



No danger of distortion

Joachim Mosch, CDT

Joachim Mosch, CDT, reports on a very reliable and easy technique for the fabrication of crown and bridge understructures using a new high-tech material from primotec.



The first materials that very quickly come to mind are light-curing materials, the majority of which, however, do not burn out without residue and are therefore unsuitable for modeling a pattern for subsequent casting.

Primopattern LC (primotec/Bad Homburg, Germany) was developed in order to solve these problems, i.e. to create one single material with which the pattern could be cast, scanned, copy milled or pressed. Primopattern LC (Fig. 1) is a light-curing, universal composite for modeling, which is available as a gel from the syringe and as a paste. As a ready-to-use, one-component material it is also ideal for bridge work. The following case of a simple posterior bridge is intended to provide a detailed illustration of the procedure.

Model preparation for a primopattern modelation is basically no different than that for waxing up with sculpting wax.

Primosep was used for separating the model (Fig. 2), a separating agent for the light-curing primosplint (light cured bite splint material), which is also very suitable for primopattern. It is best to apply primosep to a moist model using a brush (Fig. 3).

The copings of the bridge abutments are very easily and efficiently modeled using primopattern gel directly from the syringe (Fig. 4). The procedure is particularly quick, as the pattern can be fully modeled in virtually a single step without having to pause continuously as with waxing up (Figs. 5 and 6).

The copings are then immediately light cured. All conventional light-curing units with a light spectrum of 320 nm to 500 nm are suitable for light curing (Fig. 7). It is helpful that the copings can be trimmed individually at this stage (Fig. 8) and the thickness can be checked without any problem using a caliper. Primopattern LC gel is easily applied also to the already polymerised surfaces. The gel is thixotropic, i.e. it becomes more flowable when vibrated and stops when the vibration ceases (Fig. 9).

The pontic is fabricated using primopattern LC paste, which is always used if larger amounts of material need to be applied quickly. The paste has a kneadable consistency and is easily shaped with the fingers (Figs. 10 and 11). If the pontic is to be veneered on the basal surface, a simple wax spacer can be placed under the pontic (Fig. 12).

It should not really occur, but it continues to happen. Despite the bridge having been very carefully modeled, sprued, invested, cast, devested and sandblasted, it rocks on the model. There are various reasons for this failure. Even though errors can also creep in during casting, devesting, sandblasting etc., the main causes, however, are certainly to be found with accidental distortion of the pattern by the technician. Consequently, it is more reliable from a technical and procedural aspect if the bridge is modeled using a material that cures without affecting its properties and does not distort when cured.



Fig. 1

Fig. 1: Ready to use as a gel or paste – light-curing primopattern LC universal composite for modeling.



Fig. 2

Fig. 2: For separating primosep is used, a very high-quality dental stone/ acrylic separating agent.

Fig. 3: Primosep separating agent should be applied to the moist stone surface to ensure it can produce maximum separation.

Fig. 4: Primopattern LC is very economical to use due to application directly from the syringe.

Fig. 5: The viscosity of the gel is exactly regulated and guarantees quick, precise modeling ...

Fig. 6: ... with high dimensional stability, which ensures that the applied gel does not run.



Fig. 3



Fig. 4

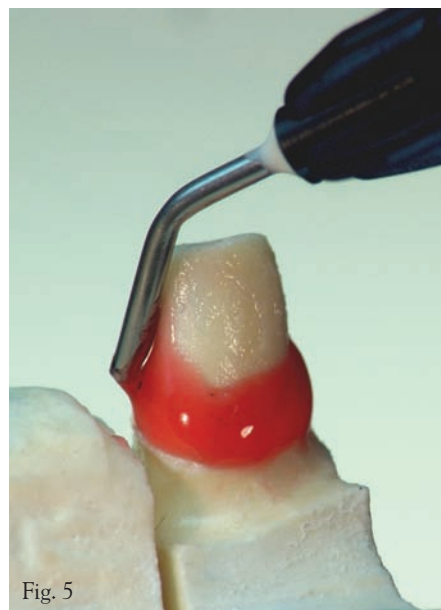


Fig. 5

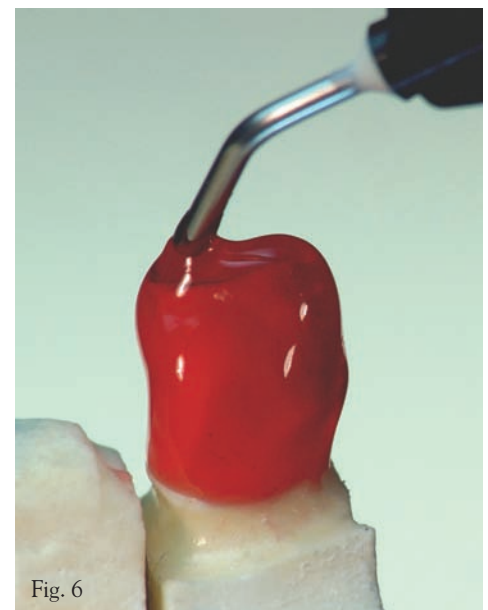


Fig. 6

Fig. 7: During polymerization primopattern fully maintains its properties and dimensional stability.

