the MINISTAR S® the recommended heating times are pre-programmed and controlled by optical and acoustic means. At the same time, the corresponding cooling times are programmed automatically.

When working with the MINISTAR® machine, after having heated up for 90 sec. the recommended heating and cooling times are controlled by means of the built-in timer; tolerances of ± 5 sec. are to be taken into account.

When working with BIOSTAR® machines of series I and II, after heating up the infrared heater for 15 min. the actual heating and cooling time recommendations have to be controlled by means of an external timer. Tolerances of ± 15 sec. have to be taken into account.

<table>
<thead>
<tr>
<th>Machine type</th>
<th>Construction year</th>
<th>Dimensions of plates mm / inch □</th>
<th>Thickness of plate mm / inch</th>
<th>Working pressure bar / psi</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOSTAR® VI</td>
<td>From 07/2009</td>
<td>125 / 5”</td>
<td>0.1–5.0 / .0040–.20”</td>
<td>6.0 / 87</td>
</tr>
<tr>
<td>BIOSTAR® V</td>
<td>From 10/2005</td>
<td>125 / 5”</td>
<td>0.1–5.0 / .0040–.20”</td>
<td>6.0 / 87</td>
</tr>
<tr>
<td>MINISTAR S®</td>
<td>From 08/2003</td>
<td>125 / 5”</td>
<td>0.1–5.0 / .0040–.20”</td>
<td>3.0 / 42</td>
</tr>
<tr>
<td>BIOSTAR® IV</td>
<td>From 04/1999</td>
<td>125 / 5”</td>
<td>0.1–5.0 / .0040–.20”</td>
<td>5.0 / 72</td>
</tr>
<tr>
<td>MINISTAR®</td>
<td>From 04/1992</td>
<td>125 / 5”</td>
<td>0.1–5.0 / .0040–.20”</td>
<td>2.5-3.0 / 35-42</td>
</tr>
<tr>
<td>BIOSTAR® III</td>
<td>07/88-03/99</td>
<td>125 / 5”</td>
<td>125 X 125 / 5” X 5”</td>
<td>0.1–4.0 / .0040–.16”</td>
</tr>
<tr>
<td>BIOSTAR® II</td>
<td>1978–1988</td>
<td>125 / 5”</td>
<td>125 X 125 / 5” X 5”</td>
<td>0.1–3.0 / .0040–.12”</td>
</tr>
<tr>
<td>BIOSTAR® I</td>
<td>1967–1978</td>
<td>125 / 5”</td>
<td>125 X 125 / 5” X 5”</td>
<td>0.1–3.0 / .0040–.12”</td>
</tr>
</tbody>
</table>
### General Hints

#### Working Models
Models should be poured with regular dental plaster. If you are using hard elastic foils and have undercuts on the model, deformations of the foil and breakage of teeth are possible. Therefore it is generally recommended to use a duplicate model. In case of hard elastic foils and if only parts of the model are moulded (e.g. splints), the model should be embedded in pellets in order to avoid overstretching the foil. If soft elastic foils are used, the trimmed and insulated models should be placed on the working platform.

#### Working Pressure
Optimal precise moulding results can be achieved with a working pressure of 5-6 bar with the BIOSTAR® and with the MINISTAR® and MINISTAR S® with 3 bar. The pressure is adjusted in our factory and should not be increased, because higher pression does not create more precision. Loss of pressure, which may occur by perforation of thinner foils in the areas of pellet embedding, won’t affect the quality of the appliance, if the loss of pressure doesn’t exceed 1-2 bar and enough compressed air is supplied.

<table>
<thead>
<tr>
<th>Materials</th>
<th>Working pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>The materials can be divided in 3 main categories:</td>
<td>A similar application is covered by COPYPLAST®, which is a little bit tougher, and may be used for bleaching splints. The transparent and tough elastic COPYPLAST® “C” is used in orthodontics for aesthetic adjustment and retention splints. The nature-coloured HARDCAST® and COPYPLAST® foils, in combination with the transparent spacer foil, are used for the fabrication of copings as well as a space holder when fabricating bleaching and fluoride splints. Our line of foils is completed by the insulation foil ISOFOLAN® as isolation and the coating foil used as a protection “cover” when shipping models. <strong>Predrying</strong> IMPRELON® S and DURASOFT® are containing polycarbonate, which is storing air moisture. Therefore it is necessary to predry these foils in order to avoid air bubbles during the pressure moulding process, f.e. in the BIOSTAR®/MINISTAR® drying oven. (Please also refer to additional material information.) As an alternative, DURASOFT® pd is also available predried.</td>
</tr>
</tbody>
</table>

