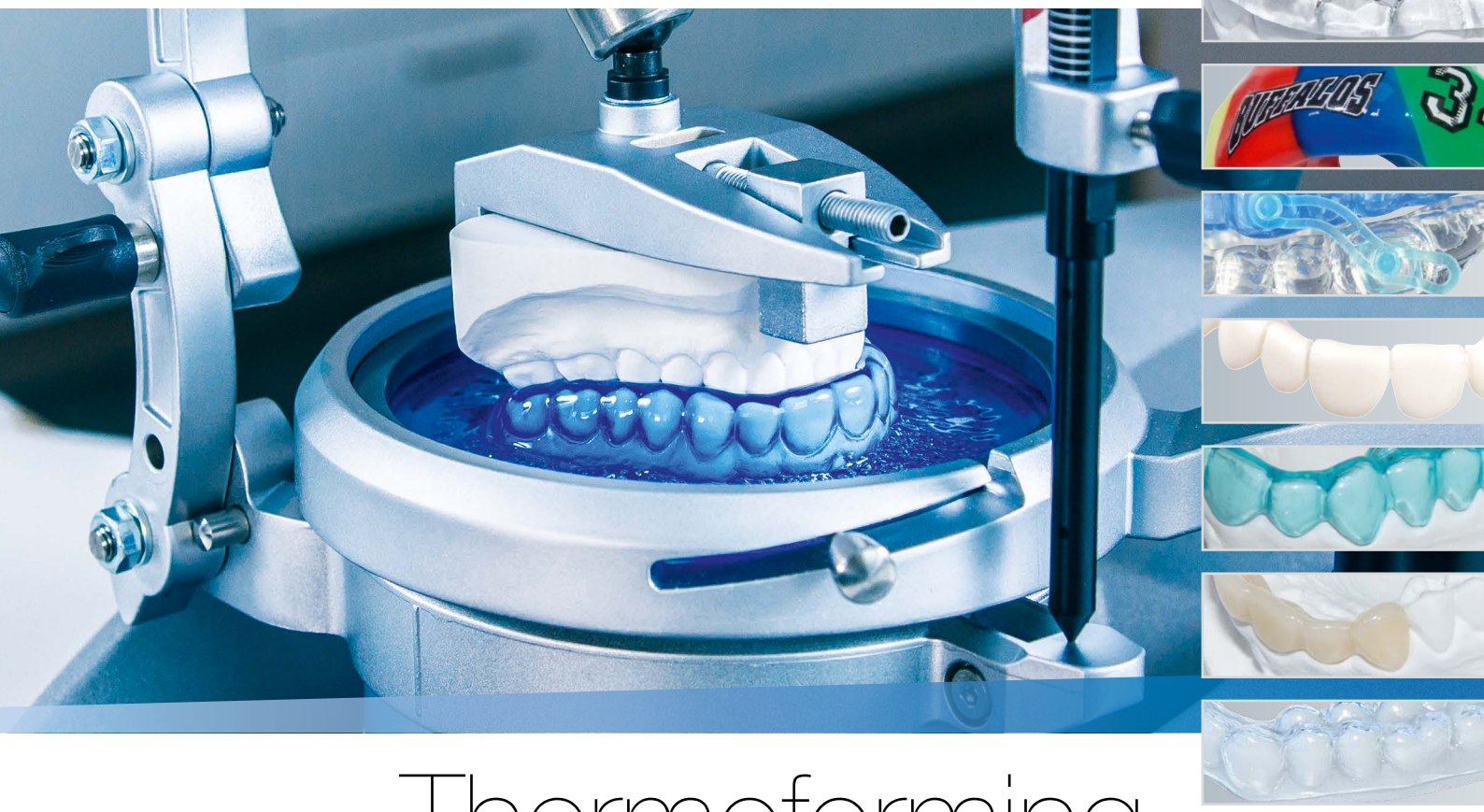
English



Thermoforming

ERKODENT®

Thermoforming technique

The instructions in this brochure are the suggestions of the Development Team of Erkodent.
The fields of use as well as the fabrication procedures in Thermoforming Technique are not limited to the instructions that are shown and may vary.
Please do not hesitate to contact us if you have any suggestions.
Please find videos to the fabrication of several applications at: **www.erkodent.com** > Service/Download > Videos

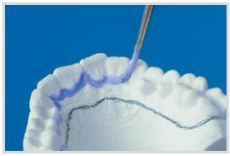
Basic principles of thermoforming:

- The **models** should consist of **hard plaster** (class 3).
- For thermoforming the **hard plaster** can contain residual moisture but **must not** be **wet**.
- For a good adaptation the **hard plaster** must be **permeable to air**, especially hard plasters for the orthodontic field do not always ensure this. Like when using plastic models or varnished models that are impermeable to air, this leads to incomplete adaptation because in most cases air cannot escape completely between the model and the foil.
- 3d print models are placed centrally on the model plate for the adaptation (pressure and vacuum forming units). Please ensure that the model base entirely fits all around to the model plate. If necessary, close not fitting areas with Erkogum. 3d print models with socle can also be adapted in granules. Further auxiliaries for the use of 3d print models are Occ3-4p and Occ3-aM.
- The removal of hard materials very often leads to a **break of models**. The use of super hard plaster does not solve this problem, it is better to thermoform on a duplicated model.
- It is useful to **embed the models** for thermoforming as far into the **high grade steel granules** that only the area that has to be thermoformed plus 3 mm is visible.
- The **granules** allow a **quick adaptation** of the thermoforming materials and a very simple limitation of the model height.
- When working on the **model disc** ensure that the **model base** is **trimmed flat**.
- **Model preparation:** Areas of the model (exterior vestibulum, oral floor) which obstruct the thermoforming process have to be removed. Remove sharp plaster edges.

Fill narrow gaps between the teeth with Erkogum (transparent 110 844 / lilac 110 847).

Remove positive plaster bubbles.

Fill negative plaster bubbles and small defects with blocking out wax (transparent 725 080 / lilac 725 055).



If the splint covers the gingival margin, relieve it with Erkoskin (625 050).

When there are large undercuts, mark the prosthetic equator to limit the height.

- The adaptation of thermoforming materials always means a **stretching** respectively a thinning of the original material thickness. A rough orientation is: **1 cm model height corresponds to 20 - 25 % loss of thickness**. For this reason it is expedient to embed the models into the granules.
- All **Erkodent thermoforming materials** are tested on their biocompatibility and are **physiologically harmless** in their intended use. They are CE marked based on the EU regulation 2017/745 concerning medical products, the directive 93/42/EEC concerning medical products and the EU regulation 2016/425 concerning personal protective equipment (Playsafe triple sports mouthguard).
Up to now (2025) there is no knowledge of confirmed allergic reactions on the materials, but allergic reactions cannot be excluded.
- Pay attention to the regulations for operational safety.

Contents

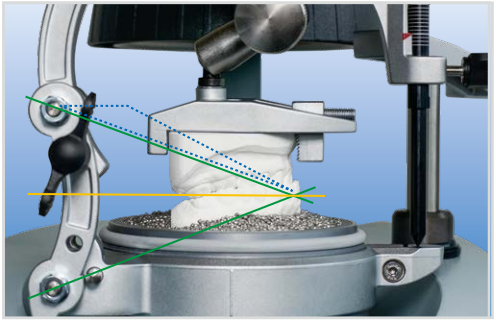
Info + Video

Occluform-3 • The function of the Occluform device

The Occluform is an occludator that can be integrated in a thermoforming unit to **imprint the opposing bite** (pat. 19915567).

- The Occluform-3 can only be installed at the Erkoform units serie 3.
- It allows to directly imprint the opposing bite in the Erkoform units serie 3 during the thermoforming process!
- Plaster-free model fixation.
- The single column construction enables best model accessibility.
- The articulation of the models is ensured by a hydraulic system that can be fixed in every position.
- The construction of the Occluform-3 device is based on a Bonwill triangle with a side length of 11.5 cm and a Balkwill angle of 20°. That way it allows a median elevation of the bite.

The Erkoform units serie 3 are prepared for the simple installation of the Occluform-3, the device will only be mounted with a single clamping screw on the thermoforming unit.



Hints

- **Please note:** the upper joint of the Occluform-3 is fixed when thermoformed on the upper jaw model, the lower joint is fixed when thermoformed on the lower jaw model (see also Occluform-3 instructions).
- Reduce models that exceed the inner dimensions of the retainer jaws in the model pot and that are too high for the total inner dimensions (both models articulated) by trimming.
- For very small models turn the retainer jaw to the marking point at the edge of the model pot in order to avoid the incisal point moving backwards.

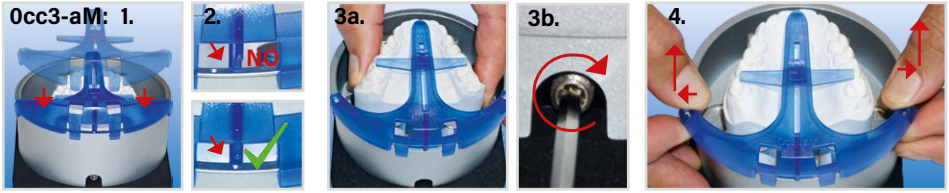
Accessories:
Occ3-PMF: Device for print models to use the Occluform-3 with Erkoform-3 devices.
Occ3-PMF set 188 575,
model pot insert with model disc, counterbite holder and fixing key for the clamping device.

Occ3-aM: Device for mean value alignment of a model in the Occluform-3 model pot to the incisal point and to the occlusal plane. The positioning and articulation then corresponds to that of a mean value articulator.
Occ3-aM 188 589,
1 piece with model pot support

Working with the Occluform-3

All thermoforming materials can be adjusted with the Occluform-3. However, thin foils cool off very fast and are less suitable.
The thicker the thermoforming material used the more time there will be for the imprint (adjustment).

1. If available, place the lower or upper jaw model in the model pot using the **0cc3-aM** and tighten. The area that has to be thermoformed should protrude the edge of the pot. (**Occ3-aM 1. - 4.**)



1. If Occ3-aM is not available fix the lower or upper jaw model in the model pot, the area that has to be thermoformed should protrude the edge of the pot.

2. Fix the antagonistic jaw onto the upper model plate. Prefix the model in a preferably high position with the arrest joint.
Close the Occluform.
Occ3-PMF (188 575) for fixation of 3d print models!

3. Point the supporting pin on the 0-line (arrow), open the arrest joint and articulate the models.

The bite can be elevated to a median value.

4. If a construction bite is available the models are articulated in the same way (**3**).

That way the imprint corresponds exactly to the bite registration.

5. Hold the upper model plate in position and firmly close the arrest joint.
Open the Occluform.

Fill as many high grade steel granules in the pot that only the ...

6. ... thermoforming area plus 3 mm is visible. Ensure that also the hollow spaces under the model are filled with granules. Insulate the opposing bite (alginate based insulation).

Now it can be thermoformed.

Occlusal splints with and without adjusted occlusion

Materials & Accessories

Fabrication:

- Hard splints: Erkodur, adjusted splints 1.5 - 5.0 mm, stabilization splints 0.8 - 1.5 mm
- Hard / soft splints: (2-layered) Erkoloc-pro, adjusted splints 2.0 - 5.0 mm, stabilization splints 1.0 mm / 1.3 mm
- Semi-soft splints: Erkoflex-95, adjusted splints (biting) 2.5 and 4.0 mm

- For adjustment by addition: auto-polymerizing resin for Erkodur and Erkoloc-pro, Erkoflexsticks-95 (177 006) with commercially available fusing gun, ≥ 500 W with screw-top (special top for fusing gun 177 010) for Erkoflex-95. If necessary, hot air burner (177 540) for the adjustment of Erkoflex-95. For adjustment by grinding (biting): Erkoform units serie 3 / Occluform-3
- For model insulation and shrinkage compensation thermoform the ex works applied insulating foil together with the desired plate, in doing so the insulating/shrinkage compensation foil has to show towards the model (otherwise alginate based insulation, only insulation).
- Cover templates (110 900) to cover the granules when using Erkoloc-pro and Erkoflex-95 (less loss of granules).

Model preparation:

- With large undercuts and hard splint material, parallelometer for marking the prosthetic equator.
- Erkogum (110 844) for blocking out, high-fusing wax (725 080) to fill bubbles in the plaster.
- Erkoskin (625 050) to relieve the gingival margin.

Finishing:

- Recommendation: Finishing set Quick 3 (110 830) with fissure bur, rightward cutting, left spiral (110 836) for rough cutting out, HSS-twist drill (110 876) to cut out the desired form, crosscut tungsten carbide bur (110 837 for fine grinding, Liskosil-l (223 240) to prepolish the edges and Liskosil-m (223 230) to prepolish narrow interdental spaces and Liskosil-s (223 220) for treatment of occlusal premature contacts and insides of splints. Pear-shaped tungsten carbide bur (110 835) for grinding-in. Take-off pliers (110 880) for taking off the splints of the model.
- Polishing set (110 878) to polish Erkodur and Erkoloc-pro, hot air burner (177 540) to shine Erkoflex-95.

Hints

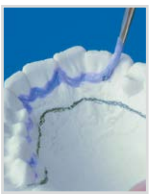
- This instruction is limited to the general fabrication of splints. Functional individualizations as required for the therapy with **reflex, repositioning, distraction, centric (Michigan) and many other types of splints** can be realized except for a few types of splints only with materials that are at least in the occlusal area hard.
- Areas of the model (exterior vestibulum, oral floor), which obstruct the thermoforming process have to be removed. Remove sharp plaster edges.
- In order to have transparent splints out of Erkoloc-pro or Erkoflex-95 **without** insulating foil, the model should be insulated with alginate insulation.
- For splints that exceed the gingival margin apply a layer of Erkoskin to the margin to relieve tension.
- To prevent stress cracking, moisten the area to be built up with auto-acrylics with very little monomer. Do not blast, do not roughen!
- For splints out of Erkoloc-pro the hard layer may be ground through.

Occlusal splints without adjustment, for ex. stabilization splints

Thermoforming material: Erkodur, 0.8 - 1.5 mm, hard · Erkodur-0M1/-A1/-A2/-A3, 1.0 - 2.0 mm, hard · Erkoloc-pro, 1.0 - 1.3 mm, hard/soft
In regard to fabrication the materials do not differ, in regard to finishing only slightly.

1. Pay attention to the hints for model preparation at page 1.

When there are thick undercuts, mark the prosthetic equator with a parallelometer and block out large undercuts.



2. If necessary (see hints), apply Erkoskin on the gingival margin.

Embed the models so far into the high grade steel granules that only the thermoforming area plus 3 mm protrude from the granules.

3. If applicable, cover granules with a cover template (Erkoloc-pro / Erkoflex-95).

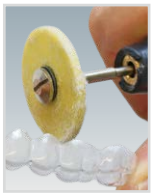
Thermoform.

4. Cut in the thermoformed plate with the fissure bur (> 20 000 rev/min) for an easier removal of the model and take off the model with take-off pliers.

5. Use the twist drill HSS without pressure (> 20 000 rev/min) to cut out the desired shape.

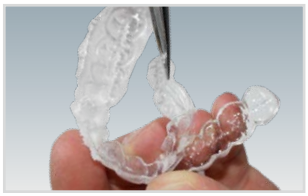
6. If necessary, grind the edges with the crosscut tungsten carbide bur (> 20 000 rev/min).

7. Smooth the edges with Liskosil-l (10 000 rev/min). Smooth narrow interdental spaces with Liskosil-m or -s (10 000 rev/min).



8. If necessary, polish the matt areas with the polishing set using a lab handpiece, however, for these relatively thin splints a polish is mostly superfluous.

9. It would be best to now take off the insulating foil.



10. Finished stabilization splint.

Pay attention to the cleaning and maintenance instructions on page 30.

Occlusal splint with adjustment by reduction (grinding), for ex. centric splint

Thermoforming material: Erkodur, 1.5 - 5.0 mm, hard · Erkodur-0M1/-A1/-A2/-A3, 2.0 mm, hard · Erkoloc-pro, 2.0 - 5.0 mm, soft/hard
In regard to fabrication the materials do not differ, in regard to finishing only slightly.

9. Same procedure as up to point **6.**

Grind the splint as per the usual manner in the articulator according to the prescriptions.
Recommendation: pear-shaped crosscut tungsten carbide bur (110 835).

10. Smooth and pre-polish the edges with Liskosil-l and -m (10 000 rev/min) and the grinding areas with Liskosil-s.

11. Polish the matt areas with the polishing set using a lab handpiece.

Or polish at the polishing lathe according to the technique for plastics.

12. Finished splint, adjusted by grinding.

Pay attention to the cleaning and maintenance instructions on page 30.

