



## Fabricating direct temporaries with bis-acrylates

**Dr. Murad A. Muradov**

Central Research Institute of Dentistry (CNIIS), Moscow, Russia

The need and practicability of using temporary crowns for prosthetic restorations has been proven effective in many scientific studies (see literature references 1 – 5).

Foregoing a temporary restoration can have negative consequences such as pulpitis (thermal, bacterial damage), damage to the mandibular joint due to abnormal loads, or shifting of the preparation line due to gingival recession. In order to prevent a possible displacement of teeth that have no contact to their antagonists a temporary restoration is highly recommended to stabilize the occlusion.

After a preparation that is not limited to the enamel, saliva contact with the prepared tooth cores can lead to bacteria penetration into the exposed dentine tubules, which over time can cause secondary caries and the deterioration of the prepared core under the crown. Therefore, following a preparation, the pulp and dentine must be protected against bacterial damage. The protection of the prepared tooth by means of a temporary restoration is therefore mandatory.

A significant progress in the fabrication of temporary crowns is the use of bis-acrylates which were specifically developed for this purpose. These materials are user-friendly, require a minimal working time and simplify the fabrication of temporaries (fig. 1 – 9) - thus exhibiting characteristics that are of great significance to both the dentist and the patient. Besides their ease of use and convenience, these materials offer a number of positive properties that make them particularly well-suited for the fabrication of temporaries, such as low polymerization temperatures, no residual monomer content, high mechanical strength, a particularly smooth surface, no unpleasant odor and high color stability.

The fabrication of such a temporary restoration is described in the following case study.

The initial findings reveal a badly damaged dental crown on tooth 21 (fig. 1). Following the core build-up, the tooth is prepared (fig. 2). In order to prevent bleeding of the gums and to obtain an exact reproduction of the preparation line, a retraction chord was placed (fig. 3). If composites are used as core build-up materials the prepared tooth and the surrounding teeth are lightly wetted with Vaseline (fig. 4). On the gypsum model, on which a wax-up of the deteriorated tooth 21 was made, a silicone impression for the temporary is taken with Silagum-Putty Fast (DMG, Hamburg, Germany) (fig. 5).





The impression is filled slowly with Luxatemp-Fluorescence (DMG, Hamburg, Germany) to avoid air bubbles. During the process the tip must always be submerged in the material (fig. 6). Silagum-Putty Fast is placed onto the prepared tooth and the adjacent teeth (fig. 7). The impression is then taken out of the mouth (fig. 8). The temporary is taken off the core, excess material is removed and the crown margin is trimmed with a carbide burr.

The crown margin is contoured with a fine pencil (fig. 9). Excess material is thoroughly removed, especially in the gingival area, using a fine carbide burr on low speed (fig. 10). The finishing and polishing of the temporary can be done with abrasive brushes (fig. 11). The surface is polished step-by-step at low speed changing from hard to soft brushes (fig. 12). Subsequently, the surface of the temporary is varnished with Luxatemp-Glaze & Bond (DMG, Hamburg, Germany) to obtain a natural shine and to minimize plaque deposits on the temporary. If this varnish is used no further polishing is needed. This speeds up the fabrication process.

For the temporary cementation of the crown only a thin layer of TempoCemNE (DMG, Hamburg, Germany) is required because of the temporary's perfect fit (fig. 13). Subsequently, the temporary is seated (fig. 14).





#### Literature

- 1 Abakarov S.I., Moderne Konstruktionen der festen Zahnprothesen, Moskau, 1994, S. 95.
- 2 Kalamkarov H.A., Prothetische Behandlung unter Anwendung der metallkeramischen Prothesen, Moskau, 1996, S. 175.
- 3 Weiss, Fehler bei prothetischen Behandlungen, Behandlung von Patienten mit unvollständigen „Zahnreihen“, Moskau, 2005, S. 408.
- 4 Givens E.J. Jr., Neiva G., Yaman P., Dennison J.B., Marginal adaptation and color stability of four provisional materials, J. Prosthodont., 2008, Vol.17, 2, P. 97-101.
- 5 Yu Y.Q., Zou D.R., Su J.S., The study of the monomer release from four kinds of temporary crown material by infrared spectrum, Shanghai Kou Qiang Yi Xue = Shanghai journal of stomatology, 2008, Vol.17, 6, P. 643-647.

#### Contact

Dr. M.A. Muradov  
Central Research Institute of Dentistry (CNIIS)  
Timura Frunse, 16  
Moskau, Russland  
cniis@cniis.ru

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For information only.