3M Oral Care
Impression Troubleshooting Guide
Causes and Solutions.

This trouble shooting guide helps identify common impression problems, determine potential causes and provide solutions to get your impression procedure under control.

10 Golden Rules.

For perfect impressions.
Incomplete reproduction of preparation margins.

Distortions.

Impression material not completely set.

Poor bond between tray and wash material.

Poor bond of impression material to the tray.

Tearing at the margin.

Show-through of tray.

Wash material displaced.

Margins complete but not sharp.

Stone cast discrepancies.
Incomplete reproduction of preparation margins.

Causes

- Insufficient retraction
- Blood and saliva contamination around preparation
- Working time exceeded, flowability already impaired
- Inadequate coverage of marginal area with light body impression material:
  - Wash material displaced/washed away from preparation margins when applying 1-step technique
  - Initial impression not sufficiently carved when applying 2-step technique
- Impression material has low tear resistance
Incomplete reproduction of preparation margins.

How to use 3M™ ESPE™ Retraction Capsule

What to do.
Retract gingival tissue to entirely capture the prepared area. Retraction cords as well as retraction pastes are suitable.

3M™ ESPE™ Retraction Capsule supports your impression work with excellent gingiva retraction with or without cord and hemostasis.
Incomplete reproduction of preparation margins.

**Solutions**

Blood and saliva contamination around preparation

**What to do.**

Rinse and dry the prepared area and stop any bleeding by using appropriate retraction technique and a hemostatic agent. Liquids or pastes based on aluminum chloride, aluminum sulfate, or iron sulfate are suitable hemostatic agents.

3M™ ESPE™ Retraction Capsule supports your impression work with excellent gingiva retraction with or without cord and hemostasis.

View full technique guide for 3M™ ESPE™ Retraction Capsule
Incomplete reproduction of preparation margins.

**Solutions**

**What to do.**

*Select material with sufficient working time* (i.e. regular set instead of fast set). Make a choice depending on the individual situation and preference of material. Do not exceed working times given in the instructions for use. In case of 3M ESPE Dental materials follow given intra-oral syringing times for wash materials.

*Pay attention to storage temperature.* Working times are reduced due to higher temperatures of the product, while intra-oral setting times might be longer if the temperature of the product is lower.

**Impregum™ Soft Polyether Impression Material** offers a very long working time with constant flow. And, polyether impression material is less temperature sensitive in its setting reaction than VPS materials.

**Imprint™ 4 VPS Impression Material** offers both a fast and a regular setting material. Select Quick Set for 1 to 2 unit cases and Regular Set for cases that involve 3 or more units.
Incomplete reproduction of preparation margins.

Solutions

Inadequate coverage of marginal area with light body impression material

What to do.

Use wash material liberally on preparation and abutments.

- *When using 1-step technique*: Avoid high viscosity contrast between tray and wash material. Especially, when using putty materials combine them with a high viscosity wash material. In general, follow manufacturers’ recommendations for material combinations.

- *When using 2-step technique*: Carve tray material before applying wash material or use foil as spacer.

View recommended material combinations for Imprint™ 4 VPS Impression Materials and Impregum™ Polyether Impression Materials:
Incomplete reproduction of preparation margins.

**Solutions**

Impression material has low tear resistance

**What to do.**

Let the material *completely set* prior to removal of the impression and use impression material with sufficient tear resistance.

All 3M ESPE Dental precision impression materials offer clinically proven tear resistance.

Highly detailed impressions made with Impregum™ Polyether Impression Material (left) and Imprint™ 4 VPS Impression Material (right).

View working and setting times of Imprint™ 4 VPS Impression Materials and Impregum™ Polyether Impression Materials:
## Overview

**Voids on the margin.**

## Causes

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Voids on the margin.

**Solutions**

Blood and saliva contamination around preparation

**What to do.**

Rinse and dry the prepared area properly and stop any bleeding by using appropriate retraction/hemostatic agents. Liquid hemostatic agents and pastes based on aluminum chloride, aluminum sulfate or iron sulfate are suitable.

3M™ ESPE™ Retraction Capsule supports your impression work with excellent gingiva retraction with or without cord and hemostasis.

**3M™ ESPE™ Retraction Capsule: How it works**

View full technique guide for 3M™ ESPE™ Retraction Capsule
Voids on the margin.

Solutions

Improper syringe technique

What to do.

Keep the mix tip permanently immersed in the paste to avoid the formation of air bubbles. Apply a liberal amount of wash material into the sulcus. Start from the bottom up and cover the whole abutment tooth with syringing material. Always keep the tip in close proximity to the surface.

3M™ ESPE™ Intra-oral Syringes Green (for VPS materials) and Purple (for polyether) are easy to handle and give better control of the syringing process.

Tips for syringing

View full technique guide for 3M™ ESPE™ Intra-oral Syringe Green/Purple
Voids on the margin.

Solutions

Working time exceeded, flowability already impaired

What to do.

*Select material with sufficient working time* (i.e. regular set instead of fast set). Make a choice depending on the individual situation and preference of material. Do not exceed working times given in the instructions for use. In case of 3M ESPE Dental materials follow given intra-oral syringing times for wash materials.

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Solutions

Air bubbles in elastomer syringe or intra-oral syringe

What to do.

Bleed cartridge prior to loading syringe.

Keep flow of material consistent. Do not stop and start while loading the syringe.

How to load 3M™ ESPE™ Intra-Oral Syringe Green/Purple

View full technique guide for 3M™ ESPE™ Intra-oral Syringe Green/Purple
Voids on the margin.

Solutions

What to do.

Slowly (approx. 5 seconds) insert the loaded tray into the mouth parallel to the long axes of the prepared teeth, and hold it in place without applying pressure.

Maxillary arch: Seat the impression straight up. Make sure the handle is aligned with the patient’s midline. Always hold the impression tray in the premolar area for stability.

Mandibular arch: Seat the impression straight down over the arch while pulling out the patient’s cheek. Make sure the tray handle is aligned with the patient’s midline. Apply passive pressure in the premolar areas with your thumbs for stability.
Voids on the margin.

Tray not seated properly

**Maxillary arch:** Seat the impression straight up. Make sure the handle is aligned with the patient’s midline. Always hold the impression tray in the premolar area for stability.

**Mandibular arch:** Seat the impression straight down over the arch while pulling out the patient’s cheek. Make sure the tray handle is aligned with the patient’s midline. Apply passive pressure in the premolar areas with your thumbs for stability.

**TIPS!**

- Apply passive pressure while holding the impression tray in place.
- *Never* ask the patient to hold the tray.
- *Never* ask the patient to bite down on the tray.
Voids on the margin.