1. **Hard Elastic Foils**
BIOCRYL® “C” and BIOCRYL® “belong to this group -acrylic plates without monomer- in clear-transparent or coloured for dentures and orthodontic plates; well bonding to acrylic. DURAN® is a high transparent and abrasion-resistant material for all indications in the splint therapy. IMPRELON® “S” – extremely unbreakable, high transparent and abrasion-resistant- for high quality prosthetic splints and orthodontic appliances with excellent long-term wearing qualities. IMPRELON® in clear or nature for temporary use in the mouth, e.g custom trays, dressing carriers or bite plates.

2. **Hard/Soft Compound Foils**
DURASOFT® is a transparent sandwich material for splints with a soft inner side for extremely convenient wearing, especially comfortable for snoring devices.

3. **Soft Elastic Foils**
BIOPLAST® is such a foil- clear transparent, coloured or multi-coloured for soft remaining splints, mouth-guards and positioners or duplicate models as well as BIOPLAST® bleach for bleaching.
Model duplication

List of Materials:
BIOPLAST® 2.0/3.0 mm for plaster duplicates
COPYPLAST® 1.5/2.0 mm for acrylic duplicates

Insulating and Embedding

1. Trim the bottom of the model flat and soak shortly in water. Place the plaster model on the platform.

Pressurizing

2. Heat the foil by setting the code or recommended heating time according to the instructions. Close the pressure chamber and open after cooling phase has finished. The moulded duplicating form should not be trimmed to keep it stable.

Finishing

3. We recommend to pour in plaster and suspend the mould in a mixing bowl filled with water to equalize the weight of the plaster in the mould, thus assuring an exact duplication of your original model.

Hints:
COPYPLAST® should only be used for models with stable teeth and small undercuts.
BIOPLAST® moulds are not suitable for pouring resins.
List of Materials:
- IMPRELON® clear 2.0/3.0 mm
- IMPRELON® nature 3.0 mm
- Blocking-out putty/SIL-KITT
- Foam disks
- Steady-Resin
- Finishing set

Insulating and Embedding

1. Block out undercuts and single teeth with blocking-out putty. Embed the model up to the fold, so that the model parts which shall be moulded are above the model cup rim. Fill up model cup with pellets up to the upper rim and make sure the edges of the cup are clean.

Pressurizing

2. Heat the foil by setting the code or recommended heating time according to the instructions. Place the moist foam (approximately 1 cm thick) serving as a space maintainer for the impression material and roughening the surface of the tray over the model. Depending on the requested space, up to 3 layers of foam can be used. Close the pressure chamber and open after cooling phase has finished.

ATTENTION:
Make sure the edges of the cup are free from foam material.

Finishing

3. Remove the foam space maintainer from the tray. Excess material is removed with a cutting bur (REF 3214) or with carbide cutter (REF 3369). Finish with fine carbide bur (REF 3370). The impression tray is heated over flame and adapted to the ridge. Final fixing of the handle to the tray is done with Steady-Resin or similar cold cure resin.

Hints:
The trimmed rims of the tray can be polished with monomer.
List of Materials:
IMPRELON® white 2.0/3.0 mm
Blocking-out putty
Cutting bur
Finishing set

Insulating and Embedding

Block out undercuts and single teeth with blocking-out putty. Embed the model up to the fold, so that the parts of the model which shall be moulded are above the rim of the cup. Fill up the model cup with pellets to the upper rim and make sure the edges of the cup are clean.

Pressurizing

Heat the foil by setting the code or recommended heating time according to the instructions. Close the pressure chamber and open after cooling phase has finished. Remove moulded bite plate from the model. Cut off excess with cutting bur (REF 3214) or HM carbide cutter (REF 3369).

Finishing

Finish with HM carbide bur (REF 3369). Put a wax wall on the plate equipped with retentions and smooth it.

