



Foto: Dr. Neuendorf

# Embracing the tooth!

A precise impression is a significant factor when making prosthetics that are to fit precisely. The mainly hydrophobic properties of addition curing silicones are often a limiting factor when trying to achieve dimensionally accurate impressions.

With its new products Panasil initial contact light and Panasil initial contact X-light, Kettenbach has now brought two A-silicones onto the market that display an exceptional initial hydrophilicity due to the addition of surface-active tensides.

The independent dentist and experienced prosthetic specialist Dr. Manuela Neuendorf has conducted this report on her practical experiences for DENTAL MAGAZIN.

We have all encountered these problems before: Despite meticulous preparation, correct delineation of the preparation margins and thorough drying, sulcus fluids, saliva or gingival bleeding can lead to an inaccurate detail reproduction, blisters or creases in the impression. The new correction materials Panasil initial contact light and Panasil initial contact X-light are said to display an especially high initial hydrophilicity which promises optimal flowing properties even onto the moist tooth surface.

Furthermore, the initial hydrophilic properties are supposedly present throughout the entire working time. We tested the materials in our dental practice and must conclude that we were thoroughly convinced by the properties these new precision silicones displayed in clinical practice.

## Two-step putty-wash impressions – Test procedure

The light-body materials are delivered in 50ml cartridges for the application with an Applyfix dispenser and can be combined with all preliminary impression materials in the Panasil product range (Panasil putty, Panasil tray and Panasil binetics putty). For this two-step impression technique we used the precision wash materials in combination with the classic Panasil putty fast as a base material.



Fig. 1: The delineation of the preparation margins was carried out with an intra-sulcular insertion of retraction cords. Photos: Dr. Neuendorf



Fig. 2: Preliminary impression using the fast setting putty Panasil putty fast. Equal amounts of hardener and base paste are kneaded together for 45 seconds until the mixture has a homogenous ochre-yellow colour.

The preparation for the correction impression was conducted in the usual fashion. The delineation of the preparation margins was carried out with an intra-sulcular insertion of retraction cords. In order to remove the smear layer, we cleaned the dentin adhesive stump structures thoroughly so as to avoid a possible interaction with the A-silicone during the setting stage. The rim-lock trays were covered with a special adhesive for addition curing silicones in order to guarantee secure fixation of the impression material. For the preliminary impression with the fast-curing putty-material Panasil putty fast, equal amounts of hardener and base paste were taken with the colour-coded dosage-spoons and kneaded for 45 seconds, according to the specified mixing time, until the mixture displayed a homogenous ochre-yellow color. As recommended by the manufacturer, vinyl gloves were worn, as latex might impair the setting characteristics of the polyvinyl siloxane in putty materials. The reduced total working time of one minute and 30 seconds leaves ample time after mixing, for a well-coordinated practice team to fill the tray and to place it in the patient's mouth.

### The second impression phase – Getting results with hydrophilicity

After the required intra-oral setting time of two minutes, the primary impression was carefully prepared for the second stage. All undercuts and interdental septa were removed generously and ample escape channels were cut into the material in order to avoid any deformation of the preliminary impression due to the blocking of light body material. Despite its high final hardness, the putty

material could be cut and worked on very well. After cutting and checking that the impression could be replaced in the patient's mouth without hindrance, it was cleaned thoroughly again. For the second phase of the impression process we used Kettenbach's new hydrophilic wash materials. The cartridge system allowed us to apply the low-viscosity addition curing silicones circularly around the prepared stumps while removing the retraction cords.

In order to avoid trapping air, the end of the mixing tip was kept in the material at all times.



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studied and was awarded her doctor's degree at the RWTH Aachen. After her residency, she worked as a scientific assistant in the polyclinic for dental prosthetics at the University of Heidelberg.

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Fig. 3. Trimmed primary impression. All undercuts and interdental septa were removed generously and ample escape channels were cut into the material in order to avoid any deformation of the preliminary impression due to the blocking of light body material.