Solutions

Store impression material at room temperature. Usually, times given in the manufacturers’ instructions for use are valid for a storage temperature of 23 °C/74 °F. Working times are reduced due to higher temperatures of the product, while intra-oral setting times might be longer if the temperature of the product is lower.

Due to its lower temperature sensitivity, Impregum™ Soft Polyether Impression Material is less affected by fluctuations in storage temperature than VPS materials.
**Overview**

Tearing at the margin.

**Causes**

- Insufficient retraction
- Inhibition of setting due to use of acidic retraction materials/hemostatic agents like aluminum or ferric salts
- Smear layers from custom temporary, provisional cements (acrylics) or core build-up present
- Inadequately mixed materials
- Premature removal of the impression
- Inhibition of setting of VPS impression materials due to contact with sulfur from latex gloves
- Impression material has low tear resistance
- Expired impression material
Tearing at the margin.

**Solutions**

**Insufficient retraction**

**What to do.**

Retract gingival tissue to entirely capture the prepared area. Retraction cords as well as retraction pastes are suitable.

3M™ ESPE™ Retraction Capsule supports your impression work with excellent gingiva retraction with or without cord and hemostasis.

How to use 3M™ ESPE™ Retraction Capsule

View full technique guide for 3M™ ESPE™ Retraction Capsule
Tearing at the margin.

**Solutions**

Inhibition of setting due to use of acidic retraction materials/hemostatic agents like aluminum or ferric salts

**What to do.**

*Thoroughly rinse preparation with water and dry before taking the impression.*

*View full technique guide for 3M™ ESPE™ Retraction Capsule*
Overview

Solutions

Smear layers from custom temporary, provisional cements (acrylics) or core build-up present

What to do.

Smear layers from acrylates (e.g. core build-up or temporary materials) can inhibit the setting of impression materials.

When core build-up and final impression are made in one appointment:

- Be sure to remove the smear layer completely prior to impression taking with alcohol/by polishing. Check surrounding teeth and tissue for any residue.

When the temporary and final impressions are made in one appointment:

- Fabricate the provisional after taking the final impression or remove the air-inhibited layer on the exposed preparation with alcohol before taking the final impression.

- Do not use impressions already used to fabricate the provisional for subsequent precision impression taking.

- If a temporary is removed prior to impression taking: Remove all residues of cement and clean the abutment tooth. In case of a core build-up remove the air-inhibition layer on the exposed preparation with alcohol before taking the final impression.
Tearing at the margin.

Solutions

Inadequately mixed materials

What to do.

Bleed cartridge before applying the mix tip to ensure even dispensing. Then *use the mix tips recommended by the manufacturer* and dispense a pea-sized amount onto a mix pad prior to use.

View full technique guide for
3M™ ESPE™ Intra-oral Syringe Green/Purple
Solutions

Premature removal of the impression

What to do.

Follow manufacturer’s instructions for intra-oral setting time and make sure that the impression material has completely set before removal.

Store impression material at room temperature. Usually, times given in the manufacturer’s instructions for use are valid for a storage temperature of 23 °C/74 °F.

Working times are reduced due to higher temperatures of the product, while intra-oral setting times might be longer if the temperature of the product is lower.

View working and setting times of Imprint™ 4 VPS Impression Materials and Impregum™ Polyether Impression Materials:

**Tearing at the margin.**
Tearing at the margin.

Solutions

Inhibition of setting of VPS impression materials due to contact with sulfur from latex gloves

What to do.

Use gloves which do not contain traces of sulfur, e.g. nitrile gloves.
**Solutions**

Impression material has low tear resistance

**What to do.**

Let the material *completely set* prior to removal of the impression and use impression material with sufficient tear resistance.

All 3M ESPE Dental precision impression materials offer clinically proven tear resistance.

[Image: Highly detailed impressions made with Impregum™ Polyether Impression Material (left) and Imprint™ 4 VPS Impression Material (right).]

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**Tearing at the margin.**
Tearing at the margin.

**Solutions**

**Expired impression material**

**What to do.**

*Do not use expired impression material.*

Follow defined storage conditions for materials given in the instructions for use for full shelf life.
Overview

Margins complete but not sharp.

Causes

- Thick blood/saliva pooled around the preparation
- Insufficient retraction
- Inhibition of setting due to use of acidic retraction materials/hemostatic agents like aluminum or ferric salts
- Inhibition of setting of VPS impression materials due to contact with sulfur from latex gloves
- Working time exceeded, flowability already impaired
- Impression material stored at too low temperature
- Incorrect storage conditions of the final impression
- Inadequate disinfection
Overview

Margins complete but not sharp.

Solutions

Thick blood/saliva pooled around the preparation

What to do.

Rinse and dry the prepared area and stop any bleeding by using appropriate retraction technique and a hemostatic agent. Liquids or pastes based on aluminum chloride, aluminum sulfate, or iron sulfate are suitable hemostatic agents.

3M™ ESPE™ Retraction Capsule supports your impression work with excellent gingiva retraction with or without cord and hemostasis.

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Solutions

Insufficient retraction

What to do.
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How to use 3M™ ESPE™ Retraction Capsule

View full technique guide for 3M™ ESPE™ Retraction Capsule
Margins complete but not sharp.

Solutions

Inhibition of setting due to use of acidic retraction materials/hemostatic agents like aluminum or ferric salts

What to do.

*Thoroughly rinse preparation with water and dry before taking the impression.*

Rinse and dry preparation

View full technique guide for 3M™ ESPE™ Retraction Capsule

Overview
Overview

Margins complete but not sharp.

Solutions

Inhibition of setting of VPS impression materials due to contact with sulfur from latex gloves

What to do.

Use gloves which do not contain traces of sulfur, e.g. nitrile gloves.
Margins complete but not sharp.

Solutions

Working time exceeded, flowability already impaired

What to do.

*Select material with sufficient working time* (i.e. regular set instead of fast set). Make a choice depending on the individual situation and preference of material. Do not exceed working times given in the instructions for use. In case of 3M ESPE Dental materials follow given intra-oral syringing times for wash materials.

*Pay attention to storage temperature.* Working times are reduced due to higher temperatures of the product, while intra-oral setting times might be longer if the temperature of the product is lower.

*Impregum™ Soft Polyether Impression Material* offers a very long working time with constant flow. And, polyether impression material is less temperature sensitive in its setting reaction than VPS materials.

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Overview

Margins complete but not sharp.

Solutions

- Impression material stored at too low temperature

What to do.

Temperature influences the viscosity. 
*Store impression material at room temperature.* 
Lower temperatures might lead to higher viscosities.
Margins complete but not sharp.