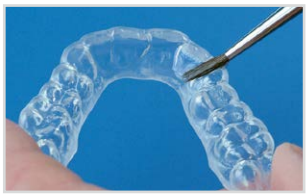
Occlusal splint with adjustment by addition and grinding, for ex. Michigan splint

Thermoforming material: Erkodur, 1.5 - 5.0 mm, hard · Erkoloc-pro, 2.0 - 5.0 mm, soft / hard
In regard to fabrication the materials do not differ, in regard to finishing only slightly.

13. Same procedure as up to step **6.**

Brush areas that have to be adjusted with an autopolymer resin with little monomer.

Note the second last point of the hints!



14. Insulate the opposing bite (alginate insulation), put the splint back on the model, apply the mixed autopolymerising resin and brush the plate with monomer.
Put the models in the articulator.

15. Close the articulator and cure in the polymerisation pot at 40 - 50 °C. After curing open the articulator carefully (model may break!) and remove the splint.

16. Finish the area that has been adjusted by addition and the splint (**9** to **12**).

17. Finished adjusted Michigan splint produced by addition, with restored cuspid guidance.

Pay attention to the cleaning and maintenance instructions on page 30.

Hot foil material (Erkodur, Erkoloc-pro, 4.0 / 5.0 mm) can also be formed to a cuspid guidance in the unit by a manual moulding …

18. … for this purpose it would be best to work with an Occluform installed at the Erkoform units (also see other chapters).

Take the bite with the Occluform …

19. … and immediately press the hot plastic foil material in the cuspid area with a suitable instrument against the antagonistic jaw.

20. After cooling take it off the unit and finish as described in step **9** to **12**.

21. Finished adjusted Michigan splint without addition, the splint consists in the occlusal area only of one material type.

Pay attention to the cleaning and maintenance instructions on page 30.

Soft occlusal splint with imprinted adjustment, for ex. relief splint

Thermoforming material: Erkoflex-95, 2.5 and 4.0 mm, Shore A 95

22. Addition: Erkoflex-95, 2.5 mm
Embed the models so far into the high grade steel granules that only the thermoforming area plus 5 mm protrude from the granules. Cover the granules with the cover template.

23. Thermoform, after cooling take it off the model and roughly cut out the shape with the fissure bur or the scissors, leave the shape longer than the final splint.

24. Pull the insulating foil off.

Put the splint back onto the model and degrease well with degreasing agent (613 050). Put the models into the articulator. Insulate the opposing bite (Isolac).

25. Apply material onto the required areas using the Erkoflexsticks-95 and a fusing gun (max. 2 cm length per application). Hold the point of the fusing gun very close to the splint.

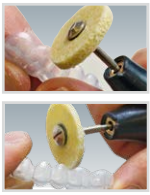
26. In the articulator immediately imprint the opposing bite …

… or build up all areas step by step and later on imprint the opposing bite as shown in step **31.**

27. Cut out the final shape of the splint with the HSS twist drill (> 20 000 rev/min). Work the built-up with the crosscut tungsten carbide bur (> 20 000 rev/min).

28. Smooth with Liskosil-l and -m (10 000 rev/min).

Carefully shine with the hot air burner.



29. Finished adjusted splint by addition.

Pay attention to the cleaning and maintenance instructions on page 30.

30. Imprint: Erkoflex-95, 4.0 mm

Same procedure as step **22** to **24**, however, without degreasing.

31. Warm occlusal area with the hot air burner until it becomes clear and imprint the opposing bite, see also step **26.**

Finish as shown in step **27** and **28.**

32. The imprint can also be done in the mouth. Therefore put the splint finished up to step **23** on the model into a flat bath with cool water. The occlusal area has to protrude from the water, …

33. … warm the occlusal area, see **31.** Briefly pour cool water over it, immediately remove the splint from the model and place it into the mouth. Obtain an occlusal registration. Allow to cool for 2 min. in the mouth and finish as shown in step **24.**

Imprint of the opposing bite in the Erkoform units serie 3 and Occluform-3

Thermoforming materials: all types of materials that are listed in "Materials & Accessories" from 0.8* mm thickness and more, in the example Erkodur. The thinner the material is the quicker the Occluform-3 device has to be closed after adaptation. *0.8 / 1.0 mm, fast proceeding required

34. In the example, fix the upper jaw in the model pot.

For the fabrication of an adjusted occlusal splint the model only has to protrude of the model pot by height of the teeth plus 3 mm.

35. Put the model pot that way into the unit that the markings (arrows) are opposite.

36. Fix the antagonistic jaw onto the upper model plate. Prefix the model in a preferably high position with the arrest joint.

Close the Occluform.

37. Point the supporting pin on the 0-line (arrow), open the arrest joint and articulate the models.

The bite can be elevated to a median value.

38. If a construction bite is available the models are articulated in the same way (**3**).

That way the imprint corresponds exactly to the bite registration.

39. Hold the upper model plate in position and firmly close the arrest joint.

Open the Occluform.

40. Fill as many high grade steel granules in the pot that only the thermoforming area plus 3 mm is visible. Ensure that also the hollow spaces under the model are filled with granules.

41. Insulate the opposing bite.

Now it can be thermoformed. **Immediately** after adaptation close the Occluform until the supporting pin gets contact.

42. After the thermoforming material has cooled down open the Occluform. The imprint corresponds to the bite elevation or the construction bite.

43. Open the foil securing ring, lift the foil frame of the unit together with the model pot and take off the foil frame with the foil.

Finish as described in step **9** to **12.**

Imprint of the opposing bite with plane occlusion in the Erkoform units serie 3 and Occluform-3

Thermoforming material: Erkodur, 3.0 - 5.0 mm, hard · Erkoloc-pro, 3.0 - 5.0 mm, soft / hard
In the example: Erkoloc-pro. The working steps have to be carried out quickly one after the other.

44. The plane occlusal surface will be pressed on with an Erkolen-foil, 0.8 mm or 1.0 mm and the Occluform. Thereto pull the insulating foil off (the Erkolen-foil can be used several times).

45. Carry out working steps **34 - 41** analogically.
The Erkolen-foil and foil frame should possibly be held and operated with one hand. Apply the Erkolen-foil **immediately** after the adaptation …

46. … and **immediately** close the Occluform so far that the supporting pin does not have contact yet (app. 3 mm opening) …

47. … **immediately** open the Occluform a little again, remove the Erkolen-foil and …

48. … **immediately** close the Occluform until the supporting pin gets contact.

By this mode of operation a plane occlusal surface with imprint of the cuspid tips will be obtained.

49. Take it out of the unit after cooling down and finish as described in step **9** to **12.**

Pay attention to the cleaning and maintenance instructions on page 30.

Temporary appliances

Materials & Accessories

Fabrication:

- Moulding as negative mould without bonding to acrylics for temporaries: Erkolen, 0.8 and 1.0 mm
- Moulding with bonding to acrylics for temporaries by a primer: Erkodur, 0.6 - 1.0 mm, Erkodur-0M1/-A1/-A2/-A3, 0.6 and 1.0 mm
- Primer for a durable combination of cartridge acrylics and liquid/powder acrylics with the foil types Erkodur.
- For model insulation and shrinkage compensation thermoform the ex works applied insulating foil together with the desired plate, in doing so the insulating/shrinkage compensation foil has to show towards the model (otherwise primer, only insulation).
- Cover templates (110 900) to cover the granules when using Erkolen (less loss of granules) (not absolutely necessary for the Erkodur types).

Model preparation:

- Erkogum (110 844) for blocking out, high-fusing wax (725 080) for filling bubbles in the plaster.

Finishing:

- Moulding: HSS twist drill (110 876) or scissors (220 300 / 220 301)
- Temporary appliance: crosscut tungsten carbide bur (110 837) for fine grinding, Liskosil-I (223 240) or Lisko-S (223 200) for prepolishing the edges and Liskosil-m (223 230) or Liskoid (223 205) for prepolishing narrow interdental spaces, polishing set (110 878) for polishing

Hints

- If the temporary appliance consists of a compound of foil and acrylic this leads to a considerable reinforcement of the temporary appliance.
- In the interdental gaps of the anatomic cast ready-made teeth or plaster teeth taken from other models can be fixed with Erkogum or high-fusing wax.
- Model areas (exterior vestibulum, oral floor) which obstruct the thermoforming process have to be removed. Remove sharp plaster edges.
- With suitable acrylics the adaptation can be done in the mouth, otherwise on the prepared model (described here).
- Inject the cartridge acrylic onto the still humid primer into the mould.

Temporary appliance combined of foil and acrylic

Thermoforming material: Erkodur, 0.6 - 1.0 mm, Erkodur-0M1/-A1/-A2/-A3, 0.6 and 1.0 mm.
In regard to fabrication and finishing the materials do not differ.

1. Fixed ready-made teeth.

Embed the models so far into the high grade steel granules that only the thermoforming area plus 3 mm protrude from the granules.
If necessary, cover the granules (cover templates).

2. Thermoform and allow to cool down.

3. Cut in several times with the scissors towards the model for an easier removal. Remove the foil from the model and roughly cut it out.

4. Cut the desired shape with the HSS twist drill (> 20 000 rev/min). To avoid raising the bite, the cervical border should be shortened by app. 1 mm.

5. Pull the insulating foil off.

Finished mould out of Erkodur.

6. Finished mould out of Erkodur-A1.

Place the models into the articulator and articulate.

Insulate (alginate based) the model for the temporary appliance.

7. For a durable combination the inner surface of Erkodur and Erkodur-0M1/-A1/-A2/-A3 have to be brushed with Primer.

8. Pour in the acrylics in tough-flowing condition or inject with the cartridge (**9**).

9. Press the mould onto the edentulous area.

With suitable, mostly cartridge acrylics, the adaptation can also be done in the mouth.

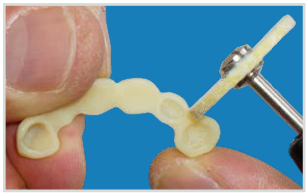
10. To avoid a raised bite and to compensate for the thickness of the foil, put the temporary appliance into occlusion with the opposing bite.

11. Grind the edges with the cross-cut tungsten carbide bur (> 20 000 rev/min).

12. Smooth and prepolish the edges with Liskosil-l (10 000 rev/min).

13. Smooth and prepolish narrow areas with Liskosil-m (10 000 rev/min).

If desired, polish the prepolished areas with the polishing set.



14. Finished, break-stable temporary appliance out of a compound of foil (Erkodur or Erkodur-0M1/-A1/-A2/-A3) and acrylic.

Temporary appliance, only made of acrylic, fabricated with a negative mould

Thermoforming material: Erkolen, 0.8 und 1.0 mm
Erkolen does not bond to acrylics for temporary appliances

15. Proceed as described in step **1** and **2**.

Cut out the negative mould in a way that the edentulous area and at least one adjacent tooth on each side are included, see also step **16**.

16. Pull off the insulating foil. Finished negative mould out of Erkolen.
Insulate the model (alginate).
Pour in the acrylics in tough-flowing condition …

17. … and firmly press the negative mould onto the edentulous area. To avoid a raised bite no acrylic may remain on the adjacent teeth.

After hardening take the blank off …

18. … the negative mould.
Finish as described in step **11 - 13.**
Finished temporary appliance.

Duplication moulds

Materials & Accessories

Fabrication:
- Erkoflex, 3.0 - 5.0 mm

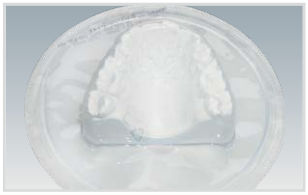
Model preparation:
- High-fusing wax (725 080) for filling bubbles in the plaster

Hints

- The duplication with Erkoflex is not as precise as the duplication with duplicating compounds. But this very low-cost method is suitable for demonstration, training and planning models.

1. Trim the model flat, put it onto the model plate in the thermoforming unit and thermoform.

Allow to completely cool down.



2. Put the formed Erkoflex as shown onto a ring or a pot in a way that the negative has contact only at the outside.
Put in plaster while form is standing on the vibrating slab.

Radiation protection splints

Materials & Accessories

Fabrication:
- Erkoflex, 4.0 and 5.0 mm

Model preparation:
- When using plaster models: Erkogum (110 844) for blocking out, high-fusing wax (725 080) for filling bubbles in the plaster.

Finishing:
- Special scissors XL (220 301), tungsten carbide bur (110 837) for grinding, Liskosil-I (223 240) or Lisko-S (223 200) for prepolishing, hot air burner (177 540) and if necessary, FG-sheets (177 400) for shining

Hints

- Areas of the model (exterior vestibulum, oral floor) which obstruct the adaptation have to be removed. Remove sharp plaster edges.
- Radiation protection splints reduce the implications of scattered radiation caused by materials of high density. This happens on the base of the distance-square-law of the radiation physics. The splints keep for ex. cheek and tongue in distance to the material of high density. The literature requires a distance of at least 3 mm.

1. The fabrication and finishing see **page 19, 1.- 6.** and **20, 17.**

Fabrication Video

2. Necessary adaptations can be effected with the strong scissors.

Radiation protection splint for upper jaw and lower jaw.

The final shape is determined by the odontogram and the therapist.

Cosmetic splints

Materials & Accessories

Fabrication:
- Erkodur-0M1/-A1/-A2/-A3, 1.0 mm (2.0 mm, if the splint has to be adjusted)
- For a possible bite imprint: Erkoform units serie 3/Occluform-3

Model preparation:
- Modelling wax to restore the tooth alignment

Finishing:
- Recommendation: see occlusal splints page 4
- A fine, flexible grinding disc to shape the interdental spaces. Polishing set (110 878) to polish

Hints

- Model areas (exterior vestibulum, oral floor) which obstruct the thermoforming process have to be removed. Remove sharp plaster edges.
- For model insulation and shrinkage compensation thermoform the ex works applied insulating foil showing towards the model together with the desired plate.
- Fabrication see stabilization splint, page 4 and 5. The splints can be put on cosmetically unfavourable teeth.

1. Cosmetically unfavourable initial situation, for ex. after an accident. The splint then also serves for stabilization.

2. The tooth alignment will be best restored with modelling wax.

3. For thermoforming the model should be duplicated.

Thermoforming and finishing see page 4 and 5, stabilization splint.

4. To obtain a better aesthetic view the interdental spaces are more clearly accentuated ...

5. ... best with a fine flexible grinding disc.

6. Finished cosmetic splint out of Erkodur-A1.

Pay attention to the cleaning and maintenance instructions on page 30.

Bleaching and fluoride trays

Materials & Accessories

Fabrication:
- Recommendation: Erkoflex-bleach, 1.0 mm, Erkoloc-pro 1.0 mm (all with insulating foil)
- Erkoskin (625 050) as spacer for bleaching trays (brush or spatula for application)
- Erkolen, 1.0 mm as spacer for fluoride trays

Model preparation:
- Erkogum (110 844) for blocking out, high-fusing wax (725 080) for filling bubbles in the plaster.

Finishing:
- HSS twist drill (110 876) or scissors (220 300 / 220 301) to precisely cut out the desired shape. Liskosil-l (223 240) or Lisko-S (223 200) and Liskosil-m (223 230) or Liskoid (223 205) to smooth the edges.

Hints

- Model areas (exterior vestibulum, oral floor) which obstruct the thermoforming process have to be removed. Remove sharp plaster edges.
- Erkoskin as spacer results per application in an app. 0.2 mm thick layer. Erkoskin has to be dry before thermoforming (app. 5 min. on plaster).
- If Erkoskin is applied with a brush, immediately rinse the brush with water.

Bleaching tray

Thermoforming material: Erkoflex-bleach, 1.0 mm, Erkoloc-pro 1.0 mm
Always thermoform together with the ex works applied insulating foil showing towards the model.

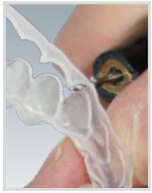
1. Apply Erkoskin as spacer with a fine brush (afterwards immediately rinse the brush) or with a small spatula.




2. Embed the model so far into the high grade steel granules that the tooth alignment plus 3 mm protrude from the granules. Cover the granules with a cover template. Thermoform and allow to cool down.

3. Remove the plate from the model and cut out the bleaching tray with the scissors or with the HSS twist drill (>20 000 rev/min).

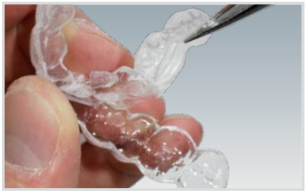
Scissors if the final shape of the bleaching tray shall have a rather …


4. … straight line at the gingiva. HSS twist drill if the final shape shall follow the gingival margin.

If necessary, smooth the edges with Liskosil-m (10 000 rev/min).