Fig. 8: The light-cured copings are each perfectly trimmed and the layer thickness is checked using a caliper.

Fig. 9: The gel can be ideally modeled due to its thixotropic properties.

Fig. 10: The required amount of primopattern LC paste is easily removed from the container using a spatula.



Fig. 7

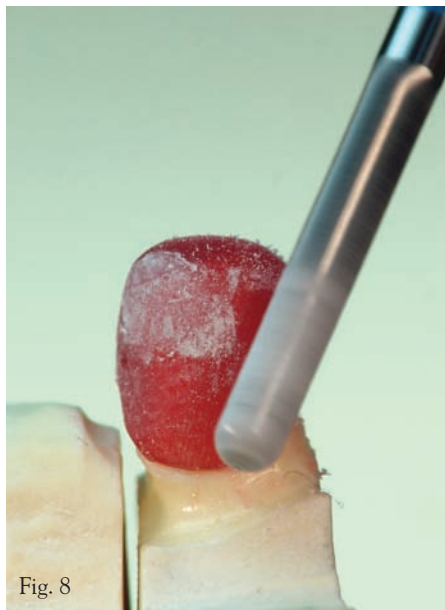


Fig. 8



Fig. 9



Fig. 10



Fig. 11

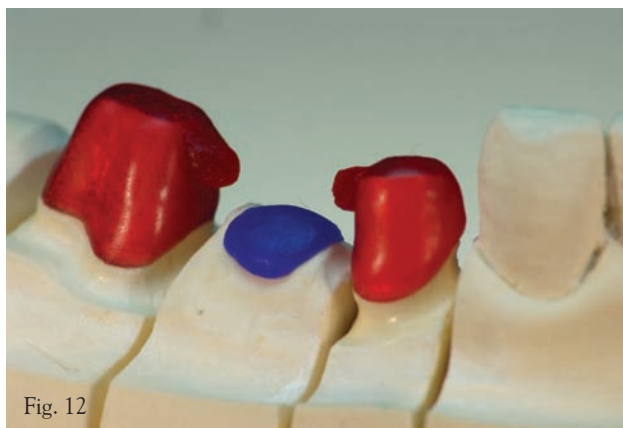


Fig. 12

Fig. 11: As the paste is soft and non-sticky, the pontic can be easily pre-formed with the fingers.

Fig. 12: A wax spacer is sufficient if the pontic is to be veneered on the basal surface.

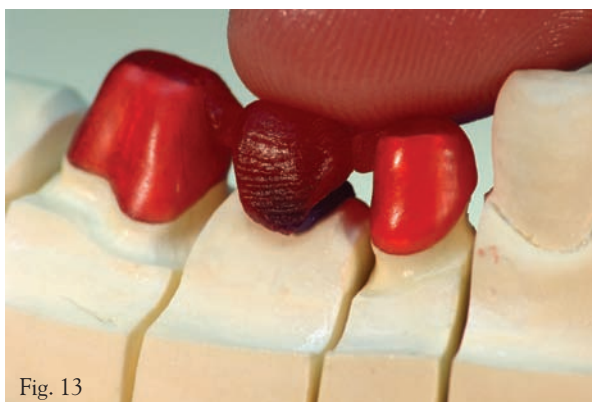


Fig. 13



Fig. 14

Fig. 13: The pontic, which has been pre-formed using paste, is placed between the copings.



Fig. 15



Fig. 16

Fig. 14: The primopattern paste appears darker red than the gel, as the blue wax under the pontic shines through.

Fig. 15: If required, brief intermediate polymerization can be completed at any time using a hand-held UV lamp.



Fig. 18

Fig. 16: The connectors are finished using primopattern LC gel.



Fig. 17

Fig. 17: Primopattern LC does not have any relevant polymerization shrinkage, the fit is perfect.

Fig. 18: The pattern can be invested immediately. Waiting time, as required with PMMA modeling resins, is not necessary.

The manually pre-formed pontic is then placed between the copings, pressed against the connector and, if required, intermediately cured briefly using a hand-held lamp (Figs. 13 to 15).

The connectors are finished using primopattern LC Gel (Fig. 16), the pontic and connector are then fully polymerized (Fig. 17). After finishing, a perfectly fitting bridge framework is produced that can no longer distort

even with slightly rougher handling (Fig. 18) and even greater fluctuations in room temperature do not cause any problems. If the pattern fits perfectly on the model and, because it is light cured, cannot change during spruing, removal and investing then the “danger of distortion” has been eliminated!