Solutions

Incorrect storage conditions of the final impression

What to do.
After disinfection rinse impressions with water and dry before sending it to the lab.

Store impressions at room temperature and away from direct sunlight.
Overview

Margins complete but not sharp.

Solutions

Inadequate disinfection

What to do.

Use recommended disinfectants.
Follow the manufacturers’ instructions for use.
Do not exceed the immersion time.
Overview

Causes

- Working time exceeded, flowability already impaired
- Lack of support/insufficient stabilization of the tray by operator during the initial phase of polymerization
- Distortions during impression removal
- Delamination of impression material and tray
- Selected impression tray is too flexible
- The combination of the tray and impression material is not appropriate

2-step technique:

- Delamination of tray and wash material
- A high viscosity wash material can displace the tray material which has already set
- Tray material used is too flexible and distortion occurs during second impression
- Local distortions due to insufficient carving
- Detachment of tray material from tray during carving

Distortions.
Distortions.

Overview

Solutions

What to do.

*Select material with sufficient working time* (i.e. regular set instead of fast set). Make a choice depending on the individual situation and preference of material. Do not exceed working times given in the instructions for use. In case of 3M ESPE Dental materials follow given intra-oral syringing times for wash materials.

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Distortions.

Overview

Solutions

Lack of support/insufficient stabilization of the tray by operator during the initial phase of polymerization

What to do.

Support tray until impression material is sufficiently set. Stabilize the tray after seating, avoid any movements.

When taking an impression of the upper jaw, you can easily find support on the chin or cheek bone of the patient.

With impressions of the lower jaw it is recommended to support the tray on the mandibula.

Patients should close their mouth as much as possible without biting down on the tray to avoid deformation of the mandibula and, thus, errors in the impression. Do not try to correct the position of the tray after insertion.

3M ESPE Dental’s Imprint™ 4 VPS Impression Material has the fastest intra-oral setting time which means less time for unintended movements.
Overview

Solutions

Distortions during impression removal

What to do.

Ensure the impression tray is the proper size prior to taking the impression and the material has excellent elastomeric properties.

Remove the impression along the axis of the prepared tooth.

Follow manufacturer’s instructions for intra-oral setting time and make sure that the impression material has completely set before removal.
Delamination of impression material and tray

What to do.
Use tray adhesive for all types of impression trays and apply adhesive on bottom and on inner sides of the tray, including gauze of dual-arch trays.

Alternatively use 3M™ ESPE™ Impression Trays: With their integrated self-retentive fleece strip, the application of a tray adhesive is not needed – saving valuable preparation time.
Selected impression tray is too flexible

What to do.

*Use rigid trays.* When using dual-arch trays, impression materials with low flexibility and high shore hardness are beneficial to stabilize the impression.

Both Impregum™ Polyether Impression Material and Imprint™ 4 VPS Impression Material offer heavy-body material options that are suitable to be used with dual-arch trays.
The combination of the tray and impression material is not appropriate.

What to do.

*Do not use highly viscous putty materials in combination with flexible plastic trays.* Dual-arch trays can be deformed during impression taking.
Distortions.

Solutions

Delamination of tray and wash material (2-step technique)

What to do.

Clean the initial impression with plenty of water (or alcohol) and air. During this procedure, saliva has to be removed completely from the impression.

Dry thoroughly before taking the second impression. Do not forget to clean and dry after try-in of first impression.
Distortions.

Overview

Solutions

A high viscosity wash material can displace the tray material which has already set (2-step technique)

What to do.

Use low viscosity wash materials which are able to form very thin layers. Carve the first impression with tray material properly before applying wash material.

3M ESPE Dental gives recommendations for optimized impression material combinations. View recommended material combinations for Imprint™ 4 VPS Impression Material:
Tray material used is too flexible and distortion occurs during second impression (2-step technique).

What to do.
Use a material with low flexibility and high hardness after set, e.g. Imprint™ 4 Penta™ Putty VPS Impression Material.
Distortions.

Solutions

Local distortions due to insufficient carving (2-step technique)

What to do.

Carve the tray material properly.
Check repositioning prior to taking the second impression. Apply controlled pressure by slow and straight tray insertion.

All interfering areas have been cut with a scalpel to enable easy re-insertion. Also channels are carved in order to allow excess wash material to be displaced.
Distortions.

Overview

Solutions

Detachment of tray material from tray during carving (2-step technique)

What to do.

*Apply adhesive on bottom and on inner sides of the tray.* Use a sharp carving instrument to minimize stress at the interface of tray material and tray. Otherwise, tray material could detach from the tray unnoticed and causes deformation.
Facial-oral flow defects.

Causes

- Working time exceeded, flowability already impaired
- Impression tray does not support the flow of impression material
- Insufficient amount of impression material used
- Too fast tray insertion
- Tray repositioning after seating
Facial-oral flow defects.

Solutions

Working time exceeded, flowability already impaired

What to do.

Select material with sufficient working time (i.e. regular set instead of fast set). Make a choice depending on the individual situation and preference of material. Do not exceed working times given in the instructions for use. In case of 3M ESPE Dental materials follow given intra-oral syringing times for wash materials.

Pay attention to storage temperature. Working times are reduced due to higher temperatures of the product, while intra-oral setting times might be longer if the temperature of the product is lower.

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Facial-oral flow defects.

Overview

Solutions

Impression tray does not support the flow of impression material

What to do.

*Use rigid trays with correct size.* If necessary, apply facial/oral, occlusal or dorsal stops.

Use 3M™ ESPE™ Impression Trays (or custom trays) that support the flow of the impression material. Their directed flow design minimizes flow defects and distal voids to improve impression accuracy.
Facial-oral flow defects.

Overview

Solutions

Insufficient amount of impression material used

What to do.

Do not underfill the tray. Use sufficient material to create a back flow effect. If required, block out the palatal area of the tray.

Tray filling using Pentamix™ Lite Automatic Mixing Unit
Facial-oral flow defects.

Overview

Solutions

Too fast tray insertion

What to do.

*Insert the tray slowly, taking at least 5 seconds, to reduce flow defects.*
Facial-oral flow defects.

Solutions

Tray repositioning after seating

What to do.

Stabilize the tray after seating, avoid any movements. When taking an impression of the upper jaw, you can easily find support on the chin or cheek bone of the patient.

With impressions of the lower jaw it is recommended to support the tray on the mandibula.

Patients should close their mouth as much as possible without biting down on the tray to avoid deformation of the mandibula and, thus, errors in the impression. Do not try to correct the position of the tray after insertion.

3M ESPE Dental’s Imprint™ 4 VPS Impression Material has the fastest intra-oral setting time which means less time for unintended movements.
Show-through of tray.