5. Pull off the insulating foil, in order to avoid deformations again and again follow up the splint.




6. Finished bleaching trays out of Erkoflex-bleach, 1.0 mm.

Pay attention to the cleaning and maintenance instructions on page 30.

Fluoride tray

Thermoforming material: see above, Materials & Accessories.

7. Thermoform Erkolen, 1.0 mm as spacer. Embed the model so far into the high grade steel granules that the tooth alignment plus 3 mm protrude from the granules. Cover the granules with a cover template.



8. Precisely cut out the spacer along the gingival margin using the scissors or the HSS twist drill (> 20 000 rev/min).

9. Put the finished spacer back onto the model and thermoform the fluoride tray onto it.


10. Embed the model so far into the high grade steel granules that the tooth alignment plus 10 mm protrude from the granules. Cover the granules with a cover template.

11. Thermoform and allow to cool down.

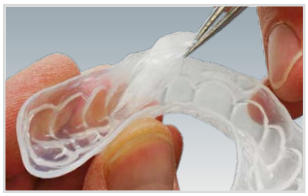
The fluoride tray passes the gingival margin with 6 - 8 mm, cut out accordingly with the scissors.




12. If necessary, smooth the edges with Liskosil-I (10 000 rev/min).

Remove spacer out of Erkolen, in order to avoid deformations, again and again follow up the splint.

13. Pull off the insulating foil, in order to avoid deformations again and again follow up the splint.




14. Finished fluoride tray out of Erkoflex-bleach, 1.0 mm.

Pay attention to the cleaning and maintenance instructions on page 30.

Base plates (bite plates)

Materials & Accessories

Fabrication:
- Erkoplast PLA-R, 1.5
- Wax bite rims for bite plates (hard 75 63 00, medium 75 63 02, soft 75 63 03).

Model preparation:
- Erkogum (110 844) for blocking out and for covering the residual teeth, high-fusing wax (725 080) for filling bubbles in the plaster.

Finishing:
- Fissure bur, rightward cutting, left spiral (110 836), coarsely crosscut tungsten carbide bur (110 833) for grinding and Liskosil-I (223 240) for smoothing the edges.

Hints

- Model areas (exterior vestibulum, oral floor) which obstruct the thermoforming process have to be removed. Remove sharp plaster edges.
- Carefully block out residual teeth and undercuts.
- If the models are placed into the granules, trimming the models is not necessary.

Thermoforming material: Erkoplast PLA-R, rose, 1.5 mm

1. Block out residual teeth and undercuts with Erkogum.

Recommendation: Embed the model so far into the high grade steel granules that the tooth alignment plus 3 mm protrude from the granules.



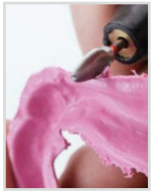
2. If the model is placed onto the model disc, put the black rubber spacing ring around the flat trimmed model base.
For better removal put some Erkogum to the rubber ring.

3. Thermoform and allow to cool down



4. Remove thermoformed plate.

5. Cut out the desired shape with a fissure bur (110 836), possibly mark it before.


6. Use the coarsely crosscut tungsten carbide bur (110 833), (>15 000 rev/min) to work on the final shape and the edges.

Smooth the edges with Liskosil-I (10 000 rev/min).

7. Finished base plate (bite plate).


8. Finished base plate (bite plate) with wax bite rim.

Dressing plates

Materials & Accessories

Fabrication:
- Erkodur, 1.0 - 2.0 mm

If required:
- For prepolymerisation of clasps: autopolymerising resin.
- For fabrication of the opposing bite imprint: Erkoform units serie 3 / Occluform-3.
- For model insulation and shrinkage compensation thermoform the ex works applied insulating foil together with the desired plate, in doing so the insulating/shrinkage compensation foil has to show towards the model (Erkodur).

Model preparation:
- Erkogum (110 844) for blocking out, high-fusing wax (725 080) for filling bubbles in the plaster.
- Erkoskin (625 050) to relieve the gingival margin.

Finishing:
- Recommendation: Finishing set Quick 3 (110 830) with fissure bur, rightward cutting, left spiral (110 836) for rough cutting out, HSS-twist drill (110 876) to cut out the desired form, crosscut tungsten carbide bur (110 837 for fine grinding, Liskosil-l (223 240) to prepolish the edges, Liskosil-m (223 230) to prepolish narrow interdental spaces and Liskosil-s (223 220) for treatment of occlusal premature contacts and insides of splints.
- Polishing set (110 878)

Hints

- The fabrication and finishing is equal to the one for stabilization splints, page 4 - 5.
- Model areas (exterior vestibulum, oral floor) which obstruct the thermoforming process have to be removed. Remove sharp plaster edges.
- For splints that pass the gingival margin this one should be relieved by application of one Erkoskin layer.

1. If necessary (see hints), apply Erkoskin on the gingival margin.

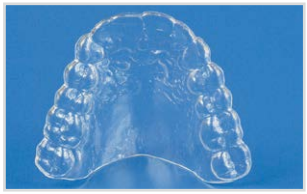
Embed the model so far into the high grade steel granules that the tooth alignment plus 3 mm protrude from the granules.

2. Thermoform.

3. Cut in the thermoformed plate several times with the fissure bur (> 20 000 rev/min) for an easier removal of the model.

4. Use the twist drill HSS without pressure (> 20 000 rev/min) to cut out the final shape.

5. Thicker compression plates (2.0 mm) mostly have enough retention when covering only the palatinal side of the teeth.



6. Thin compression plates (1.0 and 1.5 mm) cover the tooth alignment scarcely beyond the vestibular border.

Pay attention to the cleaning and maintenance instructions on page 30.

Casting objects, copings

Materials & Accessories

Fabrication:
- Erkolen, soft, 0.5 / 0.6 / 0.7 / 0.8 mm, with shrinkage compensation foil 0.1 mm applied ex works
- Erkodur, hard, 0.5 / 0.6 / 0.8 mm, with shrinkage compensation foil 0.05 mm applied ex works
- Possibly, UZF-Cast spacer foil red, 0.1 mm
- Open-pore foam disc · granules, fine (110 861) · die disc for 7 dies (188 029)

Model preparation:
- High-fusing wax (725 080) for filling bubbles in the plaster, die spacer

Finishing:
- HSS twist drill (110 876), scalpel

Hints

- The applied spacer foils compensate shrinkage of the foils which arises during the cooling procedure. Additional space for cement needs to be created extra (die-spacer).
- For dies with pins the die model disc is used, a open-pore foam disc serves for better ventilation and helps to avoid creases in the material.
- Some pin and model systems do not fit into the holes of the die model disc. These dies are embedded into the fine granules. The distance between the dies should be at least 2 mm and the margin should be at least 5 mm above the level of the granules.
- Scalpels, rolling knives or scissors crush the material when cutting. This can lead to deformations. Recommendation: cut out along a marked line with the HSS twist drill.
- The perforation of the possibly used UZF-Cast spacer foil avoids air bubbles between the foils.
- It is controversial whether the extension of the copings should be until the preparation limit or shorter, therefore we do not give any recommendation.

1. The die model disc has 7 holes filled with silicone mass to put the pins in.

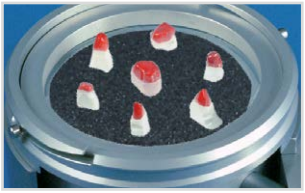
If this is not possible …

2. … the dies are put into granules (granules, fine 110 861). Compress the granules well to avoid holes in the foils and to avoid that the dies sink during thermoforming.

3. Only die model disc:
Put the dies through the foam disc into the silicone mass.

4. Ensure that the dies are put in a vertical position. Oblique dies with undercuts may cause creases.

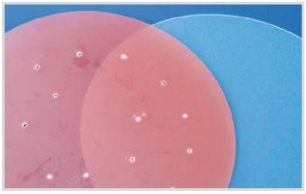
5. Erkodur and Erkolen are ex works provided with a shrinkage compensation foil.



6. Thermoform, allow to cool down and continue at step **9.**

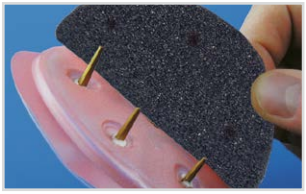
7. Foils without shrinkage compensation foil:
Perforate the UZF-Cast spacer foil several times between the dies using a scalpel or a needle.

With the spacer foil towards the dies …



8. … insert both foils into the foil frame and thermoform. After thermoforming it does not matter if there is air between the foils.
Here Erkolen with UZF-Cast red.

9. Remove the foam disc cautiously. The foam disc is reusable.



10. Cut out the dies. Mark the preparation limit …

11. … cut several times with the scalpel nearly up to the preparation limit and remove the copings.

Cut out the final form with the HSS twist drill.

12. Finished coping (see last point of the hints).

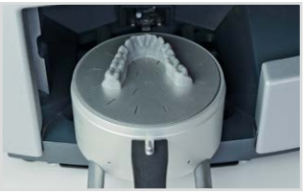
Aligner/correction splints and retainer

Materials & Accessories

Fabrication:
- Erkodur-al, hard, 0.6 - 1.0 mm
- Erkoloc-pro, hard/soft, 1.0 and 1.3 mm
- Erkodur, hard, 0.5 - 1.0 mm (0.5 - 1.0 mm aligner/correction splints
- 0.6 - 1.0 mm retainer/0.6 and 0.8 mm Essix retainer)

Finishing:
- Take-off pliers (110 880) to lift splints from the model, HSS-twist drill (110 876) or special scissors XL (220 301) for cutting out the desired shape, Liskosil-l (223 240) for prepolishing, Liskosil-m (223 230) for narrow areas, Liskosil-s (223 220) for occlusal interferences and inner surfaces of a splint.
- Two times Lisko white (223 100) for smoothing the edges of the aligners.

1. Aligner: Place print models centrally onto the model disc and thermoform according to the unit instructions with e.g. Erkodur/ Erkodur-al 1.0 mm.

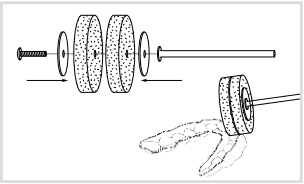


2. Lift the foil if necessary using the take-off pliers from the model and roughly cut with the special scissors XL (220 301).

3. Then cut out the final shape of the aligner with the scissors or with the HSS twist drill (>20 000 rev/ min).

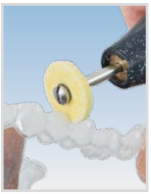
4. Recommendation for cutting out: The scissors if the final shape of the aligner shall have a rather straight line at the gingiva. The HSS twist drill if the final shape shall follow the gingival margin.

5. Splint borders with a rather straight line shall be smoothed best with Lisko polishing discs, fine, white (10 000 rev/min).



6. Therefore 2 Lisko white discs are mounted on a mandrel with the supporting discs.

7. Smooth borders that follow the gingival margin especially in the interdental areas with Liskosil-m or Liskosil-s. Latest now remove the insulating foil.



8. Finished aligner.

Pay attention to the cleaning and maintenance instructions on page 30.

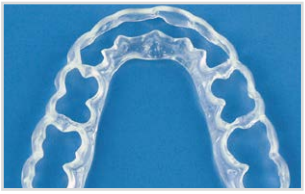
Hints

- There are many ways of fabricating a retainer, here is only a small selection. Most can be fabricated with the thermoforming technique and correspond mostly to stabilization splints. Example, a retainer that does not have a negative effect on the occlusion (Erkodur 1.5 mm).
- With the help of the Occluform it is possible to imprint the opposing bite in Erkoform units during thermoforming. Proceeding very fast this is even possible from material thicknesses of 0.8 mm and more. Such retainers will not interfere the occlusion negatively.

1. Retainer: Mark the dimensions of the retainer. Before, determine in the articulator where the bars between the vestibular and palatinal area can be placed without interfering with the occlusion.

2. Cut out the splint, the occlusal surfaces and the bars using the HSS twist drill without pressure (> 20 000 rev/min).

3. Finish the edges with the tungsten carbide bur (if clasps are included: Attention, the tungsten carbide bur may damage the clasps).
Smooth the edges with Liskosil-l and -m (10 000 rev/min).



4. Finished retainer with bars out of thermoforming material, not influencing the occlusion.

Pay attention to the cleaning and maintenance instructions on page 30.

5. Finished retainer with bars out of wire that does not have a negative effect on the occlusion.

6. The Essix retainer is a thin splint reduced to the frontal area.
The fabrication is analogical to the fabrication of stabilization splints.

Bracket transfer splints, etching masks for bracket transfer

Materials & Accessories

Fabrication:
Bracket transfer splints:
- Erkoflex, transparent, 1.5 or 2.0 mm, soft, flexible material
- Erkodur, clear, 1.0 mm, hard material
- water soluble adhesive for brackets (also commercial water soluble universal adhesive without solvents)
- Alginate based insulation

Etching masks for bracket transfer:
- Erkolen, 0.8 - 1.0 mm, only recommended when using a pressure forming unit (Erkopress)

Model preparation:
- High-fusing wax (725 080) for filling bubbles in the plaster

Finishing:
- Special scissors XL (220 301) for cutting out the desired shape, Liskosil-l (223 240) or Lisko-S (223 200) for smoothing the edges

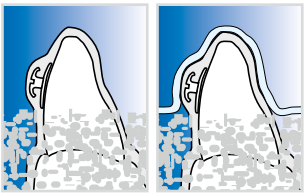
Hints

- Areas of the model (exterior vestibulum, oral floor) that obstruct the adaptation have to be removed. Remove sharp plaster edges.
- The Erkoflex-types have a very high memory, they bound to original shape.
- **Remove the ex works applied insulating foil before thermoforming**, (attention: changed heating time resp. thermoforming temperature for Erkoflex), insulate the models after glueing the brackets.
- When producing **bracket transfer/etching masks**, the places where the brackets should be glued (bracket base) are cut out with a scalpel. The etching agent will be applied through these holes and then the brackets will be glued on.

1. Bracket transfer splints:
Glue brackets with water-soluble adhesive onto the model. If the model has a flat trimmed base, it can be placed onto the model disc ...

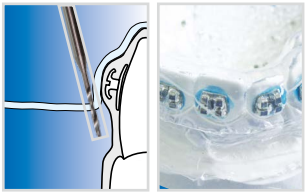
2. ... for thermoforming, otherwise embed the model that way into the granules that the tooth alignment plus app. 7 mm are visible. Do not remove the Erkoflex foil from the model ...

3. ... cut the plate in and cut it out vestibularly and palatally / lingually at about 3 - 4 mm below the teeth. Because of the flexibility of the material the scissors can thereby be pushed underneath the material.



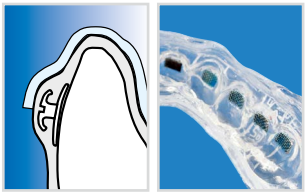
4. Embed the model to the lower edge of the brackets into the granules and thermoform a foil Erkodur 1.0 mm.

5. Cut the Erkodur foil out with the HSS twist drill (110 876) directly underneath the brackets.



6. Water the model with the foils for at least half an hour. If afterwards the foils still cannot be taken off, do not use strong power but water again.

7. Take the foils off, separate them and shorten the Erkodur foil up to the middle of the brackets. If after the plates have been taken off still adhesive residues are visible again water Erkoflex with the brackets.



8. If necessary, remove adhesive residues with a brush.

9. With the Erkoflex foil the brackets will be put in place in the patient's mouth using a glue. Then the Erkodur will be put on for exact positioning and adhesion.

1. Etching mask for bracket transfer:
Glue the brackets with water soluble adhesive onto the model. Thermoform Erkolen 0.8 - 1.0 mm. Shorten Erkolen to the model.

2. Afterwards cut out the bracket base with a scalpel. Water the model for at least 30 min. and take the brackets off the model. Through the windows that are created this way in the foil the tooth will be etched and the brackets afterwards be glued on.

Positioners

Materials & Accessories

Fabrication:
- Erkoflex transparent or coloured, 3.0 - 5.0 mm
- Cover templates (110 900), degreasing agent (613 050), Erkoflexsticks-82 (177 005) with commercially available fusing gun ≥ 500 W with screw-top (special top for fusing gun 177 010), hot-air burner (177 540)

Model preparation:
- High-fusing wax (725 080) for filling bubbles in the plaster and for fixing the set-up model if no duplicate is used.

