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Creating veneers with the platinum foil technique

Today, the treatment with veneers has become one of the star treatments from a non-invasive point of view. This article describes the platinum foil technique for the manufacturing of ceramic veneers, also sometimes referred to as "contact lenses". It is an entirely manual method of manufacturing, with a long history, even dating back to the beginning of the 20th century.

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This manufacturing by hand in the platinum foil technique is in contrast to the rapid development of CAD/CAM technologies and established methods such as the refractory stump or injected ceramic technique.

Nevertheless, the platinum foil technique is increasingly popular today because it has many indisputable advantages: the speed of manufacturing and personalization in layering, as well as the great aesthetic property of this type of restoration. Due to the minimum preparation of the natural tooth, the light is freely transmitted and restorations blend in better compared to restorations that require more preparation space.

In the following case, the manufacturing of 6 veneers to close small spaces or diastemas, hardly requiring preparation, has been described step by step. At all times, an alveolar model is used in order to preserve all gingival information.

As a first step in aesthetic treatments we always create an additive wax-up on the initial study model, in order to obtain a global vision of our objective and check the aesthetic requirements. Once the respective mock-up has been tested in the mouth and its aesthetic result has been verified, the clinician can begin to make the minimum preparations necessary for future restorations.

After the clinician has taken the impression, the alveolar work model can be prepared. The platinum foil has to be adapted to each die with the help of a Bunsen burner, taking special care and reheating the foil once it has been adapted to eliminate all possible remnants of grease.

Fig. 1: Study model of the initial situation.

Fig. 2: Additive wax-up.

Fig. 3: Initial situation prior to preparation.

Fig. 4: Intraoral mock-up

Fig. 5: Verifying the smile line.

Fig. 6: Verification of the minimum preparation space with a preparation guide, based on the wax-up.

Fig. 7: Detail of the preparation margins.

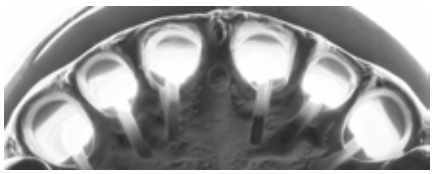

Fig. 8: Alveolar model preparation.

Fig. 9: Intraoral view after preparation.

Fig. 10: The platinum foil adapted onto the alveolar model.

A first thin layer of dentine is applied for the first bake, it is important to verify whether or not the substrate of our preparation is favourable in terms of colour. With minimum thicknesses, hovering between 0.3 and 0.5 mm, less leeway is left to mask a possible unfavourable substrate, but in case of a favourable substrate, it poses and advantage in terms of optical properties.

After the first bake, dentine structure is modelled. Initial LiSi ceramics possesses properties that enable the simulation of optical effects that give the restorations a very natural look.

Next step would be to replace the enamel in the restorations; the Initial LiSi range comprises enamel powders with great opalescence. The last phase of resurfacing and texturing, as well as the mechanical polishing require special care.

Once the veneers have obtained their final glaze, the platinum foils are submerged in cold water to reduce the surface tension and finally separated.

It is often assumed that the marginal adjustment of veneers made with the platinum foil technique is suboptimal. However, this reputation is not entirely justified; in many cases, this adaptation is even better than with a direct or injected veneer.

Fig. 11: First thin ceramic preparation layer

Fig. 12: Internal structure of dentine

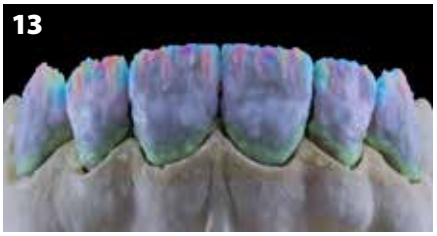

Fig. 13: Internal effects.

Fig. 14: Result after bake.

Fig. 15: Next enamel firing.

Fig. 16-17: The finished veneers on a work model.

Fig. 18: Ultrathin veneers, often referred to as "contact lenses"

Fig. 19: Cementation under rubber dam

Fig. 20.21-22-23-24-25-26: Final view after veneer placement, as seen from different angles.