Causes

- Tooth or tissue contact with impression tray
- Too much pressure applied upon seating of the tray
- Lack of support of the tray by operator during the initial phase of polymerization
- Insufficient amount of impression material used
Show-through of tray.

Solutions

Tooth or tissue contact with impression tray

What to do.

*Use stock trays with correct size or custom trays.* If necessary, apply facial/oral, occlusal or dorsal stops.

*Use 3M™ ESPE™ Impression Trays* that support the flow of the impression material. Their directed flow design minimizes flow defects and distal voids to improve impression accuracy.
Solutions

Too much pressure applied upon seating of the tray

What to do.
Apply controlled pressure upon seating the tray and hold it in place without exerting additional pressure to avoid contact between teeth/tissue and bottom of tray.

Maxillary impression: Place index and middle fingers in the premolar area for stability. Never hold impression by the handle. Bring arms to your side to give more support.

Mandibular impression: Always line up tray handle to the patient’s midline. Hold tray with thumbs and take fingers under the patient’s chin to stabilize the impression. Remember impression materials are spongy and can lift if not stabilized.
Show-through of tray.

Solutions

Lack of support of the tray by operator during the initial phase of polymerization

What to do.

Support tray until impression material is sufficiently set. Stabilize the tray after seating, avoid any movements. When taking an impression of the upper jaw, you can easily find support on the chin or cheek bone of the patient.

With impressions of the lower jaw it is recommended to support the tray on the mandibula. Patients should close their mouth as much as possible without biting down on the tray to avoid deformation of the mandibula and, thus, errors in the impression. Do not try to correct the position of the tray after insertion.

3M ESPE Dental’s Imprint™ 4 VPS Impression Material has the fastest intra-oral setting time which means less time for unintended movements.
Show-through of tray.

Solutions

Insufficient amount of impression material used

What to do.

*Do not underfill the tray.* Use sufficient material to create a back flow effect. If required, block out the palatal area of the tray.
Wash material displaced.

**Causes**

- Insufficient amount of wash material applied
- Contrast in viscosity between tray and wash material too high
- Working time of tray material exceeded, viscosity already impaired
Wash material displaced.

**Solutions**

Insufficient amount of wash material applied

What to do.

Use wash material liberally on preparation and abutments.

Tips for syringing

View full technique guide for 3M™ ESPE™ Intra-oral Syringe Green/Purple
Wash material displaced.

Solutions

Contrast in viscosity between tray and wash material too high

What to do.

Avoid high viscosity contrast between tray and wash material. Especially, when using putty materials combine them with a high viscosity wash material. In general, follow manufacturers’ recommendations for material combinations.

All 3M ESPE Dental impression materials are offered in well aligned consistencies. View recommended material combinations here:
Wash material displaced.

Solutions

Working time of tray material exceeded, viscosity already impaired

What to do.

Select material with sufficient working time (i.e. regular set instead of fast set). Make a choice depending on the individual situation and preference of material. Do not exceed working times given in the instructions for use. In case of 3M ESPE Dental materials follow given intra-oral syringing times for wash materials. Pay attention to storage temperature. Working times are reduced due to higher temperatures of the product, while intra-oral setting times might be longer if the temperature of the product is lower.

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Causes

- Inadequately mixed material
- Inhibition of setting due to use of acidic retraction materials/hemostatic agents like aluminum or ferric salts
- Inhibition of setting of VPS impression materials due to contact with sulfur from latex gloves
- Smear layers from custom temporary, provisional cements (acrylics) or core build-up present
- Premature removal from the mouth
- Impression material stored at too low temperature
- Expired impression material

Impression material not completely set.
Impression material not completely set.

Solutions

Inadequately mixed material

What to do.

Bleed cartridge before applying the mix tip to ensure even dispensing. Then use the mix tips recommended by the manufacturer and dispense a pea-sized amount onto a mix pad prior to use.

View full technique guide for 3M™ ESPE™ Intra-oral Syringe Green/Purple
Impression material not completely set.

Inhibition of setting due to use of acidic retraction materials/hemostatic agents like aluminum or ferric salts

What to do.

Thoroughly rinse preparation with water and dry before taking the impression.

Rinse and dry preparation

View full technique guide for 3M™ ESPE™ Retraction Capsule
Impression material not completely set.

**Solutions**

Inhibition of setting of VPS impression materials due to contact with sulfur from latex gloves.

**What to do.**

Use gloves which do not contain traces of sulfur, e.g. nitrile gloves.

**Overview**
Impression material not completely set.

Solutions

Smear layers from custom temporary, provisional cements (acrylics) or core build-up present

What to do.

Smear layers from acrylates (e.g. core build-up or temporary materials) can inhibit the setting of impression materials.

When core build-up and final impression are made in one appointment:

- Be sure to remove the smear layer completely prior to impression taking with alcohol/by polishing. Check surrounding teeth and tissue for any residue.

When the temporary and final impressions are made in one appointment:

- Fabricate the provisional after taking the final impression or remove the air-inhibited layer on the exposed preparation with alcohol before taking the final impression.

- Do not use impressions already used to fabricate the provisional for subsequent precision impression taking.

- If a temporary is removed prior to impression taking: Remove all residues of cement and clean the abutment tooth. In case of a core build-up remove the air-inhibition layer on the exposed preparation with alcohol before taking the final impression.
Premature removal from the mouth

What to do.

Follow manufacturer’s instructions for intra-oral setting time and make sure that the impression material has completely set before removal.

Store impression material at room temperature. Usually, times given in the manufacturer’s instructions for use are valid for a storage temperature of 23 °C/74 °F.

Working times are reduced due to higher temperatures of the product, while intra-oral setting times might be longer if the temperature of the product is lower.

View working and setting times of Imprint™ 4 VPS Impression Materials and Impregum™ Polyether Impression Materials:
Impression material not completely set.

What to do.

Store impression material at room temperature. Usually, times given in the manufacturers’ instructions for use are valid for a storage temperature of 23 °C/74 °F. Working times are reduced due to higher temperatures of the product, while intra-oral setting times might be longer if the temperature of the product is lower.

Due to its lower temperature sensitivity, Impregum™ Soft Polyether Impression Material is less affected by fluctuations in storage temperature than VPS materials.
Impression material not completely set.

Solutions

Expired impression material

What to do.

*Do not use expired impression material.*

Follow defined storage conditions for materials given in the manufacturers’ instructions for use for full shelf life.
### Causes

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<tr>
<td>Relining of impression to correct defect in the impression</td>
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</tbody>
</table>
Poor bond between tray and wash material.

What to do.