Finishing:
- Special scissors XL (220 301) - FG-sheets (177 400)
- Tungsten carbide bur (110 837)
- Liskosil-l (223 240) or Lisko-S (223 200) - Liskosil-m (223 230) or Liskoid (223 205)
- Hot-air burner (177 540)

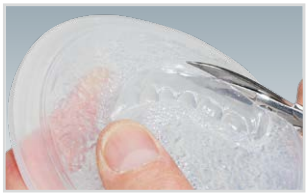
Hints

- Areas of the model (exterior vestibulum, oral floor) that obstruct the adaptation have to be removed. Remove sharp plaster edges.
- Normally the desired spacing of the positioner is smaller than the spacing that results after thermoforming in the molar area. Therefore the combination of upper and lower splint by heat is normally possible. This method has optical advantages compared to bonding the two splints with the fusing gun.

1. Embed the model that way into the granules that the tooth alignment plus app. 7 mm are visible. Cover the granules with a cover template.

2. Always thermoform the plate together with the ex works applied insulating foil and allow to cool down.

3. Cut the splint with the special scissors to the requested length.



4. Use the tungsten carbide bur (> 20 000 rev/min) to roughly grind the edges.

5. Smooth with Liskosil-l (10 000 rev/min).

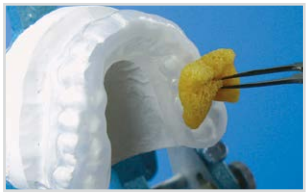
6. Pull the insulating foil off.

7. Produce a splint for the other jaw in the same manner.

Place the models in the articulator and adjust the desired spacing at the supporting pin.

8. In the articulator the splints normally touch in the molar area. Remove on both sides that much material that only 1 - 2 mm are missing to the desired spacing.

9. Remove the material equally on both sides in the occlusal area. If a lot of material has to be removed, the tungsten carbide bur has to be used.



10. Degrease the occlusal surface of both splints with degreasing agent.

11. Warm only the occlusal area of both splints with the hot-air burner. Do not remain on one spot too long.

12. Press both heated splints rapidly until it stops together.
The combination can no longer be separated.

13. Open areas and areas that do not have enough material can be filled with Erkoflexsticks-82 (original Erkoflex) and a fusing gun.

14. The stick material and the positioner can be smoothed with Liskosil-l and polished with the hot-air burner. The hot surface can be polished by shortly pressing a FG-sheet onto it (page 20, **16**).

15. If the positioner should have a high elevation, both splints can be bonded by application of Erkoflexsticks-82 material.

16. Finished positioner out of Erkoflex, 4.0 mm.

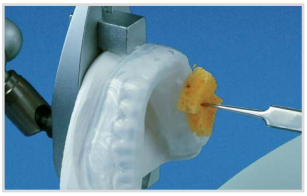
Pay attention to the cleaning and maintenance instructions on page 30.

17. Bonding of the upper and lower jaw splints in the **Occluform:** Procedure as described in step **1 - 4.** Only one splint will be fabricated. Grind the splint thin especially in the molar area (Liskosil-l).

18. How much material has to be removed depends on the desired bite elevation.
Fix this model without splint in the upper model plate.

19. Articulate the models according to the construction bite, arrest the Occluform, open it and put the splint onto the model.

Degrease splint and the foil next to thermoform with degreasing agent.



20. Now thermoform an Erkoflex plate onto the model in the model pot and close the Occluform and ...

21. ... press on until the supporting pin gets contact and allow to cool down.

22. Both splints bond safely to a monobloc.
Finish as described in step **13** and **14.**

Planning templates (X-ray and orientation splints

Materials & Accessories

Fabrication:
- Erkodur, 1.0 - 5.0 mm
- Autopolymerising acrylic to polymerise the orientation bodies
- Alginate based insulation for model insulation

Model preparation:
- If necessary, parallelometer to mark the prosthetic equator.
- Erkogum (110 844) for blocking out, high-fusing wax (725 080) for filling bubbles in the plaster.

Finishing:
- Recommendation: Finishing set Quick 3 (110 830) with fissure bur, rightward cutting, left spiral (110 836) for rough cutting out, HSS-twist drill (110 876) to cut out the desired form, crosscut tungsten carbide bur (110 837 for fine grinding, Liskosil-l (223 240) to prepolish the edges and Liskosil-m (223 230) to prepolish narrow interdental spaces and Liskosil-s (223 220) for treatment of occlusal premature contacts and insides of splints. - Polishing set (110 878) to polish.

Hints

- Areas of the model (exterior vestibulum, oral floor) that obstruct the adaptation have to be removed. Remove sharp plaster edges.
- In order to avoid the creation of tension cracks brush the area that has to be built up with autopolymerising acrylic with little monomer before the splint is cut out or taken off the model.
- Finishing and thermoforming as described in page 4 and 5, stabilization splints etc.

1. Example with Erkodur, 1.5 mm. Thermoforming and finishing as described on page 4 - 5.

Fix balls or similar with quick-acting glue onto the desired position at the model.

2. Thermoform over the balls. This way the balls are firmly integrated in the splint.

Finish as described on page 4 - 5.

Multi-layered protection splints

Materials & Accessories

Fabrication:
- Erkoflex, flexible, transparent and coloured, 2.0 and 4.0 mm
- Erkodur-S, hard, 0.8 mm as hard insert for heavy-pro and light-pro
- Degreasing agent (613 050)
- Alginate based insulation
- Commercially available fusing gun, ≥ 500 W with screw-top (special top for fusing gun 177 010)
- Erkoflexsticks-95/-82 (177 006/177 005)
- Cover templates (110 900)

Model preparation:
- Erkogum (110 844) for blocking out, high-fusing wax (725 080) for filling bubbles in the plaster.

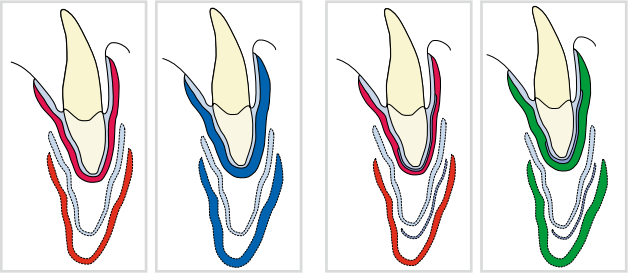
Finishing:
- Finishing set Quick 3 (110 830)
- Special scissors XL (220 301)
- Hot air burner (177 540)
- FG sheets (177 400)

Hints

- For an optimum multi-layered protection splint the upper jaw model should represent the vestibulum completely.
- When embedding the models please ensure that hollow spaces under the model are completely filled with granules.
- For determining the bite situation, ideally a construction bite with a spacing of 4 - 5 mm should be available.
- If the model is insulated, the insulating material must be washed off before using the hot-air burner in order to avoid black stains.
- If Erkoflex transparent shall be used as second layer, remove the insulating foil before thermoforming.
- With **Playsafe 4u** almost each favorite design on all Playsafe triple sports-mouthguards and on Erkoflex based protection splints is possible (www.erkodent.com).

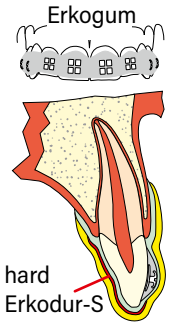
Versions of multi-layered protection splints:

Flex light:
Erkoflex 2.0 mm + Erkoflex 2.0 mm
Flex medium:
Erkoflex 2.0 mm + Erkoflex 4.0 mm
Flex light-pro:
Erkoflex 2.0 mm + Erkodur-S 0.8 mm + Erkoflex 2.0 mm
Flex heavy-pro:
Erkoflex 2.0 mm + Erkodur-S 0.8 mm + Erkoflex 4.0 mm

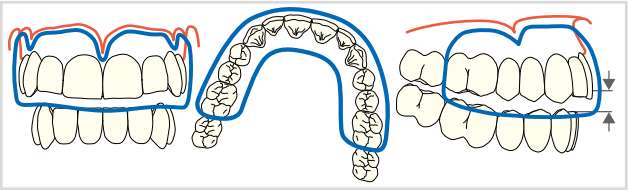


light | medium | light-pro | heavy-pro

Heavy-pro can for a short period of wear also be fabricated for patients with brackets. Impression without wiring, block out bracket and wire area with Erkogum.



A multi-layered sports-mouthguard is always fabricated for the upper jaw. To protect the root zone, it covers as much as possible of the vestibulum.



A sports-mouthguard covers the first molar.
The increase of occlusion is 4 - 5 mm at the incisal point.
In most cases the blockage is done on average values.

1. Model preparation: Fill plaster bubbles with blocking out wax. Block out undercuts of a possible gap (special case) with Erkogum.

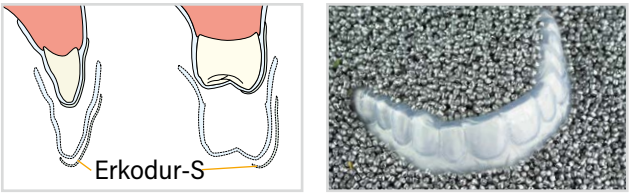
2. Embed the model in a way that the entire vestibulum remains visible.

3. Always thermoform the first layer (Erkoflex 2.0 mm) together with the ex works applied insulating foil and allow to cool down. Cut out with special scissors, leaving the first layer a little bit larger than the final mouthguard.

4. Special case: On the first layer the gap is filled with Erkoflexsticks-95/-82 (fusing gun). Smooth applied stick material with Liskosil-l.

5. Do not attach type labels near to the fraenulums. The labels are readable from the inside. For a transparent protection splint there are labels available that are readable from the outside.

6. - 11. Flex only light-pro / heavy-pro:
The hard Erkodur-S (0.8 mm) completely covers the vestibular area and just barely the incisal edge and the vestibular/buccal edge.



7. Embed model with the first layer into the granules, only the area of the later hard Erkodur-S layer plus 2 mm remain visible.

8. Degrease visible area (degreasing agent 613 050, ensures a reliable bond of the layers).

9. * Position of the hard layer at patients with vestibular brackets.

Additionally degrease the side of the Erkodur-S that has to be applied onto the first layer and thermoform.

10. Take the foil compound off the model and roughly cut out with the scissors.

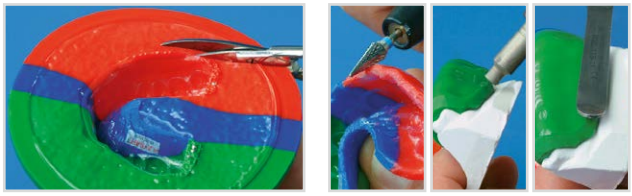
11. First with the tungsten carbide bur, then with Liskosil-l grind and smooth the hard protruding edge.

The limitation of Erkodur-S is visible as a line. Reput the first layer onto the model and …

12. Without Occluform/-3: … embed the model (**2**) and apply a cover template. Degrease well the first layer(s) and the model side of the second plate. Pay attention to the alignment of model and multi-coloured plates.

13. Take the foil off the model, then firstly remove the cover template, secondly the insulating foil.

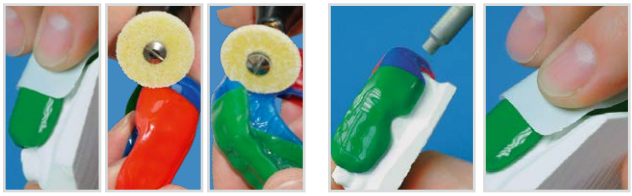
14. Cut out the protection splint with special scissors as per the extensions described formerly, exposing the area around the fraenulums well.



15. Roughly work out with the tungsten carbide bur (> 20 000 rev/min) and reput the protection splint onto the model. Heat the cut-open air pockets with the hot-air burner and seal with the blunt end of a wax knife or …

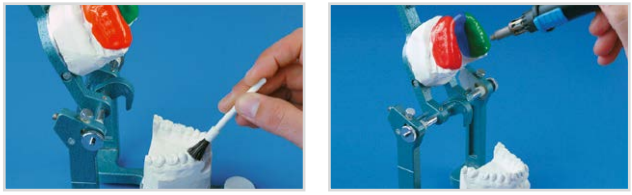
16. … in case of larger air pockets press on with a FG-sheet.

Smooth with Liskosil-l and narrow spaces with Liskosil-m (10 000 rev/min). Inner side only with Liskosil-s.



17. Reput onto the model and shine with the hot-air burner, thereby do not remain for too long in one position. The hot surface can be smoothed and polished by shortly pressing on the FG-sheet.

18. Imprint opposing bite in the articulator:
Fix model with the worked mouthguard in the articulator. Block 4 - 5 mm with the supporting pin. Insulate (alginate) opposing bite (lower jaw teeth).



19. Heat occlusal surface of the protection splint.
Thereby stroke the hot-air burner slowly about 20 times over the occlusal surface.

20. Make imprint of the opposing bite and allow to cool down.

21. For a much better wearing comfort grind away the details of the impression with Liskosil-l whilst retaining a vestibular wall.
Heat occlusal surface one more time and close the articulator.

22. Finished protection splint.

Pay attention to the cleaning and maintenance instructions on page 34.

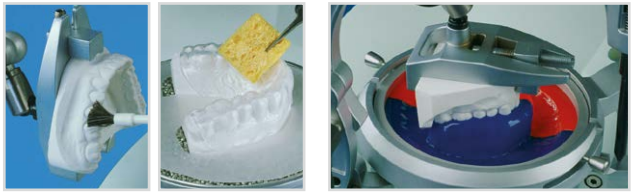
23. With **Playsafe 4 u** almost each favorite design on all Playsafe triple sports-mouthguards and on Erkoflex based protection splints is possible. On page 22, **14.-18.** the application at the sports mouthguard will be described.

24. With Occluform-3:
Imprint the opposing bite during thermoforming: *

Fix the model in the model pot that high that the first layer can be put back onto the model.

25. Articulate the models with a construction bite in the Occluform or, like shown here, at average values* by lifting the supporting pin at 3 - 4 scale-lines and arrest the joint.
*only Occluform-3

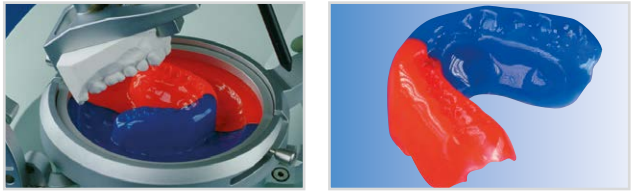
26. Insulate the opposing bite (alginate based insulation).
Cover the granules with a cover template. Degrease well the first layer and the model side of the second layer.



27. Thermoform the second foil and immediately close the Occluform until the supporting pin gets contact.

28. After cooling down open the Occluform and take out the model together with the model pot.

* The imprint can also be made using the bite spacer according to the Playsafe triple instructions.

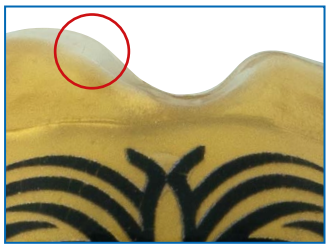


29. Finish as described in step **13 - 17**.
Finished protection splint.

Pay attention to the cleaning and maintenance instructions on page 30.

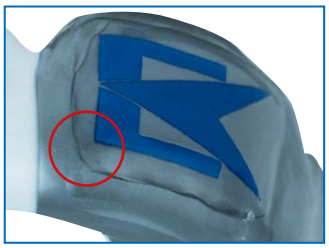
PLAY SAFE® triple / triple-light sports-mouthguard

Since the fourth quarter of 2024, Erkodent supplies the Playsafe triple plates with the insulating foil on the colored side. This means that the transparent layer is on the outside (vestibular) for a nicer appearance.
For thermoforming, the insulating foil always faces the model.



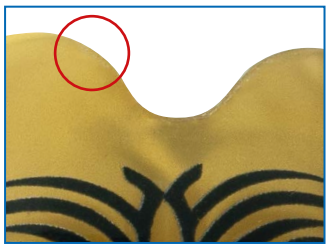
previously

Transparent on the inside: The sports mouthguard has a transparent edge after finishing.



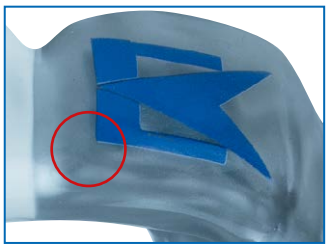
Transparent on the inside: Visible edges of the Playsafe 4u label cannot be completely avoided.

Playsafe 4u
configure label:



now

Transparent on the outside: The color of the sports mouthguard extends right to the edge.



Transparent on the outside: Visible edges of the Playsafe 4u label are completely avoidable.