Fig. 4. Injecting the light-body material Panasil initial contact X-light around the prepared stumps. Even with residual moisture it displayed very good flowing properties in infra-gingival areas. The tooth surfaces were instantly and consistently covered.



Fig. 5. Finished two-step putty-wash impression. The wash material was squeezed out to form a thin film. The impression reproduces the preparation with great detail accuracy.

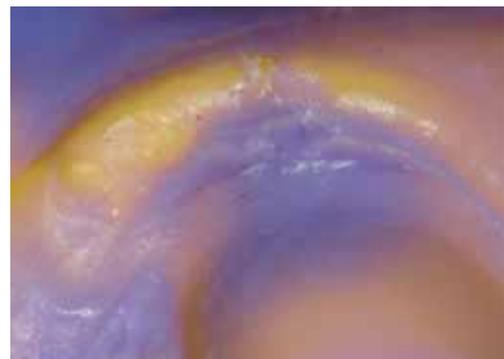


Fig. 6. A firm bond between the wash and base materials.

## Patient results

Even with residual moisture present, the low viscosity material Panasil initial contact light displayed very good flowing properties in infra-gingival areas. Additional thinning of the material with a jet of air was not necessary. Due to the hydrophilic properties, the tooth surfaces were instantly and constantly covered. Nevertheless, after placement, the material displayed highly steadfast properties on the spot. The lavender coloured Panasil initial contact X-light has an even lower viscosity than the mint-green Panasil initial contact light. Thanks to these properties, it is especially indicated for very tight sulcular fissures. Nevertheless, this material too will not drip into the oral cavity from the end of the

mixing tip or from the stump but will remain steadily in place. Despite its especially low viscosity, it is remarkably steadfast. Here too, the initial hydrophilicity leads to an immediate coverage of the stump surfaces, even with residual moisture. The setting properties of the Panasil materials is controlled by temperature. The regular setting time is four minutes. For prosthetic work requiring impressions of several preparations, the total working time of two minutes can be used entirely without any stress. If, for example in the case of single preparation stumps, the intra-oral application of the material is possible within 30 seconds, then the total setting time will be reduced to three minutes and 15 seconds. Product

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temperatures greatly deviating from 23°C will affect the total working as well as the total setting time. Patients found that the impression-taking stage was no hassle at all, thanks to the neutral taste of the materials, the short intra-oral setting time and the effortless withdrawal of the impression tray.

up to its promise. Excellent flowing properties combined with steadfast properties and high tear-resistance lead to precise impression results even in difficult clinical situations.

## Detail-accurate impressions

An exact assessment of the impression is helped greatly by the materials' high-contrast colors. Thanks to the wash material's high tear-resistance, the reproduced fine structures such as infra-gingival preparation margins or inter-dental septa will remain intact after withdrawal from the mouth. The bond between the wash and base material is firm. Both Panasil wash materials flow out extremely thinly, whereby Panasil initial contact X-light will form an even thinner film on the base material than Panasil initial contact light. The quality of the impressions was rated as consistently excellent which was due in the main part to the initial hydrophilicity. The sharpness of the detail accuracy is truly remarkable. After disinfection and a retraction phase of one hour, the precision impression can be poured out in the dental laboratory. The impressions are dimensionally stable for two weeks. The hydrophilicity proves to be an advantage in the model making process too. It is no longer necessary to moisten the impressions with a debubbler prior to pouring out. The high tear-resistance of the materials allows the technician to pour out several times to make exact models with a homogenous surface.

## Conclusion: A high degree of precision

With its low-viscosity Panasil initial contact light and Panasil initial contact X-light, Kettenbach has now brought two addition-curing silicones onto the market with which one can attain exceptionally precise impression results. Already in the application phase, the initial hydrophilicity provides for optimal flowing onto the tooth surface as well as excellent wetting properties and a high degree of tolerance against residual moisture. The material certainly lives