Select material with sufficient working time (i.e. regular set instead of fast set). Make a choice depending on the individual situation and preference of material. Do not exceed working times given in the instructions for use. In case of 3M ESPE Dental materials follow given intra-oral syringing times for wash materials.

Pay attention to storage temperature. Working times are reduced due to higher temperatures of the product, while intra-oral setting times might be longer if the temperature of the product is lower.

Impregum™ Soft Polyether Impression Material offers a very long working time with constant flow. And, polyether impression material is less temperature sensitive in its setting reaction than VPS materials.

Imprint™ 4 VPS Impression Material offers both a fast and a regular setting material. Select Quick Set for 1 to 2 unit cases and Regular Set for cases that involve 3 or more units.
Poor bond between tray and wash material.

Solutions

Initial impression not completely cleaned and dried (2-step technique)

What to do.

*Clean the initial impression with plenty of water (or alcohol) and air.* During this procedure, saliva has to be removed completely from the impression.

Dry thoroughly before taking the second impression. Do not forget to clean and dry after try-in of first impression.
Poor bond between tray and wash material.

Solutions

Sulfur or acrylic contamination of set initial impression (2-step technique)

What to do.

Use gloves which do not contain traces of sulfur, e.g. nitrile gloves.

Do not use impressions already used to fabricate the provisional restoration for subsequent precision impression taking.
Poor bond between tray and wash material.

Solutions

Relining of impression to correct defect in the impression

What to do.

Do not try to reline impressions. This can lead to distortions and poor bond between new wash material and set material. Repeat the impression instead.
Causes

- No tray adhesive used
- Inadequate layer of tray adhesive
- Smear layer on custom trays
- Tray distortion upon removal
- Detachment of tray material from tray during carving (2-step technique)

Poor bond of impression material to the tray.
Poor bond of impression material to the tray.

Solutions

No tray adhesive used

What to do.

Use tray adhesive for all types of impression trays and apply adhesive on bottom and on inner sides of the tray, including gauze of dual-arch trays.

Polyethers and VPS impression materials have different and specific tray adhesives. Make sure that the proper tray adhesive is being used for the impression material.

Alternatively use 3M™ ESPE™ Impression Trays: With their integrated self-retentive fleece strip, the application of a tray adhesive is not needed – saving valuable preparation time.
Poor bond of impression material to the tray.

Overview

Inadequate layer of tray adhesive

What to do.

Follow manufacturer's instructions for use for application and drying time.
Poor bond of impression material to the tray.

Solutions

What to do.
Remove smear layer with acetone, grinding instruments or sandblast. Always make sure to clean trays after mouth try-in.
Poor bond of impression material to the tray.

What to do.

Use *stiff and rigid trays* and make sure the tray fits well.

Ensure the impression tray is the *proper size* prior to taking the impression.

Remove the impression *along the axis of the prepared tooth.*
Poor bond of impression material to the tray.

Detachment of tray material from tray during carving (2-step technique)

What to do.

*Apply adhesive on bottom and on inner sides of the tray.* Use a sharp carving instrument to minimize stress at the interface of tray material and tray. Otherwise, tray material could detach from the tray unnoticed and causes deformation.
Overview

Stone cast discrepancies.

Causes

- Outgassing of hydrogen when using VPS impression materials
- Bump/swelling in gypsum model
- Cast not made according to preparation guidelines and lacks detail
Solutions

Outgassing of hydrogen when using VPS impression materials

What to do.

Follow manufacturer’s instructions for use on minimum waiting time to pour cast.
Stone cast discrepancies.

Solutions

Bump/swelling in gypsum model

What to do.
Can occur through invisible voids under the surface of the impression. Thoroughly inspect the impression to avoid undetected voids.

Automatic mixing of impression materials with the Pentamix™ Lite or Pentamix™ 3 Mixing Unit guarantees homogeneous and void-free mixing results.
Stone cast discrepancies.

**Solutions**

Cast not made according to preparation guidelines and lacks detail

**What to do.**

*Provide all relevant information to the dental lab:* Impression material used including fabrication date, additional surfactants for pouring if needed, etc.
10 Golden Rules. For perfect impressions.

01. Choose appropriate tray/wash material viscosities and material class according to impression technique and indication. Use properly fitting, rigid, and sturdy impression trays.

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3M™ ESPE™ Retraction Capsule

Remove a retraction capsule from the blister and insert into dispenser (fits into most composite dispensers). Extrude a small amount of paste and discard.

Insert retraction capsule tip into the sulcus.

Slowly and steadily, inject astringent retraction paste into sulcus. Completely fill the sulcus.

Optional: procedure with cords. For more gingival deflection, the astringent retraction paste can be used in combination with retraction cords.

Leave astringent retraction paste on for a minimum of 2 minutes.

Completely remove astringent retraction paste with air-water spray and suction.
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### Material Combinations per Technique

**Imprint™ 4 VPS Impression Material**

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<tr>
<th>TRAY MATERIAL</th>
<th>RECOMMENDED WASH MATERIALS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1-STEP TECHNIQUE—PENTA™</strong></td>
<td></td>
</tr>
</tbody>
</table>
| Imprint™ 4 Penta™ Heavy  
Hydrophilic heavy body | Imprint™ 4 Light  
Imprint™ 4 Regular |
| Imprint™ 4 Penta™ Super Quick Heavy  
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Imprint™ 4 Super Quick Regular |
| Imprint™ 4 Penta™ Putty  
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| **1-STEP TECHNIQUE—CARTRIDGE** |  |
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Fast setting hydrophilic heavy body | Imprint™ 4 Super Quick Light  
Imprint™ 4 Super Quick Regular |
| Imprint™ 4 Heavy  
Hydrophilic heavy body | Imprint™ 4 Light  
Imprint™ 4 Regular |
| **2-STEP TECHNIQUE** |  |
| Imprint™ 4 Penta™ Putty  
Putty consistency | Imprint™ 4 Super Quick Light  
Imprint™ 4 Light |

Customer Care Center: 1-800-634-2249   www.3MESPE.com/Imprint4

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**Overview**

Incomplete reproduction of preparation margins.
What to do.

Use wash material liberally on preparation and abutments.

- When using 1-step technique:
  Avoid high viscosity contrast between tray and wash material. Especially, when using putty materials combine them with a high viscosity wash material. In general, follow manufacturers' recommendations for material combinations.

- When using 2-step technique:
  Carve tray material before applying wash material or use foil as spacer.