Materials for fabrication: Playsafe bite spacer (177 811), 1 Playsafe face chuck (177 812)
1 Playsafe triple (-light) set 177 820 (177 860): 1 Playsafe triple (-light) foil (colour has to be indicated), 1 label, 1 Erkobox, 1 sample FG-sheet, accompanying documents

Materials for the model preparation: Erkogum (110 844) for blocking-out, high-fusing wax (725 080) to fill bubbles in the plaster

Materials for finishing: Finishing set Quick 3 (110 830), special scissors XL (220 301), hot air burner (177 540), FG-sheets (177 400)

Hints:
- For an optimal mouthguard, the upper jaw model should represent the entire vestibule.
- To determine the bite proportions there is ideally a construction bite available.
- With **Playsafe 4u** almost each favorite design on all Playsafe triple sports-mouthguards is possible.
- The easiest way to fabricate a Playsafe triple is with the **Erkoform** units as of **series 3** with **Occluform-3**.

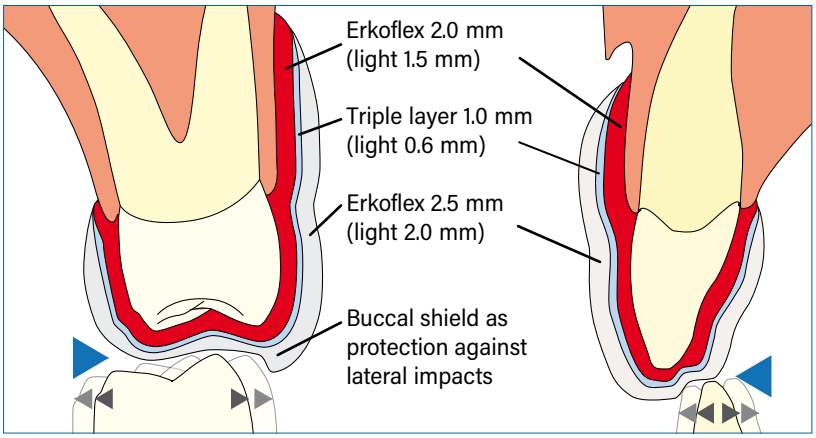
Video fabrication Playsafe triple

Fabrication with the Erkopress units on request

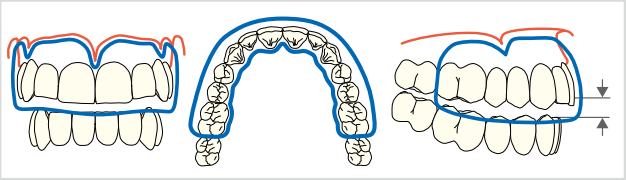
- **CE** marking (EU: 2016/425)
- Playsafe triple foils are ex works three-layered, thermform only one time, imprint the articulation surface, allow to cool off, finalize – ready.

The articulation surface that allows the athlete freedom of movement shows a lateral stop (buccal shield ▶) and protects against lateral impacts.

Total foil thickness Playsafe triple **5.5 mm**, Playsafe triple-light **4.1 mm**



A Playsafe triple sports mouthguard is always fabricated for the upper jaw. It covers as much as possible of the vestibulum and ends palatinally about 1 mm in the gingival area.



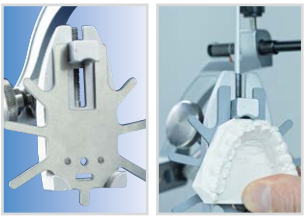
The Playsafe triple includes the first molar. Without construction bite lift the bite for 4 - 5 mm (triple) and for 3 - 4 mm (-light) (corresponds to 3/4/5 scale marks on the Occluform-3 supporting pin).

Model preparation:
Fill plaster bubbles with blocking out wax. Block out undercuts of a possibly existing gap (special case) with Erkogum.

Trim or print the lower jaw model close to the row of teeth. Can also be used if only half of the tooth height is represented.

Fabrication with the Erkoform-3d units, here -3d motion and Occluform-3

1. Fix the upper jaw model in the Occluform-3 model pot, the vestibulum has to protrude from the edge of the pot. Fill the pot with granules, shake the pot to ensure that the granules will get underneath the model as well. **Compact the granules well!**

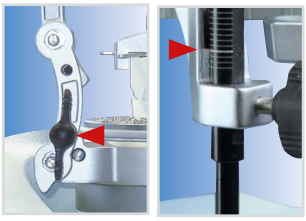


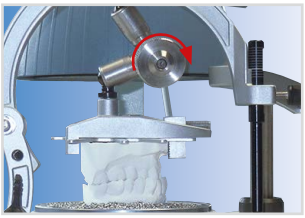
2. Put the Playsafe face chuck into the upper model disc and fix the lower jaw model onto it.

Occ3-PMF for fixing print models (188575 Occ3-PMF available from March 2025)

3. Only in case of a very deep occlusion, block the lower joint (arrow) of the Occluform-3. This leads to more free moving space of the lower jaw on the articulation surface.

Adjust the supporting pin to 0-position (illustration).



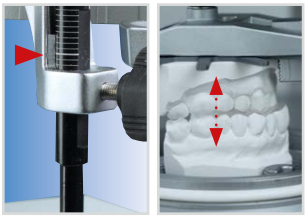


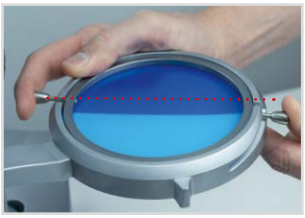
4. Articulate the models in the Occluform-3 with or without construction bite with opened joint.

Tightly close the joint (arrow).

5. Without construction bite lift the bite for 4 - 5, triple-light for 3 - 4 scale marks.
Open the Occluform-3.

Insert the Playsafe triple foil, thereby the insulating foil faces to the model (ill. 6).

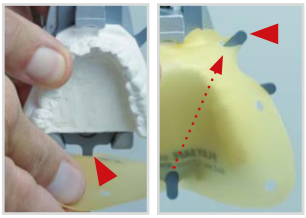




6. 2 - 4 coloured foils are oriented towards the inserting slots of the foil securing ring.

Enter foil type and confirm, swivel foil under the heating, the heating process starts.

7. Hang in **two** Playsafe bite spacers, one after the other, in the Playsafe face chuck (imprint faces to the model). In doing so hold the model and the model plate firmly and hang in first at the back, then at the front etc.



8. Thermoform,
Attention! Close the Occluform-3 only after one minute cooling time until the supporting pin gets contact. Hold in this position only for a short time ...

9. Wait for the **entire** cooling time and **only then** open the Occluform-3 again.

10. Then lift the foil reception with the model pot, support it with one hand and ...

11. ... open the foil securing ring and remove the foil with the model pot through the foil reception.

Release model in the model pot and remove it.

12. Cut in relief cuts using the fissure bur (>20.000 rpm).

Take the foil with the take-off pliers (110 880) off the model.

13. Cut out the Playsafe triple with the fissure bur* and grind out the edge shape with the tungsten carbide bur* (* > 20.000 rpm).

Smooth with Liskosil-l resp. at narrow spaces with Liskosil-m/-s (max. 10.000 rev/min).

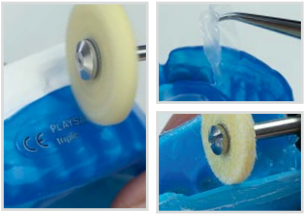
14. Cut out the label and place the sports mouthguard back on the model for fixing.

Heat the label area carefully with the hot air burner.

15. Put the label on top, **attention**, it cannot be removed anymore.

Press on the label with the FG sheet.

If necessary, heat the edge of the label again and press it on with the FG sheet.



16. Allow to cool down and smooth it with Liskosil-l or -m (max. 10.000 rev/min).

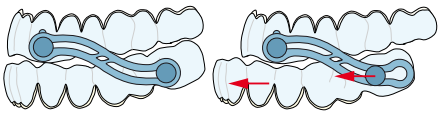
Take it off the model, remove the insolating foil and slightly break and smooth the vestibular inner edge with Liskosil.

17. Shine the Playsafe triple on the model with the hot air burner.

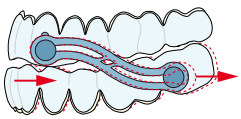
18. If required, shape hot areas with an FG-foil. **Finished**.

Silensor®-sl

Please find a video showing the fabrication under: www.erkodent.com > Service/Download > Videos

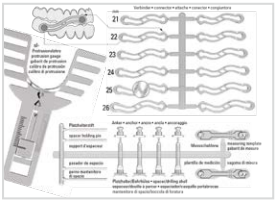


In case of sudden propulsion movements during sleep the anchor can slide into the connector. This avoids compressing and overloading the connectors.



The light flexing of the double-S shaped connectors improves the wearing comfort and reduces load in the connecting area of all parts.

Materials & Accessories



Fabrication:

- Silensor®-sl Set (59 60 11, foil Ø 120 mm, EN) or single components.
- Erkodur/ ***freeze***, 2.5 mm, hard, necessary for the fabrication of the lower jaw splint in case of poor retention.
- Erkoloc-pro /***blu*** /***green*** /***pink***, 3.0 mm, soft/hard, 2-layered, high wearing comfort, can always be used for the upper jaw and for the lower jaw only in case of enough retention. - If available, construction bite with the sl-protrusion-gauge. - Aton-Lab 80 (410 700, 2 x 400 ml) for the working steps **16 - 19** page 24. - sl-pliers (59 60 60), see p. 26, **10a**

Model preparation:

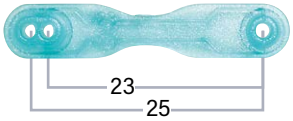
- Erkogum lilac (110 847) for blocking out, high-fusing wax (725 055 lilac) for filling bubbles in the plaster, Erkoskin (625 050) to relieve the gingival margin.

Finishing:

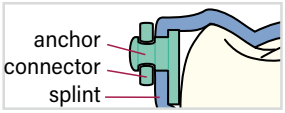
- Finishing set Quick 3 (110 830) with: Fissure bur for rough cutting out (110 836), HSS-twist drill to cut out the desired form (110 876), cross-cut tungsten carbide bur for fine grinding (110 837), Liskosil-l (223 240) for prepolishing, Liskosil-m (223 230) for interdental areas, Liskosil-s (223 220) for treatment of occlusal premature contacts and inside of a splint. - Polishing set (110 878) to polish hard thermoforming materials.

Important hints

- The **most** far-reaching consequences of all lower jaw protrusion splints, thus also of the Silensor®-sl, is tooth migration. It is therefore mandatory to integrate all existing teeth in the splints. It is recommended to keep a duplicate of the initial situation to counteract, if necessary, a possible tooth migration with a simple correction splint.
- If a construction bite with the sl-protrusion-gauge is available, the models will be articulated with it, otherwise in the final bite position.
- The Silensor®-sl can be fabricated in normal bite position or as in most cases with protruded lower jaw. The results of the questionnaire (Silensor®-sl flyer) will help in finding a solution.



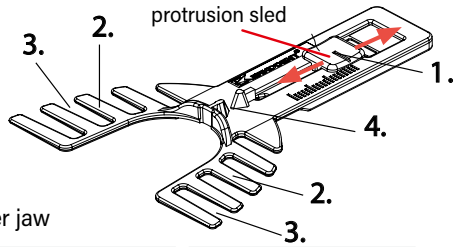
- The measuring template can be used with 23 or 25 mm length. The length of 25 mm should be preferred as in this case longer connectors with a better wearing comfort can be used. Only in case of very small jaws the 23 mm length is used for measuring.



- If a construction bite with the sl-protrusion-gauge is available, it is measured with 25 mm and the 25 mm long connectors are used. If the patient, after a construction bite, still cannot tolerate the advancement, then the 26 mm connectors can be put in. Without construction bite it is measured in the normal bite position with 25 mm and the 24 mm long connectors are used. (If 23 mm are used for measuring, the connectors with 22 mm length are attached.)
- The ready-made Silensor®-sl shall offer balance contact points. If this is not possible by grinding, it should be adjusted by addition with autopolymerising resin.
- The connectors are easily exchangeable, for example if more protrusion is required for a sufficient effect.

sl-protrusion gauge **allows a simple registration on the patient of the lower jaw protrusion for the Silensor®-sl**

Recommendation for mandibular advancement splints:
The advancement of the lower jaw shall correspond to the half of the maximum protrusion achievable by the patient. Or an already known effective advancement will be adjusted.

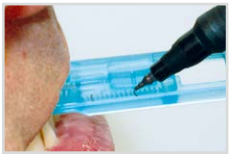


The features of the sl-protrusion-gauge:

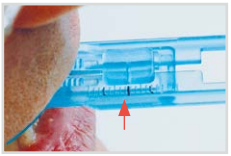
1. protrusion sled
2. elastic registration areas
3. conical registration retentions
4. frontal teeth bite area for upper and lower jaw

1. Insert the sl-protrusion-gauge. Watch the centre of the frontal teeth.

2. Mark the habital bite situation. Push the lower jaw forward to the maximum without ...



3. ... lateral deviations. Mark the maximum protrusion. Remove the gauge.



4. Mark the desired protrusion and adjust the gauge to it.

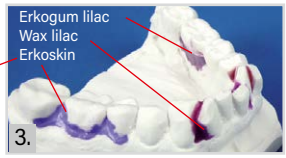
5. Insert the gauge and register.

Gauge with removed registration.

If a construction bite taken with the sl-protrusion gauge is available the measuring length (25 or 23 mm) and the connector length are the same. The sl-protrusion gauge thereby also compensates the opening rotation of the connectors caused by the foil thickness. Deviations to the registration are thus largely avoided.

If no construction bite is available the models are measured in the final bite position, the advancement of 2 - 3 mm will be achieved by a different measuring length (25 or 23 mm) and connector length (24 or 22 mm) plus opening rotation (bite elevation caused by foil thickness).

Model preparation



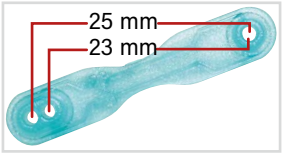
In case of a very retentive teeth situation, the marking of the prosthetic equator is recommended (1.).
With the exception of the fixation points, the splint ends in case of large undercuts at the equator, otherwise 1 - 2 mm below.

In case of using Erkodur (hard), relieve tension from the four upper front teeth by applying Erkoskin (2.).

Block out undercuts and spaces with Erkogum, block out bubbles in the plaster with high-fusing wax. Relieve tension from the gingival margin in the area where the splint possibly has contact (3.).

If the measuring point is located on an edentulous area, this must be filled with plaster (4.).
In case of a free-end situation, a plaster wall is put on the ridge (5.).

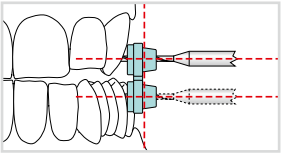
Fabrication with construction bite



1. Separate the measuring templates.

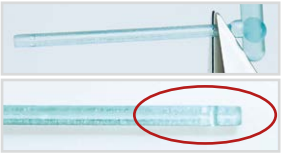
25 mm or 23 mm ?, see hints, page 23, paragraph 4 + 5.

2. Articulate the models using a rubber band and the construction bite that has been taken off the sl-protrusion gauge and cut to shape.



3. Fix measuring template as near as possible to the occlusal plane with Erkogum. Initial point is the upper canine or canine area. The lower pivot point results from the measurement (see hints).

Fix the measuring template with the drilling shells that way that a parallel drilling is possible.

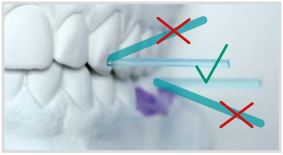


4. Cut the spacer holding pins.

Put the marked end in the drilled holes, see **7.**

5. Drill with the 1.4 mm drill (**10 000 rev/min!**) through the drilling shell into the model, first in the canine area (3 mm depth of drilled hole or more).

6. Immediately insert a spacer holding pin through the drill guide. Only now drill the second hole.
Drill the other side in the same way. Remove pins and templates ...

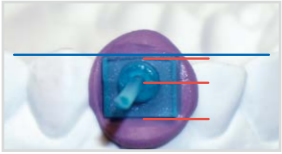


7. ... the models can now be separated. Now put all 4 spacer holding pins into the drilling holes.
Strongly diverging spacer holding pins have to be adjusted.

Hint for drilling: If the model has been drilled through, fix the spacer holding pin with Erkogum. Fix chipped plaster pieces and the pin with quick-acting glue.

8. Put a poor quantity of Erkogum lilac onto the pins.

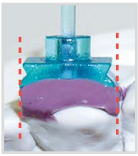
Cut the spacers without overhang.



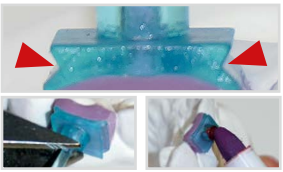
9. Push a spacer holder as illustrated onto the spacer holding pin and press it on as near as possible.
The small side always points towards the occlusal plane.

10. Pay attention to a parallelism of the modelling pads.

Remove excessive Erkogum with a knife.