Hints:
The trimmed rims of the bite plate can be polished with monomer.
**List of Materials:**
- COPYPLAST® 0.5 mm (single crown)
- COPYPLAST® 1.0- 2.0 mm (bridges)
- Finishing set
- Orthodontic insulating agent

**Insulating and Embedding**

1. Trim the model flat and break sharp edges. Soak shortly and place it on the model platform. If models should be embedded in pellets, take care that the parts of the model to be moulded are above the model cup rim; when using COPYPLAST® 0.5/1.0 mm air may pass through the foil caused by the pellets. Spaces can be filled with artificial teeth.

**Pressurizing**

2. Heat the foil by setting the code or recommended heating time according to the instructions. Close the pressure chamber and open after cooling phase has finished. Cut the foil distally directly on the model with scalpel or scissors, remove it carefully and cut it to desired size. Fill mask with veneer resin; in case of direct temporaries polymerize at the patient, in case of indirect temporaries polymerize on the plaster model.

**Finishing**

3. For single crowns press a COPYPLAST® foil over the model and cut off as a coping. For the fabrication of individual strip crowns DURAN® 1.0 mm can be used.

**Hints:**
- Fix pouring mask on the model before polymerization (with wax or rubber ring).
- COPYPLAST® does not need any special insulation, showing a nearly completely polished acrylic resin surface.
List of Materials:
DURAN® 0.75-1.5 mm (depending on extent)
ISOFOLAN® foil
Medical adhesive (f.e. Cyano Veneer®)
PERLIBOND
Finishing set

1. Insulating and Embedding
   Trim the model flat and place it on the model platform. Press ISOFOLAN® foil over the model and cut off foil at the model bottom. For space closure put in plastic teeth and fix basally with sticky wax.

2. Pressurizing
   Embed model in pellet, so that the parts of the model to be moulded are above the model cup rim, respectively the teeth should stand vertically to the plate to be pressed on. Fill up model cup with pellets to the upper rim and make sure the edges of the cup are clean. Heat the foil by setting the code or recommended heating time according to the instructions.

3. Finishing
   Cut the plate radially resp. cut roughly below the moulded part, remove carefully from model and finish to exact length.

Hints:
Besides mechanical retention, the plastic teeth may be moistened with PERLIBOND and medical adhesive (f.e. Cyano Veneer®) before pressure moulding DURAN® for additional chemical compound. Cyano Veneer® can be ordered with Smile-Dental at www.smile-dental.de).
Temporary plate/
Partial denture

List of Materials:
BIOCRYL® “C” rose clear 2.0 mm for upper jaw
BIOCRYL® “C” clear 3.0 mm for lower jaw
ISOFOLAN® foil
BIOCRYL® resin
Finishing set

Insulating and Embedding

Press an ISOFOLAN® foil over the model and cut the foil at the model bottom. Perforate ISOFOLAN® foil interdentally in order to avoid air bubbles. Fix clasps buccal with wax on the ISOFOLAN® foil and fix teeth with prepared plaster wall on the model. Embed the model up to the incisal resp. occlusal areas in pellets. Fill up model cup with pellets to the upper rim and make sure the edges of the rim are clean.

Pressurizing

Heat the foil by setting the code or recommended heating time according to the instructions. During the last 20-30 sec. of the heating time put BIOCRYL® resin under the teeth and the clasp retentions. Close pressure chamber and open after cooling phase has finished.

Finishing

Remove BIOCRYL® “C” from the model. Cut off excess with cutting bur (REF 3214) or HM carbide bur (REF 3369). Finish with HM carbide bur fine (REF 3370) or finishing bur (REF 3377). Polish as usual.

Hints:
If bigger saddles should be fabricated, prepare the buccal parts with cold cure resin before pressure moulding. Rough teeth mechanically or chemically (PERLIBOND) for better bonding.
**List of Materials:**
- IMPRELON® S clear 2.0 mm
- DURAN® 2.0-3.0 mm
- ISOFOLAN® foil
- Cutting bur and HM carbide bur

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**Drilling/X-ray template for Implants**

**Insulating and Embedding**

1. Duplicate the model formed with wax-up, smooth occlusal resp. incisal areas, pierce holes for 2,35 titanium pins and place pins. Trim the model flat and place it on the model platform, then press ISOFOLAN® foil over the model. Open after cooling time has finished an cut off foil at the model bottom and in the area of the intended implants.