### Material Combinations per Technique

#### Impregum™ Polyether Impression Material

**TRAY MATERIAL** | **RECOMMENDED WASH MATERIAL**
--- | ---
**MONOPHASE TECHNIQUE – PENTA™**
- Impregum™ Penta™ Soft Medium Body | -
- Impregum™ Penta™ Medium Body | -
- Impregum™ Penta™ Soft Quick Step Medium Body | -

**1-STEP TECHNIQUE – PENTA™**
- Impregum™ Penta™ Soft Heavy Body | Impregum™ Soft Light Body
- Impregum™ Penta™ Soft Heavy Body | Impregum™ Penta™ Soft Light Body
- Impregum™ Penta™ Soft Quick Step Heavy Body | Impregum™ Soft Quick Step Light Body

**1-STEP TECHNIQUE – CARTRIDGE**
- Impregum™ Soft Medium Body (Tray) | Impregum™ Soft Light Body
- Impregum™ Soft Quick Step Medium Body (Tray) | Impregum™ Soft Quick Step Light Body
**Solutions**

Impression material has low tear resistance. Highly detailed impressions made with Impregum™ Polyether Impression Material (left) and Imprint™ 4 VPS Impression Material (right).

**What to do.**

Let the material completely set prior to removal of the impression and use impression material with sufficient tear resistance. All 3M ESPE Dental precision impression materials offer clinically proven tear resistance.

**Portfolio Overview**

<table>
<thead>
<tr>
<th>PRODUCT</th>
<th>DISPENSING SYSTEM</th>
<th>VISCOSITY</th>
<th>SETTING VERSION</th>
<th>MAXIMUM WORKING TIME (23°C/73°F)</th>
<th>MAXIMUM INTRA-ORAL SYRINGING TIME (37°C/98°F)</th>
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<tbody>
<tr>
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<td></td>
<td>Putty</td>
<td>Regular Set</td>
<td>1:30</td>
<td>–</td>
<td>2:30</td>
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<tr>
<td>Imprint™ 4 Penta™ Heavy</td>
<td></td>
<td>Heavy Body</td>
<td>Regular Set</td>
<td>2:00</td>
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<td>2:00</td>
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<tr>
<td>Imprint™ 4 Penta™ Super Quick Heavy</td>
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<td>Heavy Body</td>
<td>Fast Set</td>
<td>1:15</td>
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<td>WASH MATERIALS</td>
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<td>2:00</td>
<td></td>
</tr>
<tr>
<td>Imprint™ 4 Super Quick Light</td>
<td></td>
<td>Fast Set</td>
<td>–</td>
<td>0:35</td>
<td>1:15</td>
<td></td>
</tr>
<tr>
<td>Imprint™ 4 Regular</td>
<td></td>
<td>Regular Set</td>
<td>–</td>
<td>1:00</td>
<td>2:00</td>
<td></td>
</tr>
<tr>
<td>Imprint™ 4 Super Quick Regular</td>
<td></td>
<td>Fast Set</td>
<td>–</td>
<td>0:35</td>
<td>1:15</td>
<td></td>
</tr>
</tbody>
</table>
### Impregum™ Polyether Impression Material

<table>
<thead>
<tr>
<th>PRODUCT</th>
<th>DISPENSING SYSTEM</th>
<th>VISCOSITY</th>
<th>SETTING VERSION</th>
<th>WORKING TIME* AT 23°C/74°F MIN:SEC</th>
<th>TOTAL SETTING TIME** MIN:SEC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TRAY AND MONOPHASE MATERIALS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impregum™ Penta™ Soft Heavy Body</td>
<td></td>
<td></td>
<td>Regular Set</td>
<td>2:30</td>
<td>6:00</td>
</tr>
<tr>
<td>Impregum™ Penta™ Soft Medium Body</td>
<td></td>
<td></td>
<td>Regular Set</td>
<td>2:45</td>
<td>6:00</td>
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<tr>
<td>Impregum™ Penta™ Medium Body</td>
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<td>Regular Set</td>
<td>2:45</td>
<td>6:00</td>
</tr>
<tr>
<td>Impregum™ Soft Medium Body (Tray)</td>
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<td>Regular Set</td>
<td>1:45</td>
<td>6:00</td>
</tr>
<tr>
<td>Impregum™ Penta™ Soft Quick Step Heavy Body</td>
<td></td>
<td></td>
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<tr>
<td>Impregum™ Penta™ Soft Quick Step Medium Body</td>
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<td>4:00</td>
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<tr>
<td>Impregum™ Soft Quick Step Medium Body (Tray)</td>
<td></td>
<td></td>
<td>Fast Set</td>
<td>1:00</td>
<td>4:00</td>
</tr>
<tr>
<td><strong>WASH MATERIALS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impregum™ Penta™ Soft Light Body</td>
<td></td>
<td></td>
<td>Regular Set</td>
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<td>6:30</td>
</tr>
<tr>
<td>Impregum™ Soft Light Body</td>
<td></td>
<td></td>
<td>Regular Set</td>
<td>2:00</td>
<td>5:30</td>
</tr>
<tr>
<td>Impregum™ Soft Quick Step Light Body</td>
<td></td>
<td></td>
<td>Fast Set</td>
<td>1:00</td>
<td>4:00</td>
</tr>
</tbody>
</table>

* Working time includes mixing time.  ** Includes working time.
**3M™ ESPE™ Retraction Capsule**

Remove a retraction capsule from the blister and insert into dispenser (fits into most composite dispensers). Extrude a small amount of paste and discard.

Insert retraction capsule tip into the sulcus.

Slowly and steadily, inject astringent retraction paste into sulcus. Completely fill the sulcus.

Optional: procedure with cords. For more gingival deflection, the astringent retraction paste can be used in combination with retraction cords.

Leave astringent retraction paste on for a minimum of 2 minutes.

Completely remove astringent retraction paste with air-water spray and suction.
3M™ ESPE™ Intra-oral Syringe Green/Purple

Tips for success.

Filling quantity for:
3 – 4 teeth / 2 – 3 teeth / 1 – 2 teeth

max load

overfilled

if overfilled safety valve opens for excess

clean before use!

max load

stop

180°

90°
3M™ ESPE™ Intra-oral Syringe Green/Purple

Tips for success.

Filling quantity for:
3 – 4 teeth / 2 – 3 teeth / 1 – 2 teeth

overfilled
if overfilled safety valve opens for excess

max load
max before use!

clean before use!
**3M™ ESPE™ Retraction Capsule**

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3M™ ESPE™ Intra-oral Syringe Green/Purple

Tips for success.