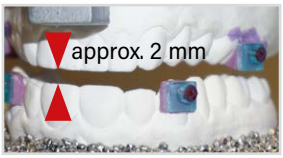


11. Undercuts between spacer holding pin and model have to be filled up.

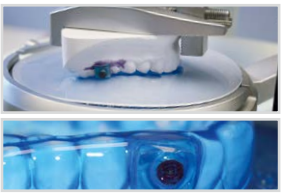


12. Marked areas have to be free of Erkogum. Cut all pins.
Now mark the outermost surface of each spacer with an appropriate pen.

13. Articulate the models with the construction bite (Erkoform units serie 3 with Occluform-3). Leave the area below the spacer at least 6 mm free of granules.



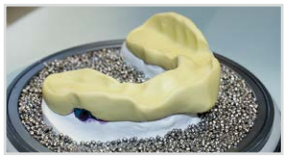
14. Keep the construction bite. Lower the bite at the supporting pin to a gap of approx. 2 mm between the front teeth. Pull off the insulating foil of the Erkolen foil (1.0 mm) and keep it.



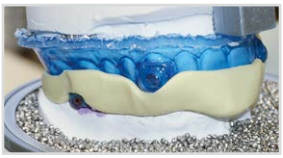
15. Now thermoform, immediately put the Erkolen foil (reusable) onto the model and close the Occluform.
The result is a plane occlusal surface.

16. Now take a silicone key for the opposing bite (Aton-Lab 80). Put the modelling silicone in the unit onto the splint and imprint the opposing bite with the Occluform, if necessary, slightly adapt.

17. Take model with foil out of the Occluform model pot and roughly cut out (fissure bur > 20 000 rev/min)

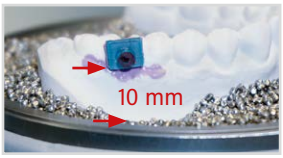


18. Lock the lower joint of the Occluform with the swivel screw. Fix lower jaw model in the Occluform model pot, fill up with granules and put the silicone key onto it. (Instructions Occluform)



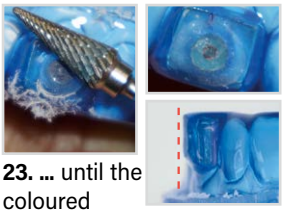
19. Fix upper jaw model on the Occluform model plate. Articulate the models using the silicone key. Open the Occluform and remove the silicone key.

20. Press the cut insulating foil of the Erkolen foil with the adhesive side down on the occlusal surface of the splint.



21. Pay attention that at least 10 mm around the spacers are free of granules.

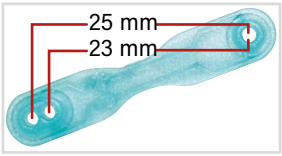
22. Now execute the second thermoforming process. As soon as the foil is adapted, close the Occluform.
Allow to cool completely. Uncover all spacers before taking the splints off the model. Thereto, **carefully** grind through the plate …



23. … until the coloured marking on the spacers is just abraded, **not more and not less** (tungsten carbide bur > 20 000 rev/min).
Ensure a level surface.
Take the splints off the models.

→ **Continue at Finishing**

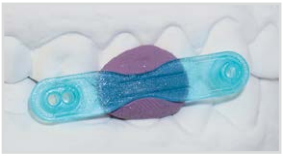
Fabrication without construction bite

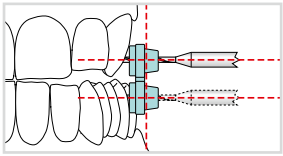


1. Separate the measuring templates.

25 mm or 23 mm ?,
see hints, page 23,
paragraph 4 + 5.

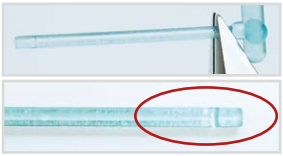
2. Articulate the models using a rubber band.





3. Fix measuring template as near as possible to the occlusal plane with Erkogum. Initial point is the upper canine or canine area. The lower pivot point results from the measurement (see hints).

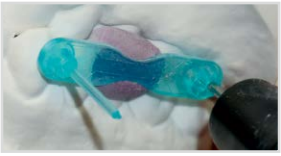
Fix the measuring template with the drilling shells that way that a parallel drilling is possible.



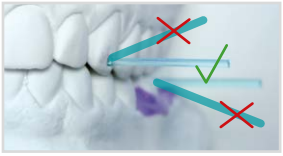
4. Cut off the spacer holding pins.

Put the marked end in the drilled holes, see **7.**

5. Drill with the 1.4 mm drill (**10 000 rev/min!**) through the drilling shell into the model, first in the canine area (3 mm depth of drilled hole or more).



6. Immediately insert a spacer holding pin through the drill guide. Only now drill the second hole.
Drill the other side in the same way. Remove pins and templates …

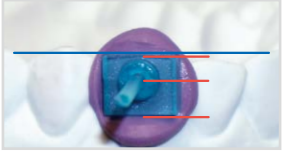


7. … the models can now be separated. Now put all 4 spacer holding pins into the drilled holes.
Strongly diverging spacer holding pins have to be adjusted.

Hint for drilling: If the model has been drilled through, fix the spacer holding pin with Erkogum. Fix chipped plaster pieces and the pin with quick-acting glue.

8. Press a small quantity of Erkogum lilac onto the pins.

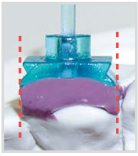
Cut the spacers without overhang.



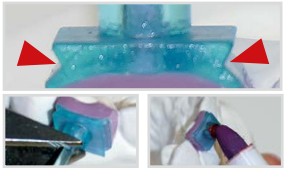
9. Push a spacer holder as illustrated onto the spacer holding pin and press it on as near as possible.
The small side always points to the occlusal plane.

10. Pay attention to a parallelism of the modelling pads.

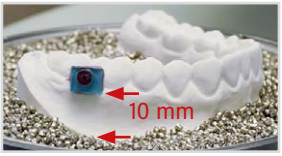
Remove excessive Erkogum with a knife.



11. Undercuts between spacer holding pin and model have to be filled up.

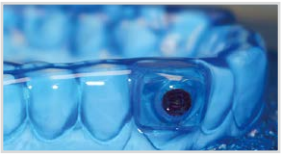


12. Marked areas have to be free of Erkogum.
Now mark the outermost surface of each spacer with an appropriate pen.



13. Embed the models into the granules, leave the area below the spacer at least 10 mm free of granules.
Thermoform the models one after the other.

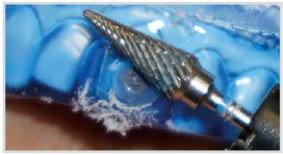
14. Immediately after the adaptation apply the Erkolen foil (1 mm) without insulating foil and press it on along the teeth row especially in the area of the front teeth, in doing so run with the …



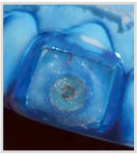
15. … finger back and forth. Do not stay too long at one place, **hot!**

The result is a plane occlusal surface.

16. Take the models out of the unit and roughly cut out before removing the splint from the model (fissure bur > 20 000 rev/min).



17. Uncover all spacers before taking the splints off the model. Thereto, **carefully** grind through the plate until the coloured marking on the spacers is just abraded, …



18. … not more and not less! (tungsten carbide bur >20 000 rev/min)
Ensure a level surface.
Take the splints off the models.

→ **Continue at Finishing**

Finishing

1. Cut the final form with the HSS twist drill (>20 000 rev/min, without pressure), leave sufficient material (min. 2 mm) around the fixation points.

2. Grind the borders with the tungsten carbide bur (>20 000 rev/min).

Smooth the borders, ...

3. Smooth the borders, grinded areas with Liskosil-l, ...

4. ... narrow zones and interdental spaces with Liskosil-m. Liskosil-s for treatment of occlusal premature contacts and the inside of a splint (10 000 rev/min).

5. Polish Erkodur with polishing agent for plastics (polishing set, 110 878).

6. Press spacers inwards out of the splint (for ex. with the Liskosil mandrel shank), it might be necessary to firmly press. (or **10a**.)

7. Remove the insulating/ shrinkage compensation foil.

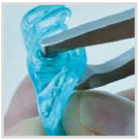
8. Cut the anchors as shown on the picture.

Take the anchors at the retaining lip and ...

9. ... put them into the splint as replacement for the spacers.

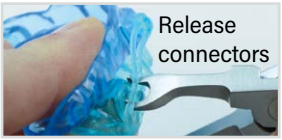
10. Firmly press into position, if necessary, also carefully with suitable pliers.

sl-pliers (59 60 60) Video: to fix and remove the Silensor-sl components



10a. Removing the spacers

10b. Insert the anchors

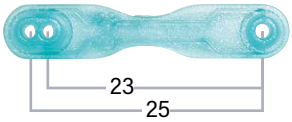


11. Cut the connectors, always opposing connectors have the same length.

Choose the connector length:

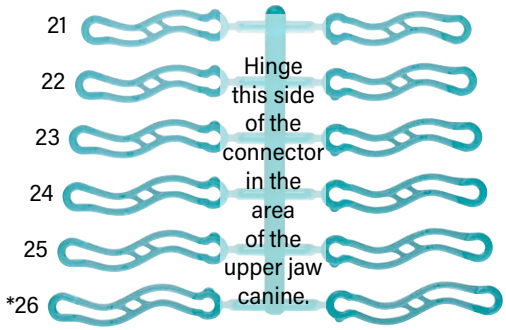
The connectors are exchangeable, for example if more protrusion is necessary for a sufficient effect.

The shorter the connector is chosen in comparison to the measurement, the larger is the advancement of the lower jaw.

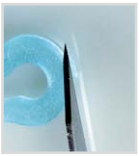


without construction bite:
measured, 23 / 25 mm
↓ ↓
connector, 22 / 24 mm

with construction bite:
measured, 23 / 25 mm
↓ ↓
connector, 23 / 25 mm



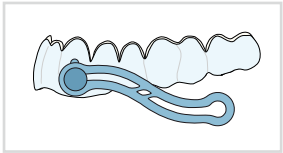
*The 26 mm connector is used when the patient, after a construction bite, still does not tolerate the advancement.

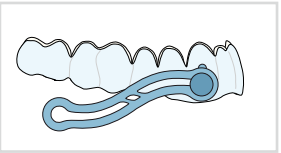


12. Remove sharp cutting edges!

13. Hinge the connector into the long slot and pull it into its final position.

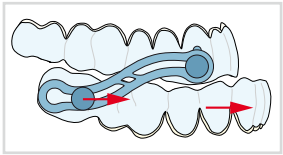
14. Observe upper jaw canine side of the connector.



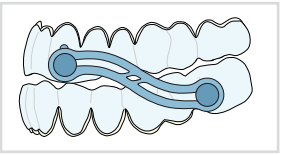


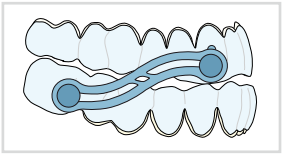
Upper jaw, obligatory run of the connectors, on the left and right.

15. Hinge the connector into the other splint. Please check correct positioning of the splint. In case of propulsion movements (feed) the ...



16. ... connector shall slide out of the anchor of the lower jaw, see picture, if not, hinge the connector about-face.





Connected splints, obligatory run of the connectors, on the left and right.

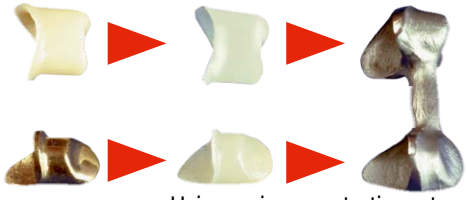
17. Now cut the retaining lips off the anchor. Finished.

Friction-generating coping

(acc. to DTM **Us**enko/Horn**ig**)

Thermoformed plastic friction-generating coping out of special plastic for the telescope and attachment technique:

Placement of the Usig friction-generating coping:



primary crown | Usig-coping | tertiary structure

Materials & Accessories

Fabrication:
- Erkodur-A3, 0.6mm
- Commercial attachment glue and metal primer
- Filling granules, fine, 1.3 kg, (110 861)
- Erkoskin, 50 ml, (625 050)

Finishing:
- Usig-die disc (650 030)
- HSS-twist drill, 3 pieces, (110 876)
- Liskoid polishing discs, 6 pieces, (223 205)
- HM spherical bur, 1 piece

Important hints

The required conditions for a good result are:
Milling angle 0 - 1°
- Per telescope at least 2 parallel surfaces (approximal 3 mm, lingual resp. palatinal 2 mm height).
- For even wall thicknesses of the friction-generating coping a vertical adaptation in the thermoforming unit is required.
- If the foil is thermoformed without spacer foil the friction is considerably increased. In case of more than 5 pillars, very long primary crowns, loose pillars and implants the foil should be thermoformed together with the spacer foil.
- The foil bonds to denture resin (for ex. for replacement / travel dentures).
- Do not steam the friction-generating copings or expose to other heat (if so, only with inserted primary crown or filled with kneadable silicone).
- To avoid wrinkles in the foil the model pot must only be filled up to 1 cm below the edge with granulate (1.), work with the Usig-die disc and place the discs correctly (avoid center).

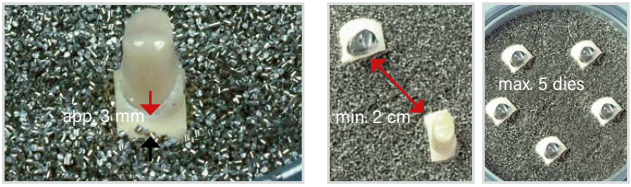
Instructions: (exemplary representation of the fabrication)

Thermoforming of the friction-generating copings:

Same way of fabrication of Usig friction-generating copings on primary crowns out of metal or zircon.

1. Place primary crowns as illustrated and align vertically ...

... below the primary crown edge keep approx. 3 mm free from granules.



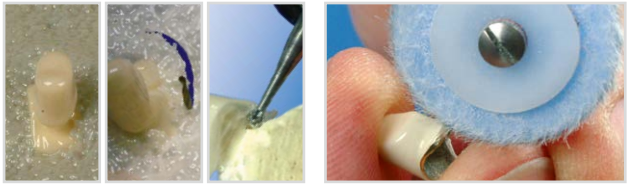
Without Usig-die disc use fine granules (110 861).

The Usig-die disc (650 030) provides for a better fixation of the dies in standard or fine granules ...

... resulting in thicker walls and less wrinkling.

2. Thermoform the foil with the isolation foil showing towards the primary parts.

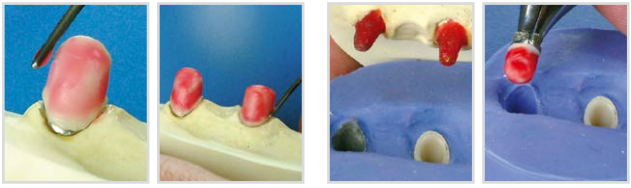
3. Cut out the coping area with the HSS twist drill (110 876) and below the preparation area with the spherical bur.



4. Finish the edges with Liskoid (223 205).

Duplication of the primary parts with Usig friction-generating copings for the classical fabrication of the tertiary structure

5. Wax-up a thin layer (approx. 0.2 mm) as spacer onto the copings for the later needed glue.
(Do not use Erkoskin, bonds to the duplicating compound.)



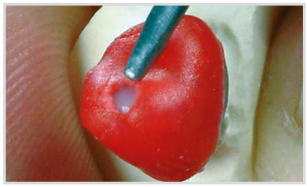
6. Duplicate. Take off the primary parts with the copings.
Fabricate the tertiary structure in common manner on the duplicate.

Fabrication of the tertiary structure with Erkoskin and modelling resin

7. Apply a single layer of Erkoskin (625 050) on the coping and after complete hardening (approx. 5 min.) …

8. … apply modelling resin.





9. To take it off the coping work incisally or occlusally a hole into resin.
Remove Erkoskin and grind the modelling resin coping thin …
Fabricate the tertiary structure in the usual way.

Glueing of the Usig friction-generating copings into the tertiary structure

10. Insulate the Usig copings at the inside with Vaseline and put them on the primary crowns.

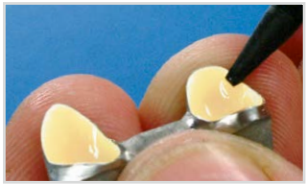
11. Cut glue exit slots into the tertiary structure.


Metal primer:
Application: Sandblast the telescope inner surfaces with aluminium oxide (50 µm, 2 bar) and blow out with oil-free compressed-air, allow to completely dry. Generously apply metal primer with a brush and allow to flash off for approx. **1 min**.