**Pressurizing**

2. Embed model in pellets, so that the model parts which shall be moulded are above the model cup rim and fill pellets up to the rim. Heat the foil by setting the code or recommended heating time according to the instructions and open after cooling phase has finished.

**Finishing**

3. Cut the plate radially, remove it carefully and cut with bur to exact length. Cut out titanium pins from the top. OPGs (orthopantograms) use splints with movable pins. After removal of pins the splint can be used as a drilling template for the pilot bur.

**Hints:**

With titanium X-ray measuring pins you receive more precise outlines than with steel balls. For better mobility in the X-ray template, the pins can be polished after removing. Splints made of IMPRELON® S can be sterilized without any form modification in the gentle action mode at 121°C on an aluminium tray in the autoclave.
Bleaching splint

List of Materials:
BIOPLAST® bleach 1.0 mm or
COPYPLAST® 1.0/1.5/2.0 mm or
BIOPLAST® 1.0-3.0 mm
BLUE-BLOKKER (space maintainer)

Insulating and Embedding

1. Mark the areas you want to bleach by a pencil. Trim the model flat and place it on the model platform. Apply BLUE-BLOKKER serving as a space maintainer in the desired layer thickness.

Pressurizing

2. Place reduced model on the platform resp. embed complete model in pellets and fill up cup to the upper rim. Pressurize BIOPLAST® bleach, COPYPLAST® or BIOPLAST® depending on the desired stability and model size.

Finishing

3. Cut the foil radially, remove carefully from model and cut to exact length.

Hints:
The light curing blocking-out material BLUE BLOKKER can be applied easily and precisely in the desired layer thickness. Following the same procedure, you may as well fabricate medical trays.
Fluoride splint

List of Materials:
- BIOPLAST® 1.0-3.0 mm (space maintainer)
- BIOPLAST® Insulating agent
- DURAN® 1.0-1.5 mm
- IMPRELON® S 0.75 – 1.5 mm

Insulating and Embedding

1. Mark the areas you want to fluoride with a pencil and moisten with BIOPLAST® insulating agent. Place flat trimmed model on the platform. Place a BIOPLAST® foil of the desired thickness and heat by setting the code or program the recommended heating time. Open after cooling phase has finished. Cut off space maintainer according to the marked areas and perforate occlusally by means of a sharp point, ie. probe, scalpel. Close the pressure chamber and open after cooling phase.

Pressurizing

2. Put prepared space maintainer on the model. Place reduced models on the platform resp. embed complete models in the pellets and fill up model cup up to the upper rim. Fix a foil of IMPRELON® S or DURAN® in the desired thickness and heat by setting code or according to the recommended heating time. Close pressure chamber and open after cooling phase has finished.

Finishing

3. Cut the foil radially and remove it carefully from the model. The pressure moulded space maintainer made of BIOPLAST® won’t bond to IMPRELON® S or DURAN® and can be removed easily. Then proceed with finishing.

Hints:
- BIOPLAST® Insulating agent should be applied only to the desired extent of the splint. The perforation by means of a sharp point should be done in the areas of the most projecting cusps.
List of Materials:
BRUX CHECKER®-foil

Insulating and Embedding

1. Place upper or lower arch on the model platform resp. embed complete upper or lower model in the pellets and fill up model cup to the upper rim.

Pressurizing

2. On one side of the BRUX CHECKER® foil there is an imprint. By scratching the foil margin you can verify whether the foil is fixed correctly. Heat according to the recommended heating time. Close pressure chamber and open after cooling phase has finished.