Filling quantity for:
3 – 4 teeth / 2 – 3 teeth / 1 – 2 teeth

overfilled
if overfilled safety valve opens for excess

max load

max load

clean before use!
Imprint™ 4 VPS Impression Material

<table>
<thead>
<tr>
<th>PRODUCT</th>
<th>DISPENSING SYSTEM</th>
<th>VISCOSITY</th>
<th>SETTING VERSION</th>
<th>MAXIMUM WORKING TIME (23°C/73°F)</th>
<th>MAXIMUM INTRA-ORAL SYRINGING TIME (37°C/98°F)</th>
<th>INTRA-ORAL SETTING TIME (37°C/98°F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRAY MATERIALS</td>
<td></td>
<td>LOW</td>
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<td></td>
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</tr>
<tr>
<td>Imprint™ 4 Penta™ Putty</td>
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<td>Regular Set</td>
<td>1:30</td>
<td>–</td>
<td>2:30</td>
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<tr>
<td>Imprint™ 4 Penta™ Heavy</td>
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<td>Regular Set</td>
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<td>–</td>
<td>2:00</td>
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<tr>
<td>Imprint™ 4 Heavy</td>
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<td>Heavy</td>
<td>Regular Set</td>
<td>1:30</td>
<td>–</td>
<td>1:30</td>
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<tr>
<td>Imprint™ 4 Super Quick</td>
<td></td>
<td>High</td>
<td>Fast Set</td>
<td>1:15</td>
<td>–</td>
<td>1:15</td>
</tr>
<tr>
<td>Imprint™ 4 Super Quick</td>
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<td>High</td>
<td>Fast Set</td>
<td>1:15</td>
<td>–</td>
<td>1:15</td>
</tr>
<tr>
<td>Imprint™ 4 Light</td>
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<td>Regular Set</td>
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<td>1:00</td>
<td>2:00</td>
</tr>
<tr>
<td>Imprint™ 4 Super Quick</td>
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<td>Low</td>
<td>Fast Set</td>
<td>–</td>
<td>0:35</td>
<td>1:15</td>
</tr>
<tr>
<td>Imprint™ 4 Regular</td>
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<td>2:00</td>
</tr>
<tr>
<td>Imprint™ 4 Super Quick</td>
<td></td>
<td>Low</td>
<td>Fast Set</td>
<td>–</td>
<td>0:35</td>
<td>1:15</td>
</tr>
</tbody>
</table>
## Solutions

Tearing at the margin.

Follow manufacturer’s instructions for intra-oral setting time and make sure that the impression material has completely set before removal.

Store impression material at room temperature. Usually, times given in the manufacturer's instructions for use are valid for a storage temperature of 23 °C/74 °F.

Working times are reduced due to higher temperatures of the product, while intra-oral setting times might be longer if the temperature of the product is lower.

### View portfolio of Imprint™ 4 VPS Impression Materials and Impregum™ Polyether Impression Materials here for working and setting times:

<table>
<thead>
<tr>
<th>PRODUCT</th>
<th>DISPENSING SYSTEM</th>
<th>VISCOSITY</th>
<th>SETTING VERSION</th>
<th>WORKING TIME* AT 23°C/74°F MIN:SEC</th>
<th>TOTAL SETTING TIME** MIN:SEC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TRAY AND MONOPHASE MATERIALS</strong></td>
<td></td>
<td>LOW</td>
<td>HIGH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impregum™ Penta™ Soft Heavy Body</td>
<td>Blue</td>
<td></td>
<td>Regular Set</td>
<td>2:30</td>
<td>6:00</td>
</tr>
<tr>
<td>Impregum™ Penta™ Soft Medium Body</td>
<td>Light blue</td>
<td></td>
<td>Regular Set</td>
<td>2:45</td>
<td>6:00</td>
</tr>
<tr>
<td>Impregum™ Penta™ Medium Body</td>
<td>Red</td>
<td></td>
<td>Regular Set</td>
<td>2:45</td>
<td>6:00</td>
</tr>
<tr>
<td>Impregum™ Soft Medium Body (Tray)</td>
<td>Pink</td>
<td></td>
<td>Regular Set</td>
<td>1:45</td>
<td>6:00</td>
</tr>
<tr>
<td>Impregum™ Penta™ Soft Quick Step Heavy Body</td>
<td>Blue</td>
<td></td>
<td>Fast Set</td>
<td>1:00</td>
<td>4:00</td>
</tr>
<tr>
<td>Impregum™ Penta™ Soft Quick Step Medium Body</td>
<td>Light blue</td>
<td></td>
<td>Fast Set</td>
<td>1:00</td>
<td>4:00</td>
</tr>
<tr>
<td>Impregum™ Soft Quick Step Medium Body (Tray)</td>
<td>Pink</td>
<td></td>
<td>Fast Set</td>
<td>1:00</td>
<td>4:00</td>
</tr>
<tr>
<td><strong>WASH MATERIALS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impregum™ Penta™ Soft Light Body</td>
<td>Red</td>
<td></td>
<td>Regular Set</td>
<td>3:15</td>
<td>6:30</td>
</tr>
<tr>
<td>Impregum™ Soft Light Body</td>
<td>White</td>
<td></td>
<td>Regular Set</td>
<td>2:00</td>
<td>5:30</td>
</tr>
<tr>
<td>Impregum™ Soft Quick Step Light Body</td>
<td>Light blue</td>
<td></td>
<td>Fast Set</td>
<td>1:00</td>
<td>4:00</td>
</tr>
</tbody>
</table>

* Working time includes mixing time. ** Includes working time.
3M™ ESPE™ Retraction Capsule

Remove a retraction capsule from the blister and insert into dispenser (fits into most composite dispensers). Extrude a small amount of paste and discard.

Insert retraction capsule tip into the sulcus.

Slowly and steadily, inject astringent retraction paste into sulcus. Completely fill the sulcus.

Optional: procedure with cords. For more gingival deflection, the astringent retraction paste can be used in combination with retraction cords.

Leave astringent retraction paste on for a minimum of 2 minutes.

Completely remove astringent retraction paste with air-water spray and suction.
**3M™ ESPE™ Retraction Capsule**

Overview

- Remove a retraction capsule from the blister and insert into dispenser (fits into most composite dispensers). Extrude a small amount of paste and discard.

- Insert retraction capsule tip into the sulcus.

- Slowly and steadily, inject astringent retraction paste into sulcus. Completely fill the sulcus.

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Leave astringent retraction paste on for a minimum of 2 minutes.

Completely remove astringent retraction paste with air-water spray and suction.
### Overview

Distortions.

### Solutions

Distortions.

All interfering areas have been cut with a scalpel to enable easy re-insertion. Also channels are carved in order to allow excess wash material to be displaced.

#### 2-step technique

A high viscosity wash material can displace the tray material which has already set.

What to do.

Use low viscosity wash materials which are able to form very thin layers. Carve the first impression with tray material properly before applying wash material.