12. Apply primer at the inside of the tertiary structure, allow to well flash off.

13. Apply primer at the outside of the friction-generating copings. It should still be humid when glueing.


14. Fill a little glue into the tertiary structure using the mixing tip.



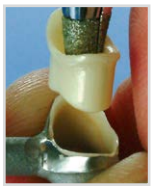
Attachment glue: to glue the Usig friction-generating coping in the tertiary part. There has to be a slot (0.2 mm) for the glue. This slot guarantees a tension-free fit and will be filled by the glue.

Observe processing instructions.

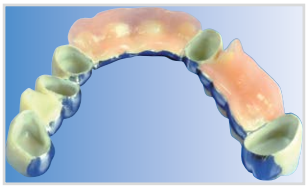
15. Press the tertiary structure onto the primary parts where the Usig copings are positioned.

16. Remove residual glue.

The primary crowns can be taken off with the telescope crown pliers.

17. Finished patient case with Usig friction-generating copings glued in.
Do not steam the copings.
If necessary, clean with alcohol.



Restoration of the friction

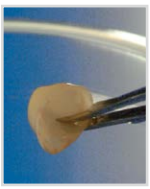
18. For a later restoration of the friction produce a duplicate of the primary situation in the mouth and single dies.

19. Thermoform as described in point **1** and **2**.




20. Finish the copings as shown in point **3** and **4**. The copings can also be cut out with the scalpel.
Separate the plaster die.

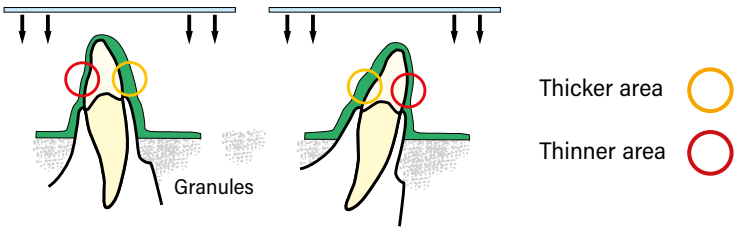
21. Remove plaster with plaster removing agent.


22. Take the old copings off and glue the new copings in as described in point **10** to **15** without glue exit slot.

Trouble-shooting

failure	possible reason	possible elimination
incomplete adaptation: (clear fizzling and blowing noise, hole in the thermoforming material)	- sharp-edged model	- remove sharp edges at the model
	- selected foil is too thin for the model height, foil thins out too much	- per cm model height there is a loss in thickness of up to 25 %, choose thicker foils
	- hole in the foil in the area of the granules	- well condense granules
	- foil has been overheated	- does foil thickness comply with heating time/ temperature (only units with electric control)?
	- foreign particles in the area of the sealing or defect sealing	- take care that the area of the sealings is clean before thermoforming, if necessary, change sealing
incomplete adaptation: (no noticeable noise)	- defect cylinder, only pressure units (seldom)	- have the unit repaired by an authorised shop
	- foil not hot enough	- does foil thickness comply with heating time/ temperature (only units with electric control)?
	- heating element partially defect (unequal glowing), too old (foil temperature is not reached)	- have the heating element replaced by an authorised shop
	- airtight model	- use model out of hard plaster (class 3)
	- insufficient vacuum	- have the unit checked by an authorised shop
	- insufficient pressure (only pressure units)	- check pressure air supply cable (break), adjust manometer on factory setting, 4.5 bar power supply has to be at least 5 bar - have the unit checked by an authorised shop
bubbles in the foil:	- foil overheated	- does foil thickness comply with heating time/ temperature (only units with electric control)? - clean sensor window
	- too much humidity in the thermoforming material, the steam that arises during heating cannot evaporate in time	- predry thermoforming material in a drying cupboard or a baking oven, see below
creases in the foil:	- foil overheated	- does foil thickness comply with heating time/ temperature (only units with electric control)? - clean sensor window
unfavourable spreading of the foil thickness:	- not enough distance to the edge of the model pot or between the dies (copings)	- place model as far as possible in the middle - use die model disc
	- model too high	- trim models more flat or embed into the granules
	- model has not been embedded in an inclined way	- incline model: thicker material desired labially lower model distally, thicker material desired on the palatinal/lingual side, lift model distally



Vestibularly declined models (1) show thicker palatinal areas whereas palatinally declined models (2) have thicker vestibular areas.

Predrying:

Erkodur:
0.5 - 2.0 mm, 5 hrs., 60 °C
2.5 - 5.0 mm, 8 hrs., 60 °C

Erkoloc-pro:
1.0 - 5.0 mm, 48 hrs., 60 °C

Selection of the right material thickness

To select the right material thickness note that the thermoforming material looses 20 - 25 % of its original thickness when forming a model area of 1 cm height, for 2 cm height the loss is 30 - 40 %. For occlusal splints, the thickness is selected according to the desired verticalisation that possibly still allows a grinding-in without additional adjustment.

Plastification

in units without time or temperature control.

- For most materials please proceed as follows: Check softness with instrument. If permanent impressions result, thermoform.
- Erkolen, Erkoflex-bleach and Erkoflex-95 become clear upon heating, then thermoform. Heat Erkoflex until the foil sags approx. 2 cm, afterwards thermoform.

Please also pay attention to the indications in the respective operating instructions.

Biocompatibility - allergic reactions

All Erkodent thermoforming materials are tested on their biocompatibility and are physiologically harmless in their intended use. They are CE marked based on the EU regulation 2017/745 concerning medical products, the directive 93/42/EEC concerning medical products and the EU regulation 2016/425 concerning personal protective equipment (Playsafe triple sports mouthguard). Up to now (2025) there is no knowledge of confirmed allergic reactions on the materials, but allergic reactions cannot be excluded.

Instructions for cleaning and maintenance

The appliances (splints) fabricated out of thermoforming materials should be cleaned and maintained as follows:

- Best results are achieved with **Oxydens** cleansing tablets for dental splints (280 030, Oxydens Clean-set, 280 032, 32 cleansing tablets). Further cleaning agents: Soap, curd soap, liquid soap and dish-washers.
  Do not use any strongly perfumed soaps. Not suited are: tooth-paste (contains abrasive particles), mouth-wash (can cause discolouring) and water that is hotter than 50 °C (deformation). Solvent-based cleaning agents cause delamination of multi-layered splints.

After use:

- Wash well with water.
- Best is to thoroughly clean the inner and exterior side of the splint with a tooth brush and soap.
- Again, wash well with water.
- Shake off the water or dry with a towel.
- Never blow-dry - deformation!
- Very important: Allow the splint to completely dry! Keep at a dry place, at best in a box like the Erkobox (215 030) or Splintbox (214 020) that has aeration holes.
- Again, wash with water before using it.

Generation of bad smells

If after some time the splint has adopted a strong smell, additionally put the splint for one hour in a non-perfumed, concentrated soap solution, afterwards thoroughly wash with water. Such soap suds remove most of the smell generating bacteries.

Discolouring

Soft thermoforming materials have the tendency to discolour. This intake of colour pigments can be reduced or avoided by careful maintenance, but it cannot be reversed. Mouth-washes and amalgam fillings can also cause discolouring.

Disinfection

With the exception of Erkoloc-pro types all thermoforming materials can be disinfected with disinfection alcohol and other commercial liquids. Erkoloc-protypes have to be stored for approx. 5 hours at a dry place without any pressure on it after having contact with alcohol in order to ensure that the alcohol can evaporate completely. Otherwise a bonding of the hard and soft layer is no longer guaranteed.

Sterilisation

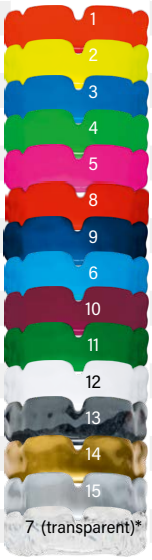
A sterilisation with gaz and plasma (< 50 °C) is possible. As a result of the thermolability the materials are not autoclavable.

Thermoforming materials

Thermoforming materials		Colour	Material characteristics
Erkodur-al	7 Copolyester	clear	Crystal-clear, viscoelastic-hard and break-resistant material with excellent dimensional stability. Aprox. 35 % softer as Erkodur.
Erkodur / Erkodur *freeze*	PETG	clear / turquoise-transparent	Very tough, hard material. Burns without residues. Bonds to autopolymerizing resin.
Erkodur-0M1/-A1/-A2 /-A3	PETG	tooth colour	Colour shade is equivalent to 0M1/A1/A2/A3, colour density depends on the thickness, otherwise like Erkodur.
Erkodur-S	SBS	clear	Tough-hard material. Burns without residues. Bonds to autopolymerizing resin. Bonds with heat to Erkoflex.
Erkoflex	EVA	transparent or coloured	Flexible, soft-elastic material. Can be bonded by heating or a fusing gun with Erkoflexsticks-82. Hardness Shore A: 82.
Erkoflex-95	EVA	transparent	Flexible-elastic material. Can be adjusted by heating or a fusing gun with Erkoflex-sticks-95 (not bonded). Hardness Shore A: 95.
Erkoflex-bleach	EVA	transparent	Flexible material with high elasticity. Hardness Shore A: 95.
Erkolen	PE	transparent	Elastic material, burns without residues, low form memory.
Erkoloc-pro/- *blu* /*green* /*pink*	PETG TPU	transparent/ blu / green / pink	Double-layer plate hard/soft. Resistant material with high wearing comfort. Hard side bonds to autopolymerizing resin.
Erkoplast PLA-R	PLA	rose	Impact resistant, very rigid material, bonds by heat and with autopolymerizing resin.
Playsafe triple foil	EVA COC EVA	transparent or coloured	Triple-layer plate soft/hard/soft.
UZF-Cast	PS	red	Spacer foil (shrinkage compensation) for the casting technique.
	PE		Insulating foil for insulating and shrinkage compensation

Erkoflex-color

Thickness 2 mm, order number (contents)					Thickness 4 mm, order number (contents)			
Colour	**Ø 120 mm**	**125x125 mm**	**Ø 125 mm**	Colour number	**Colour**	**Ø 120 mm**	**125x125 mm**	**Ø 125 mm**
bright red	58 12 21 (5)	58 17 21 (5)	58 19 21 (5)	1	bright red	58 12 41 (5)	58 17 41 (5)	58 19 41 (5)
bright yellow	58 12 22 (5)	58 17 22 (5)	58 19 22 (5)	2	bright yellow	58 12 42 (5)	58 17 42 (5)	58 19 42 (5)
bright blue	58 12 23 (5)	58 17 23 (5)	58 19 23 (5)	3	bright blue	58 12 43 (5)	58 17 43 (5)	58 19 43 (5)
bright green	58 12 24 (5)	58 17 24 (5)	58 19 24 (5)	4	bright green	58 12 44 (5)	58 17 44 (5)	58 19 44 (5)
bright pink	58 12 25 (5)	58 17 25 (5)	58 19 25 (5)	5	bright pink	58 12 45 (5)	58 17 45 (5)	58 19 45 (5)
deep red	58 12 26 (5)	58 17 26 (5)	58 19 26 (5)	8	deep red	58 12 46 (5)	58 17 46 (5)	58 19 46 (5)
night blue	58 12 27 (5)	58 17 27 (5)	58 19 27 (5)	9	night blue	58 12 47 (5)	58 17 47 (5)	58 19 47 (5)
light blue	58 12 28 (5)	58 17 28 (5)	58 19 28 (5)	6	light blue	58 12 48 (5)	58 17 48 (5)	58 19 48 (5)
maroon	58 12 31 (5)	58 17 31 (5)	58 19 31 (5)	10	maroon	58 12 51 (5)	58 17 51 (5)	58 19 51 (5)
deep green	58 12 32 (5)	58 17 32 (5)	58 19 32 (5)	11	deep green	58 12 52 (5)	58 17 52 (5)	58 19 52 (5)
pure white	58 12 33 (5)	58 17 33 (5)	58 19 33 (5)	12	pure white	58 12 53 (5)	58 17 53 (5)	58 19 53 (5)
deep black	58 12 34 (5)	58 17 34 (5)	58 19 34 (5)	13	deep black	58 12 54 (5)	58 17 54 (5)	58 19 54 (5)
gold	58 12 35 (5)	58 17 35 (5)	58 19 35 (5)	14	gold	58 12 55 (5)	58 17 55 (5)	58 19 55 (5)
silver	58 12 36 (5)	58 17 36 (5)	58 19 36 (5)	15	silver	58 12 56 (5)	58 17 56 (5)	58 19 56 (5)
Colour set, plain colours, 15 pieces (incl. transparent)				7 (transparent)*	**Colour set, plain colours, 15 pieces (incl. transparent)**			
	58 12 29 (15)	58 17 29 (15)	58 19 29 (15)			58 12 49 (15)	58 17 49 (15)	58 19 49 (15)



Freestyle	Ø 120 mm	125x125 mm	Ø 125 mm		Freestyle	Ø 120 mm	125x125 mm	Ø 125 mm
camouflage	58 12 60 (5)	58 17 60 (5)	58 19 60 (5)	16	camouflage	58 12 80 (5)	58 17 80 (5)	58 19 80 (5)
lava	58 12 61 (5)	58 17 61 (5)	58 19 61 (5)	17	lava	58 12 81 (5)	58 17 81 (5)	58 19 81 (5)
tie-dye	58 12 62 (5)	58 17 62 (5)	58 19 62 (5)	18	tie-dye	58 12 82 (5)	58 17 82 (5)	58 19 82 (5)
rainbow	58 12 63 (5)	58 17 63 (5)	58 19 63 (5)	19	rainbow	58 12 83 (5)	58 17 83 (5)	58 19 83 (5)
confetti	58 12 64 (5)	58 17 64 (5)	58 19 64 (5)	20	confetti	58 12 84 (5)	58 17 84 (5)	58 19 84 (5)
Freestyle Set**	58 12 69 (5)	58 17 69 (5)	58 19 69 (5)		**Freestyle Set****	58 12 89 (5)	58 17 89 (5)	58 19 89 (5)
zebra	58 12 65 (5)	58 17 65 (5)	58 19 65 (5)	21	zebra	58 12 85 (5)	58 17 85 (5)	58 19 85 (5)
goldflakes	58 12 66 (5)	58 17 66 (5)	58 19 66 (5)	22	goldflakes	58 12 86 (5)	58 17 86 (5)	58 19 86 (5)
silverflakes	58 12 67 (5)	58 17 67 (5)	58 19 67 (5)	23	silverflakes	58 12 87 (5)	58 17 87 (5)	58 19 87 (5)
camouflagestrip	58 12 68 (5)	58 17 68 (5)	58 19 68 (5)	24	camouflagestrip	58 12 88 (5)	58 17 88 (5)	58 19 88 (5)
lavastrip	58 12 70 (5)	58 17 70 (5)	58 19 70 (5)	25	lavastrip	58 12 90 (5)	58 17 90 (5)	58 19 90 (5)
Freestyle-blackline Set**	58 12 79 (5)	58 17 79 (5)	58 19 79 (5)		**Freestyle-blackline Set****	58 12 99 (5)	58 17 99 (5)	58 19 99 (5)

* Order numbers for Erkoflex transparent, see Erkoflex next page ** Freestyle Set und Freestyle-blackline Set (assorted, 5 pcs)

PLAY SAFE® triple

Thickness 5.5 mm, Erkoflex 2.5 mm (soft), triple layer 1.0 mm (hard), Erkoflex 2.0 mm (soft) (heating time: 3.45 min., thermoforming temperature: 110 °C, cooling time: 9.59 min.)

Playsafe triple set, Ø 120 mm, 1 Playsafe triple foil (colour has to be indicated), 1 label, 1 Erkobox, 1 sample FG-sheet, instructions

177 820 single coloured (1-15)	**177 823** four-coloured (1-15)	**177 825** single coloured (1-15)	**177 828** four-coloured (1-15)
177 821 two-coloured (1-15)	**177 824** freestyle (16-23)	**177 826** two-coloured (1-15)	**177 829** freestyle (16-23)
177 822 three-coloured (1-15)	**177 819** freestyle strip (24+25)	**177 827** three-coloured (1-15)	**177 830** freestyle strip (24+25)

Playsafe triple foils, Ø 120 mm, 5 triple foils of the same colour (colour has to be indicated), 5 labels, 1 sample FG-sheet, instructions

PLAY SAFE® triple-light

Thickness 4.1 mm, Erkoflex 1.5 mm (soft), triple layer 0.6 mm (hard), Erkoflex 2.0 mm (soft) (heating time: 2.50 min., thermoforming temperature: 120 °C, cooling time: 9.59 min.)

Playsafe triple light set, Ø 120 mm, 1 Playsafe triple light foil (colour has to be indicated), 1 label, 1 Erkobox, 1 sample FG-sheet, instr.