Finishing

3. Cut foil radially and remove carefully from the model.

Hints:
When heating the BRUX CHECKER® foil take care that the material won’t be overheated. 10-15 sec heating time will be sufficient when working with machines of older series (MINISTAR® and BIOSTAR® I-IV), whereas you may heat for 15-20 sec. when working with actual series (MIINSTAR® S and BIOSTAR® V/VI). Please refer to instructions on packaging.
List of Materials:
DURAN® 0.5/0.75/1.0/1.5/2.0 mm (hard) or IMPREOLON® S 1.0/1.5/2.0 mm (hard elastic) or DURASOFT® 1.8/2.5 mm (hard/soft) or BIOPLAST® 1.5/2.0/3.0 mm (soft)
ISOFOLAN® foil
DURASPLINT® Kit (transparent adjusting material)
Finishing set

Insulating and Embedding

1. Trim the model flat and place it on the model platform. Press ISOFOLAN® foil over the model (insulation as well as space maintainer for comfortable fit of the splint). BIOPLAST® splints should be insulated with BIOPLAST® insulating agent and a brush. Cut off the foil in the desired extent of the splint with a scalpel and perforate interdentally to avoid air bubbles. Embed the model in pellets up to approx. 4 mm below the cervical margin and fill up the model cup to the upper rim; when using BIOPLAST® the model is always placed on the platform. Fill missing teeth with plaster or blocking-out putty (REF 3220) to avoid crimps.

Pressurizing

2. Make sure the edges of the cup are absolutely clean. Heat the foil by setting the code or recommended heating time according to the instructions. Close the pressure chamber and open after cooling phase has finished.

Finishing

3. Depending on the kind of material and thickness, trim the splint with a scissor, cutting bur (REF 3214) or HM carbide cutter (REF 3369). Further finishing with the Finishing set. The edges of hard foils can be polished as usual. BIOPLAST® foils can be polished with the OSAMU polisher or thermally with a flame or torch.

Hints:
When fabricating an adjusted functional splint, the splint should be removed from the model only after polymerization of DURASPLINT® for finishing. By roughening up the splint occlusally or applying PERLIBOND a good bonding to the splint is guaranteed (please also refer to our additional information on DURASPLINT® and the special brochure).
**Splint retainer**

**List of Materials:**
- COPYPLAST® C 1.0 mm (like f.e. ESSIX C®)
- DURAN® 0.5/0.75/1.0 mm (like f.e. ESSIX A®)
- IMPRELON® “S” 0.5/0.75/1.0 mm
- ISOFOLAN® foil
- HM-carbide cutter
- Finishing set
- DIMO® / DIMO® PRO

**Insulating and Embedding**

1. Place the flat trimmed, reduced model on the model platform. When using DURAN® or IMPRELON® “S” press an ISOFOLAN® foil over the model serving as insulation and cut off the foil at the model bottom with a scalpel. In case of using COPYPLAST® C moisten the model.

**Pressurizing**

2. Place model on the platform, in case of high models embed in pellets. Heat the foil by setting the code and recommended heating times according to the instructions. Close pressure chamber and open after cooling phase has finished.

**Finishing**

3. Remove foil carefully and cut to exact length.

**Hints:**

Please don’t use ISOFOLAN® foil, as it may bond to COPYPLAST® C, it shouldn’t be used as insulation for it. ESSIX A® and ESSIX C® are registered trademarks of Dentsply Raintree Essix.
Retainer/Expansion plate

List of Materials:
- BIOCRYL® “C” 3.0 mm clear
- BIOCRYL® “M” (multi couloured designer plates)
- ISOFOLAN® foil
- BIOCRYL® resin
- Finishing set

Insulating and Embedding

1. Bend and adjust clasps without fixing them. Place flat trimmed model on the platform and press an ISOFOLAN® foil over it. Cut off surplus foil on model bottom and perforate interdentally with scalpel. Fix clasps buccally with sticky wax. Embed vestibular model parts in the pellets up to occlusal areas. Fill up large lingual undercuts with blocking-out putty (REF 3220).

Pressurizing

2. Heat the foil by setting the code or recommended heating time according to the instructions. During the last 20-30 sec of the heating time, put some drops of BIOCRYL® resin on the clasp retentions, close pressure chamber and press heated foil over the still liquid acrylic. BIOCRYL® resin will polymerize during the cooling phase in the pressure chamber and will bond to BIOCRYL® “C” during this procedure.

Finishing

3. For initial trimming use a cutting bur (REF 3214). The clasps and the labial bow are released with the finishing bur (REF 3377). The finishing bur is made of a special soft alloy that won’t damage the clasps.

