

# How to lay the foundation for precise restorations

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What I expect from an impression material is easily summed up: it should be universal, i.e. suited for the one-step and two-step technique alike and should enable me to capture even the finest details. Thus, high hydrophilicity of the material is of great importance. This factor – together with the hardness of the material – ensures that the dental technician will be able to produce a precisely fitting restoration. For improved patient comfort, I expect that the impression material has a pleasant taste and the intra-oral setting time is as short as possible, while the working time should be long enough for the required preparations. Last but not least, removal from the patient's mouth should be easy.

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Looking for an impression material that offers all these properties, a new VPS material aroused my interest: according to the manufacturer, this innovation offers an active self-warming mechanism that leads to accelerated setting in the patient's mouth, while the working time is comparable to that of other VPS impression materials. The second interesting feature is its true hydrophilicity in the unset state, which ensures an exact reproduction of the finest details.

The material was recently launched under the name of 3M™ ESPE™ Imprint™ 4 VPS Impression Material. The Imprint 4 family offers putty and heavy body materials for all techniques with different viscosities and setting times. Tray and wash materials come in vivid colours for a good contrast. The use of one of the available material combinations is described on the basis of the following example case. In this case, a crown had to be replaced due to marginal leakage in a 38-year-old female patient.



Figure 1: Situation after removal of the old crown on the mandibular right first molar, tooth preparation and placement of a temporary restoration.



Figure 2: Application of the 3M<sup>TM</sup> ESPE<sup>TM</sup> Astrigent Retraction Paste one week after tooth preparation. The preparation margin is on a supragingival level and equigingival in the distal area.



Figure 3: Effect of the paste: clearly exposed preparation margins. A clean, dry sulcus is obtained and the slight bleeding in the distal area is stopped.

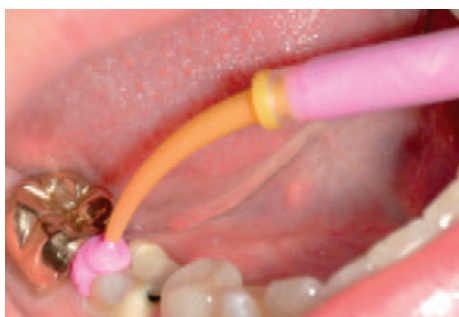


Figure 4: Application of the wash material 3M<sup>TM</sup> ESPE<sup>TM</sup> Imprint<sup>TM</sup> 4 Light Impression Material around the prepared tooth. The light viscosity is selected for increased flowability of the material.



Figure 5: The wash material is also dispensed onto the tray filled with 3M<sup>TM</sup> ESPE<sup>TM</sup> Imprint<sup>TM</sup> 4 Penta<sup>TM</sup> Putty Impression Material. The major benefit of the high-viscosity tray material is that it does not trigger a gag reflex.



Figure 6: The result after an intra-oral setting time of 2:30 minutes which is required for the putty material. Less time is necessary for the setting reaction than with other VPS materials.

### Editors Remark

The clinician selected a material combination that is different from the manufacturer's recommendation for the one step putty-wash technique. The recommended combination is: 3M<sup>TM</sup> ESPE<sup>TM</sup> Imprint<sup>TM</sup> 4 Penta<sup>TM</sup> Putty and 3M<sup>TM</sup> ESPE<sup>TM</sup> Imprint<sup>TM</sup> 4 Regular Impression Material.

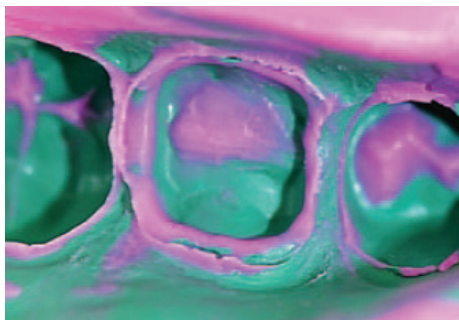


Figure 7: Impression detail: due to the high hydrophilicity of the innovative impression material already in the unset state, a highly accurate representation of the preparation margins is achieved.



Figure 8: The fine details are also visible on the model produced in the dental laboratory. According to the dental technician, this accuracy is particularly important for the computer-aided production of restorations.



Figure 9: Accurate fit of the lithium disilicate crown on the model. Virtually no adjustments were required thanks to the high precision maintained over the complete indirect restoration procedure.



Figure 10: Try-in of the crown: not only does the crown fit precisely, but it also matches the colour of the adjacent natural teeth very well.



Figure 11: Application of hydrofluoric acid to the inner surface of the crown prior to the use of 3M™ ESPE™ Scotchbond™ Universal Adhesive which contains a silane function.



Figure 12: The prepared tooth is treated with 3M™ ESPE™ Scotchbond™ Universal Adhesive as well. Here, light-curing is recommended by the manufacturer after evaporation of the solvent.



Figure 13: Application of 3M™ ESPE™ RelyX™ Ultimate Adhesive Resin Cement to the crown prior to its placement in the patient's mouth.



Figure 14: Removal of excess cement in the gel state using a spatula. When the dual-cure cement is wiped off in the uncured state with a sponge pellet, glycerin gel should be applied prior to light-curing.

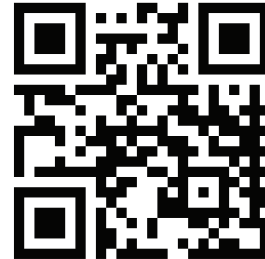


Figure 15: Treatment result: the described restoration procedure using the new VPS impression material allows the production of precisely fitting restorations.

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