177 860 single coloured (1-15)	**177 863** four-coloured (1-15)	**177 865** single coloured (1-15)	**177 868** four-coloured (1-15)
177 861 two-coloured (1-15)	**177 864** freestyle (16-23)	**177 866** two-coloured (1-15)	**177 869** freestyle (16-23)
177 862 three-coloured (1-15)	**177 859** freestyle strip (24+25)	**177 867** three-coloured (1-15)	**177 870** freestyle strip (24+25)

Playsafe triple light foils, Ø 120 mm, 5 triple light foils of the same colour (colour has to be indicated), 5 labels, 1 sample FG-sheet, instr.

* only for Erkodent units with programmable heating time

Material					Order number (Contents)	Order number (Contents)	Order number (Contents)
	mm	°C	min	min	Ø 120 mm	125 x 125 mm	Ø 125 mm
Erkodur-al clear, with insulating foil	**0.60**	195	0:45	0:50	52 41 06 (20) • 52 46 06 (100)		52 20 06 (20) • 52 30 06 (100)
	0.80	195	1:00	0:55	52 41 08 (20) • 52 46 08 (100)		52 20 08 (20) • 52 30 08 (100)
	1.00	195	1:30	1:00	52 41 10 (20) • 52 46 10 (100)		52 20 10 (20) • 52 30 10 (100)
Erkodur clear, with insulating foil	**0.50**	160	0:30	0:35	52 12 05 (20) • 52 42 05 (100)		52 15 05 (20) • 52 45 05 (100)
	0.60	160	0:30	0:40	52 12 06 (20) • 52 42 06 (100)	52 14 06 (20) • 52 44 06 (100)	52 15 06 (20) • 52 45 06 (100)
	0.80	160	0:45	0:45	52 12 08 (20) • 52 42 08 (100)	52 14 08 (20) • 52 44 08 (100)	52 15 08 (20) • 52 45 08 (100)
	1.00	160	0:45	0:50	52 12 10 (20) • 52 42 10 (100)	52 14 10 (20) • 52 44 10 (100)	52 15 10 (20) • 52 45 10 (100)
	1.50	160	1:00	1:05	52 12 15 (10) • 52 42 15 (50)	52 14 15 (10) • 52 44 15 (50)	52 15 15 (10) • 52 45 15 (50)
	2.00	155	1:30	1:25	52 12 20 (10) • 52 42 20 (50)	52 14 20 (10) • 52 44 20 (50)	52 15 20 (10) • 52 45 20 (50)
	2.50	155	2:00	1:55	52 12 25 (10) • 52 42 25 (50)	52 14 25 (10) • 52 44 25 (50)	52 15 25 (10) • 52 45 25 (50)
	3.00	155	2:00	2:05	52 12 30 (10) • 52 42 30 (50)	52 14 30 (10) • 52 44 30 (50)	52 15 30 (10) • 52 45 30 (50)
	4.00	155	3:00	2:40	52 12 40 (10) • 52 42 40 (50)		52 15 40 (10) • 52 45 40 (50)
	5.00	155	4:00	3:40	52 12 50 (10) • 52 42 50 (50)		
Erkodur ***freeze*** turquoise-transparent, with insulating foil	**1.00**	160	0:45	0:50	52 91 10 (20) • 52 94 10 (100)	52 86 10 (20) • 52 88 10 (100)	52 75 10 (20) • 52 76 10 (100)
	1.50	160	1:00	1:05	52 91 15 (10) • 52 94 15 (50)	52 86 15 (10) • 52 88 15 (50)	52 75 15 (10) • 52 76 15 (50)
	2.00	155	1:30	1:25	52 91 20 (10) • 52 94 20 (50)	52 86 20 (10) • 52 88 20 (50)	52 75 20 (10) • 52 76 20 (50)
	2.50	155	2:00	1:55	52 91 25 (10) • 52 94 25 (50)	52 86 25 (10) • 52 88 25 (50)	52 75 25 (10) • 52 76 25 (50)
	3.00	155	2:00	2:05	52 91 30 (10) • 52 94 30 (50)	52 86 30 (10) • 52 88 30 (50)	52 75 30 (10) • 52 76 30 (50)
Erkodur-0M1 tooth colour, with insulating foil	**0.60**	170	0:30	0:40	52 61 06 (20) • 52 43 06 (100)	52 61 06 (20) • 52 43 06 (100)	52 26 06 (20) • 52 48 06 (100)
	1.00	165	0:45	0:50	52 61 10 (20) • 52 43 10 (100)	52 61 10 (20) • 52 43 10 (100)	52 26 10 (20) • 52 48 10 (100)
	1.50	160	1:00	1:05	52 61 15 (10) • 52 43 15 (50)	52 61 15 (10) • 52 43 15 (50)	52 26 15 (10) • 52 48 15 (50)
	2.00	155	1:30	1:25	52 61 20 (10) • 52 43 20 (50)	52 61 20 (10) • 52 43 20 (50)	52 26 20 (10) • 52 48 20 (50)
Erkodur-A1 tooth colour, with insulating foil	**0.60**	170	0:30	0:40	52 22 06 (20) • 52 66 06 (100)	52 22 06 (20) • 52 66 06 (100)	52 19 06 (20) • 52 60 06 (100)
	1.00	165	0:45	0:50	52 22 10 (20) • 52 66 10 (100)	52 22 10 (20) • 52 66 10 (100)	52 19 10 (20) • 52 60 10 (100)
	1.50	160	1:00	1:05	52 22 15 (10) • 52 66 15 (50)	52 22 15 (10) • 52 66 15 (50)	52 19 15 (10) • 52 60 15 (50)
	2.00	155	1:30	1:25	52 22 20 (10) • 52 66 20 (50)	52 22 20 (10) • 52 66 20 (50)	52 19 20 (10) • 52 60 20 (50)
Erkodur-A2 tooth colour, with insulating foil	**0.60**	170	0:30	0:40	52 23 06 (20) • 52 90 06 (100)	52 23 06 (20) • 52 90 06 (100)	52 64 06 (20) • 52 98 06 (100)
	1.00	165	0:45	0:50	52 23 10 (20) • 52 90 10 (100)	52 23 10 (20) • 52 90 10 (100)	52 64 10 (20) • 52 98 10 (100)
	1.50	160	1:00	1:05	52 23 15 (10) • 52 90 15 (50)	52 23 15 (10) • 52 90 15 (50)	52 64 15 (10) • 52 98 15 (50)
	2.00	155	1:30	1:25	52 23 20 (10) • 52 90 20 (50)	52 23 20 (10) • 52 90 20 (50)	52 64 20 (10) • 52 98 20 (50)
Erkodur-A3 tooth colour, with insulating foil	**0.60**	170	0:30	0:40	52 62 06 (20) • 52 03 06 (100)	52 62 06 (20) • 52 03 06 (100)	52 65 06 (20) • 52 05 06 (100)
	1.00	165	0:45	0:50	52 62 10 (20) • 52 03 10 (100)	52 62 10 (20) • 52 03 10 (100)	52 65 10 (20) • 52 05 10 (100)
	1.50	160	1:00	1:05	52 62 15 (10) • 52 03 15 (50)	52 62 15 (10) • 52 03 15 (50)	52 65 15 (10) • 52 05 15 (50)
	2.00	155	1:30	1:25	52 62 20 (10) • 52 03 20 (50)	52 62 20 (10) • 52 03 20 (50)	52 65 20 (10) • 52 05 20 (50)
Erkodur-S clear	**0.80**	160	0:45	0:40	52 13 08 (20)	52 18 08 (20)	52 29 08 (20)
Erkoflex transparent, with insulating foil	**1.00**	130	1:30	0:40	58 12 10 (20) • 58 42 10 (100)	58 17 10 (20) • 58 47 10 (100)	58 19 10 (20) • 58 49 10 (100)
	1.50	130	2:00	0:55	58 12 15 (10) • 58 42 15 (50)	58 17 15 (10) • 58 47 15 (50)	58 19 15 (10) • 58 49 15 (50)
	2.00	130	3:00	1:25	58 12 20 (10) • 58 42 20 (50)	58 17 20 (10) • 58 47 20 (50)	58 19 20 (10) • 58 49 20 (50)
	3.00	130	5:00	2:25	58 12 30 (10) • 58 42 30 (50)	58 17 30 (10) • 58 47 30 (50)	58 19 30 (10) • 58 49 30 (50)
	4.00	120	7:00	3:05	58 12 40 (10) • 58 42 40 (50)	58 17 40 (10) • 58 47 40 (50)	58 19 40 (10) • 58 49 40 (50)
	5.00	120	8:00	3:30	58 12 50 (10) • 58 42 50 (50)	58 17 50 (10) • 58 47 50 (50)	58 19 50 (10) • 58 49 50 (50)
Erkoflex-bleach transparent, with insulating foil	**1.00**	175	1:30	0:55	58 13 10 (20) • 58 43 10 (100)	58 18 10 (20) • 58 48 10 (100)	58 15 10 (20) • 58 45 10 (100)
Erkoflex-95 transparent, with insulating foil	**1.50**	155	1:50	1:15	58 92 15 (10) • 58 94 15 (50)	58 69 15 (10) • 58 67 15 (50)	58 59 15 (10) • 58 54 15 (50)
	2.50	140	2:20	1:55	58 92 25 (10) • 58 94 25 (50)	58 69 25 (10) • 58 67 25 (50)	58 59 25 (10) • 58 54 25 (50)
	4.00	130	3:30	2:45	58 92 40 (10) • 58 94 40 (50)	58 69 40 (10) • 58 67 40 (50)	58 59 40 (10) • 58 54 40 (50)
Erkolen transparent, with insulating foil	**0.50**	175	0:30	0:35	51 12 05 (20) • 51 42 05 (100)	51 13 05 (20) • 51 43 05 (100)	51 15 05 (20) • 51 45 05 (100)
	0.60	175	0:30	0:40	51 12 06 (20) • 51 42 06 (100)	51 13 06 (20) • 51 43 06 (100)	51 15 06 (20) • 51 45 06 (100)
	0.70	170	0:45	0:45	51 12 07 (20) • 51 42 07 (100)	51 13 07 (20) • 51 43 07 (100)	51 15 07 (20) • 51 45 07 (100)
	0.80	170	0:50	0:55	51 12 08 (20) • 51 42 08 (100)	51 13 08 (20) • 51 43 08 (100)	
	1.00	165	1:30	1:00	51 12 10 (20) • 51 42 10 (100)	51 13 10 (20) • 51 43 10 (100)	51 15 10 (20) • 51 45 10 (100)
	1.50	160	2:00	1:35	51 12 15 (10) • 51 42 15 (50)	51 13 15 (10) • 51 43 15 (50)	51 15 15 (10) • 51 45 15 (50)
	2.00	150	3:00	2:05	51 12 20 (10) • 51 42 20 (50)	51 13 20 (10) • 51 43 20 (50)	51 15 20 (10) • 51 45 20 (50)
	3.00	140	4:00	2:55	51 12 30 (10) • 51 42 30 (50)	51 13 30 (10) • 51 43 30 (50)	

* only for Erkodent units with programmable heating time

Material				*	Order number (Contents)	Order number (Contents)	Order number (Contents)
	mm	°C	min	min	Ø 120 mm	125 x 125 mm	Ø 125 mm
Erkoloc-pro transparent, with insulating foil	**1.00**	160	2:00	1:00	59 51 10 (20) • 59 54 10 (100)	59 52 10 (20)	59 55 10 (20)
	1.30	160	2:00	1:10	59 51 13 (20) • 59 54 13 (100)	59 52 13 (20)	59 55 13 (20)
	2.00	170	2:00	1:55	59 51 20 (10) • 59 54 20 (50)	59 52 20 (10)	59 55 20 (10)
	3.00	165	3:00	2:40	59 51 30 (10) • 59 54 30 (50)	59 52 30 (10)	59 55 30 (10)
	4.00	160	4:00	3:25	59 51 40 (10) • 59 54 40 (50)		59 55 40 (10)
	5.00	160	5:00	4:30	59 51 50 (10) • 59 54 50 (50)		59 55 50 (10)
Erkoloc-pro *blu* blue-transparent, with insulating foil	**2.00**	170	2:00	1:55	59 56 20 (10) • 59 58 20 (50)	59 76 20 (10)	59 66 20 (10)
	3.00	165	3:00	2:40	59 56 30 (10) • 59 58 30 (50)	59 76 30 (10)	59 66 30 (10)
	4.00	160	4:00	3:25	59 56 40 (10) • 59 58 40 (50)		59 66 40 (10)
	5.00	160	5:00	4:30	59 56 50 (10) • 59 58 50 (50)		59 66 50 (10)
Erkoloc-pro *green* green-transparent, with insulating foil	**2.00**	170	2:00	1:55	59 72 20 (10) • 59 74 20 (50)	59 65 20 (10)	59 82 20 (10)
	3.00	165	3:00	2:40	59 72 30 (10) • 59 74 30 (50)	59 65 30 (10)	59 82 30 (10)
	4.00	160	4:00	3:25	59 72 40 (10) • 59 74 40 (50)		59 82 40 (10)
	5.00	160	5:00	4:30	59 72 50 (10) • 59 74 50 (50)		59 82 50 (10)
Erkoloc-pro *pink* pink-transparent, with insulating foil	**2.00**	170	2:00	1.55	59 59 20 (10) • 59 69 20 (50)	59 70 20 (10)	59 75 20 (10)
	3.00	165	3:00	2.40	59 59 30 (10) • 59 69 30 (50)	59 70 30 (10)	59 75 30 (10)
	4.00	160	4:00	3.25	59 59 40 (10) • 59 69 40 (50)		59 75 40 (10)
	5.00	160	5:00	4.30	59 59 50 (10) • 59 69 50 (50)		59 75 50 (10)
Erkoplast PLA-R, rose	**1.50**	130	1:30	1:00	56 46 15 (10) • 56 47 15 (50)	56 66 15 (10) • 56 67 15 (50)	56 56 15 (10) • 56 57 15 (50)

Material Ø 240 mm		Order number (Contents)
only for Erkopress 240	mm	Ø 240 mm
Erkodur-al 240 clear, with insulating foil	**0.60**	52 11 06 (20)
	0.80	52 11 08 (20)
	1.00	52 11 10 (20)
Erkodur 240 clear, with insulating foil	**0.50**	52 95 05 (20)
	0.60	52 95 06 (20)
	0.80	52 95 08 (20)
	1.00	52 95 10 (20)
Erkoflex-bleach 240 transparent, with insulating foil	**1.00**	58 95 10 (20)
Erkoloc-pro 240 transparent, with insulating foil	**1.00**	59 95 10 (20)
	1.30	59 95 13 (20)
	2.00	59 95 20 (10)

For **Erkomini** (manual coping production)		Order number (Contents)
Material	mm	Ø 42 mm
Erkolen-A transparent (harder than **Erkolen**)	**0.60**	51 14 66 (100) • 51 24 66 (500)
Erkolen-AW transparent (like **Erkolen**)	**0.60**	51 14 06 (100) • 51 24 06 (500)
UZF-A clear	**0.10**	53 14 01 (200) • 53 24 01 (500)
Shrinkage compensation foil for Erkolen-A and -AW		

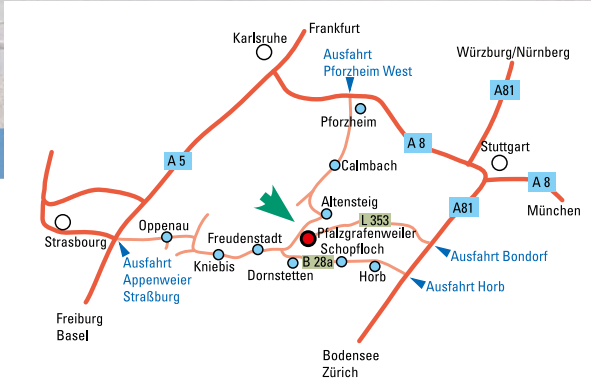
Material		Order number (Contents)	
	mm	Ø 120 mm	Ø 125 mm
UZF-Cast red	**0.10**	53 11 01 (100)	53 25 01 (100)
Spacer foil for the casting technique			

Foil thickness (mm)

Thermoforming temperature (°C), only for Erkodent units with temperature sensor

Cooling time (min.sec.), only for Erkodent units with temperature sensor

* **Heating time (min.sec.),** only for Erkodent units with programmable heating time



tzt-EN-05-2025

Erkodent Erich Kopp GmbH
Siemensstraße 3
72285 Pfalzgrafenweiler
Germany
Tel.: + 49 (0) 74 45/85 01-0
info@erkodent.com
www.erkodent.com

EN ISO 13485 / ISO 9001

CE 0197

ERKODENT®