Hints:
- You have the option to insert an expansion screw as well.
List of Materials:
BIOPLAST® 1.0-2.0 mm
BIOPLAST® Insulating agent
DURAN® 0.75-1.0 mm
Silicone spray (f.e. LOBOSIL)
Water soluble adhesive (f.e. “UnitekTM Laboratory Adhesive”)
Set-up separating disk
BLUE BLOKKER
Set-up wax

Fabrication of duplication model please refer to page 5 (Model duplication). Proceed with fabrication of intended Set-up with duplication model.

Hints for positioning of brackets on the prepared Set-up model:
Apply a few drops of water soluble adhesive at the tooth. Position lingual bracket. Changes in positions can be done with a hot wax knife, inserted in the bracket slot. Avoid too much adhesive between bracket and tooth. Adhesive should dry for 10 min.

Fix Set-up model with BLUE-BLOKKER. Apply BIOPLAST® Insulating agent on the flat trimmed model and place it on the platform. Heat BIOPLAST® by setting the code or the recommended heating time according to the instructions. Close pressure chamber and open after cooling phase has finished.

Soak model into water to dissolve the adhesive. Remove the foil with brackets from the model and reduce BIOPLAST® with scissors (it should be 2-3 mm longer than the gingival margin).

Hints:
SMILE DENTAL offers a wide range of bracket adhesives, if the use of a water soluble adhesives is not intended (www.smile-dental.de).
“UnitekTMLaboratory Adhesive” is a product of 3M Unitek (www.3munitek.de)
Segmentation of BIOPLAST®

Segmentation of the foil is done tooth by tooth, thus allowing the transfer to the original model.

Positioning of segments on the original model

Position the BIOPLAST® single tooth segments on the original model, then proceed with insulating them with silicone spray (f.e. LOBOSIL) or vaseline, so they can be removed easily from the DURAN® foil later. In case of crowdings leave out the corresponding tooth.

Pressurizing DURAN®

Embed the original model with brackets in BIOPLAST® segments (refer to picture) and press an ISOFOLAN® foil over it. Heat foil by setting the code or recommended heating time according to the instructions. Close pressure chamber and open after cooling phase has finished.

3 tooth segments for transfer

Cut foil radially and remove from model. Proceed with finishing. Extension of the DURAN® foil should be about 2-3 mm shorter than BIOPLAST®. Separate DURAN® in 3 tooth segments, serving as bracket transfer from model to patient.

Hints:
LOBOSIL is a product of MR® Chemie GmbH (www.mr-chemie.de)
Bracket transfer mask

List of Materials:
COPYPLAST® 0.5/0.75 mm
Caramel or water soluble adhesive
(f.e. “UnitekTM Laboratory Adhesive”)

Insulating and Embedding

1. Put a drop of water soluble adhesive on the teeth with a probe. Position the bracket. Changes in position can be done with a hot wax knife, inserted in the bracket slot. Avoid too much adhesive between bracket and tooth. Place flat trimmed model on the platform.

Pressurizing

2. Heat the foil by setting the code or recommended heating time according to the instructions. Close pressure chamber and open after cooling phase has finished. Soak model into water in order to dissolve the adhesive. Remove foil and clean residues of adhesives with luke warm water.

Finishing

3. Cut mask with scissors.
Preparing fixing of the brackets:
Perforate incisally with a scalpel, so that surplus adhesive can escape.
Information for dentist/orthodontist:
Apply adhesive to the base (if possible pasty) and insert mask at the patient. Press each bracket with an instrument or finger on the tooth and after the adhesive has set, remove the foil beginning distally.

Hints:
SMILE DENTAL offers a wide range of bracket adhesives, if using water soluble adhesives is not intended (www.smile-dental.de).
“UnitekTMLaboratory Adhesive” is a product of 3M Unitek (www.3munic.de)
Insulating and Embedding

1.
Coat only the required splint areas with BIOPLAST® insulating agent. Trim the bottom of the model flat and place it on the model platform. Heat the foil by setting the code or recommended heating time according to the instructions. Close pressure chamber and open after cooling phase has finished. Trim out occlusal areas and incisal edges. For stability reasons, cut BIOPLAST® only at the bottom of the model.

Pressurizing

2.
Trim and clean the BIOPLAST® foil with luke warm water and replace it on the model. Embed in pellets up to approx. 10 mm below the cervical edge. Fill up model cup with pellets to the upper rim and make sure the edges of the cup are clean. Heat the foil by setting the code or recommended heating time according to the instructions. Coat the BIOPLAST® foil with OSAMU BOND during the last 15 sec. of heating of IMPRELON® “S”. Close pressure chamber. For an optimum compound, leave the model 5 min. longer under pressure.

Finishing

3.
In order to avoid tensions, trim the plate radially from the edges to the model. Then remove foil carefully. Trim exact length of OSAMU Retainer® and polish the edges of the hard foil carefully.

Hints:
Please also refer to detailed fabrication procedure in OSAMU Retainer® kit.
For an optimum compound, avoid any kind of dirt, fingerprints etc. on BIOPLAST® foil.
Positioner (2 or 3 layers)

List of Materials:
- BIOPLAST® 3.0/4.0/5.0 mm
- BIOPLAST® insulating agent
- Finishing set
- DIMO® /DIMO® PRO
- Heating support REF 3451 BIOSTAR® from 2006 on
- Heating support REF 3451 MINISTAR® /MINISTAR® S
- Heating support REF 3452 BIOSTAR® until 2005

Insulating and Embedding

1. Apply BIOPLAST® insulating agent to working models (upper and lower) – only to those parts which will be covered by the positioner! Trim models flat and place on model platform, then press a BIOPLAST® of the required thickness over the model. Cut surplus material at the model bottom using the finishing set, scissors or scalpel. Cover the palatal and lingual area with a moistened pulp or similar material.

Pressurizing

2. Heat both models for about 3-4 min. under the infrared heater using the corresponding heating support (distance between occlusal area and heater about 10 cm). Place both models into the articulator or fixator and close appliance slowly. Smooth the lingual area between upper and lower jaw in this plastic state with moistened fingers.

Finishing

3. After about 2 min of cooling, the exterior shape of the positioner can be formed with scissors or scalpel. Uneveness can be levelled by melting BIOPLAST® - then take the models out of the positioner. Use scissors resp. BIOPERM trimmer for required corrections of the edges in order to avoid air inclusions.

Hints:
Split cast cuts at the model bottom may cause perforations respectively air may pass through the BIOPLAST® foils, which therefore should be blocked out.
Pierce the bimaxillary BIOPLAST® mould with drill bit in the interdental space at the papilla from the labial and buccal side – lingual and palatinal form will be finished later. If breathing holes are foreseen, pierce them now into the mould.

Reset the models in the bimaxillary unit made of BIOPLAST®. For an optimum compound, clean the areas which are to be melt into with lukewarm water and let them dry, avoiding any further contact. Place upper and lower model unit edgewise in the pellets with the occlusal surface parallel to the swivel axis and embed them carefully, i.e. covering the model bottom and releasing the distal areas. Swivel the pressure chamber in working position to check whether there is enough space for the two models to all sides, especially to the top. Then press a 2 mm BIOPLAST® sheet over the models. Air release and pressure decrease in the area of the 2nd molars are normal in this case – wait 1 minute before opening the pressure chamber.

Cut excess BIOPLAST® material with scissors, scalpel or hot knife. Keep distance from the final edges, lay open distal model sides. Take models out of the BIOPLAST® mould and cut away surplus of material along the contours with scissors – cut interior shape to the final form. Eventually reopen breathing holes from the outside.

Smooth the edges with a BIOPERM trimmer – high speed. Finish and polish preferably with DIMO®/DIMO® PRO. Polish the edges with a hot knife or with flame – Attention: Avoid deformation.

When using BIOPLAST® 4.0/5.0 mm the positioner can be fabricated in two layers as well. In this case, after pressure moulding the two models are heated under the heating support and then carefully melt and modelled in the articulator.

Hints:

For an optimum thermal compound of the BIOPLAST® foils, avoid naked flame and any kind of debris (e.g. finger prints, compressed air containing oil) in the melting areas. When fabricating the positioner of 2 layers, for the breathing hole a spacer made of COPYPLAST® can be used which is positioned frontally in the articulator before melting and removed afterwards.
Mouthguard/Sports Protection
(one or more layers)

List of Materials:
BIOPLAST® MULTICOLOR 3.0 mm or BIOPLAST® COLOR 3.0 mm or
BIOPLAST® clear 1.0-5.0 mm, DURAN® 0.75/1.0 (if desired)
BIOPLAST® insulating agent
Nylon mesh
Finishing set
Heating support REF 3451 BIOSTAR® from 2006 on
Heating support REF 3451 MINISTAR®/MINISTAR® S
Heating support REF 3452 BIOSTAR® until 2005

Insulating and Embedding

1. Put one thin layer of BIOPLAST® insulating agent only on the
areas which are necessary for the mouthguard. Trim the model
flat and place it on the model platform. Heat the foil by setting
the code or recommended heating time according to the instruc-
tions. Close pressure chamber and open after cooling phase has
finished.

Pressurizing

2. Cut the 1st foil of the mouthguard with scissors or scalpel. If
strengthening is desired, trim the mesh foil according to the arch,
heat surface with the heating support and adapt nylon mesh. If de-
sired, a protection label made of DURAN® may be put on as well. To
avoid air inclusions, perforate 1st foil interdentally at the papilla and
occlusally with drill bit. Cut off surplus material, smooth the edges,
clean foil with warm water and let it dry. For optimum compound,
make sure not to touch the surface again. Place model on the plat-
form and heat by setting the code or recommended heating time
according to the instructions. Close pressure chamber and open
after cooling phase has finished.

Finishing

3. Cut and finish mouthguard to desired shape. Warm up the oc-
cclusal areas under the infrared heater with the heating support
and put the models into articulator for counter bite. Cool down
with compressed air or water and remove. Polish the edges with
finishing set and thermally, if desired.

Hints:
An optimum and durable bonding of several BIOPLAST® sheets is only possible making sure the surfaces are totally clean
and using the infrared heater and eventually a hot-air fan. Following a procedure similar to the one of a positioner, you may
fabricate a bimaxillary mouthguard as well (refer to pages 22/23).
### List of Materials:
- DURAN® 2.0/3.0 mm (hard)
- IMPRELON® “S” 2.0/3.0 mm (hard elastic)
- ISOFOLAN® foil
- BIOCRYL® Resin
- BLUE-BLOKKER
- Finishing set

### Insulating and Embedding

1. Trim the model flat and place it on the model platform. Press an ISOFOLAN® foil over the model. Cut off the foil at the model bottom with a scalpel and cut interdentally small incisions in order to avoid air bubbles. If desired, add wire elements for distal connection and fix distally with BLUE-BLOKKER. (Cut off ISOFOLAN® foil in this area before.) Embed the model in pellets up to 5 mm under the rim of the gingiva. Fill up model cup with pellets to the upper rim making sure the edges of the cup are clean.

### Pressurizing

2. Heat the foil by setting the code or recommended heating time according to the instructions. Put some drops of BIOCRYL® Resin on the retentions of the wire during the last 20-30 sec. of the heating procedure. After heating time has finished, close pressure chamber and press the foil over the liquid acrylic. For rough finishing, you may use the cutting bur (REF 3214). The wire elements can be trimmed out with the finishing bur (REF 3377), made of a soft special alloy that won’t damage the wires.

### Finishing

3. Cut the plate radially resp. cut roughly below the dental arcade, remove carefully from the model and finish to exact length. Trim out occlusal areas and wires.

### Hints:

The working steps described above can be used for manifold modified types of splints depending on the type of case and therapy.
List of Materials:
- Coating foil 0.15 mm
- Skin packaging

Insulating and Embedding

1. Place blister packaging on the model platform. Position model on blister packaging.

Pressurizing

2. Set the code and heat foil according to the instructions.

Finishing

3. Close pressure chamber and open after cooling phase has finished. Further finishing is not necessary.

Hints:
If desired, you may include a label with name or address on the blister packaging.
A good feeling ... 

... to be able to laugh when you like

My splint is nearly invisible

CLEAR - ALIGNER

The convincing splint concept acc. to Dr. Tae Weon Kim.

Clear advantages for you and your patient:

- corrections during therapy possible at any time
- long standing clinical experience
- esthetical, high transparent splints
- various applications
- very comfortable to wear, easy to clean
- practical training courses, detailed information material
- economical and immediate fabrication in your office

Total therapy control and value added for your office.