3M ESPE gives recommendations for optimized impression material combinations.

**View recommended material combinations for Imprint™ 4 VPS Impression Material here:**

<table>
<thead>
<tr>
<th>TRAY MATERIAL</th>
<th>RECOMMENDED WASH MATERIALS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1-STEP TECHNIQUE—PENTATM</strong></td>
<td></td>
</tr>
<tr>
<td>Imprint™ 4 Penta™ Heavy Hydrophilic heavy body</td>
<td>Imprint™ 4 Light</td>
</tr>
<tr>
<td>Imprint™ 4 Penta™ Super Quick Heavy Fast setting hydrophilic heavy body</td>
<td>Imprint™ 4 Super Quick Light</td>
</tr>
<tr>
<td>Imprint™ 4 Penta™ Putty Putty consistency</td>
<td>Imprint™ 4 Super Quick Regular</td>
</tr>
<tr>
<td><strong>1-STEP TECHNIQUE—CARTRIDGE</strong></td>
<td></td>
</tr>
<tr>
<td>Imprint™ 4 Super Quick Heavy Fast setting hydrophilic heavy body</td>
<td>Imprint™ 4 Super Quick Light</td>
</tr>
<tr>
<td>Imprint™ 4 Heavy Hydrophilic heavy body</td>
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</tr>
<tr>
<td>Imprint™ 4 Light</td>
<td>Imprint™ 4 Light</td>
</tr>
<tr>
<td>Imprint™ 4 Regular</td>
<td>Imprint™ 4 Regular</td>
</tr>
<tr>
<td><strong>2-STEP TECHNIQUE</strong></td>
<td></td>
</tr>
<tr>
<td>Imprint™ 4 Penta™ Putty Putty consistency</td>
<td>Imprint™ 4 Super Quick Light</td>
</tr>
<tr>
<td>Imprint™ 4 Light</td>
<td>Imprint™ 4 Light</td>
</tr>
</tbody>
</table>

Customer Care Center: 1-800-634-2249   www.3MESPE.com/Imprint4
**3M™ ESPE™ Intra-oral Syringe Green/Purple**

Tips for success.

- **Filling quantity for:**
  - 3 – 4 teeth / 2 – 3 teeth / 1 – 2 teeth

- **overfilled**
  - If overfilled, safety valve opens for excess

- **max load**
  - Clean before use!
<table>
<thead>
<tr>
<th>TRAY MATERIAL</th>
<th>RECOMMENDED WASH MATERIALS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1-STEP TECHNIQUE—PENTA™</strong></td>
<td></td>
</tr>
<tr>
<td>Imprint™ 4 Penta™ Heavy</td>
<td>Imprint™ 4 Light</td>
</tr>
<tr>
<td>Hydrophilic heavy body</td>
<td>Imprint™ 4 Regular</td>
</tr>
<tr>
<td>Imprint™ 4 Penta™ Super Quick Heavy</td>
<td>Imprint™ 4 Super Quick Light</td>
</tr>
<tr>
<td>Fast setting hydrophilic heavy body</td>
<td>Imprint™ 4 Super Quick Regular</td>
</tr>
<tr>
<td>Imprint™ 4 Penta™ Putty Putty consistency</td>
<td>Imprint™ 4 Regular</td>
</tr>
<tr>
<td><strong>1-STEP TECHNIQUE—CARTRIDGE</strong></td>
<td></td>
</tr>
<tr>
<td>Imprint™ 4 Super Quick Heavy</td>
<td>Imprint™ 4 Super Quick Light</td>
</tr>
<tr>
<td>Fast setting hydrophilic heavy body</td>
<td>Imprint™ 4 Super Quick Regular</td>
</tr>
<tr>
<td>Imprint™ 4 Heavy</td>
<td>Imprint™ 4 Light</td>
</tr>
<tr>
<td>Hydrophilic heavy body</td>
<td>Imprint™ 4 Regular</td>
</tr>
<tr>
<td><strong>2-STEP TECHNIQUE</strong></td>
<td></td>
</tr>
<tr>
<td>Imprint™ 4 Penta™ Putty Putty consistency</td>
<td>Imprint™ 4 Super Quick Light</td>
</tr>
<tr>
<td>Imprint™ 4 Penta™ Putty Putty consistency</td>
<td>Imprint™ 4 Light</td>
</tr>
</tbody>
</table>

Customer Care Center: 1-800-634-2249   www.3MESPE.com/Imprint4

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Wash material displaced.

### Solutions

Avoid high viscosity contrast between tray and wash material. Especially, when using putty materials combine them with a high viscosity wash material. In general, follow manufacturers’ recommendations for material combinations.

All 3M ESPE Dental impression materials are offered in well aligned consistencies. View recommended material combinations here:

<table>
<thead>
<tr>
<th>TRAY MATERIAL</th>
<th>RECOMMENDED WASH MATERIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MONOPHASE TECHNIQUE – PENTA™</strong></td>
<td></td>
</tr>
<tr>
<td>Impregum™ Penta™ Soft Medium Body</td>
<td></td>
</tr>
<tr>
<td>Impregum™ Penta™ Medium Body</td>
<td></td>
</tr>
<tr>
<td>Impregum™ Penta™ Soft Quick Step Medium Body</td>
<td></td>
</tr>
<tr>
<td><strong>1-STEP TECHNIQUE – PENTA™</strong></td>
<td></td>
</tr>
<tr>
<td>Impregum™ Penta™ Soft Heavy Body</td>
<td>Impregum™ Soft Light Body</td>
</tr>
<tr>
<td>Impregum™ Penta™ Soft Heavy Body</td>
<td>Impregum™ Penta™ Soft Light Body</td>
</tr>
<tr>
<td>Impregum™ Penta™ Soft Quick Step Heavy Body</td>
<td>Impregum™ Soft Quick Step Light Body</td>
</tr>
<tr>
<td><strong>1-STEP TECHNIQUE – CARTRIDGE</strong></td>
<td></td>
</tr>
<tr>
<td>Impregum™ Soft Medium Body (Tray)</td>
<td>Impregum™ Soft Light Body</td>
</tr>
<tr>
<td>Impregum™ Soft Quick Step Medium Body (Tray)</td>
<td>Impregum™ Soft Quick Step Light Body</td>
</tr>
</tbody>
</table>

Customer Care Center: 1-800-634-2249  www.3MESPE.com
3M™ ESPE™ Intra-oral Syringe Green/Purple

Tips for success.

Filling quantity for:
3 – 4 teeth / 2 – 3 teeth / 1 – 2 teeth

overfilled
if overfilled safety valve opens for excess

max load
max load

clean before use!
3M™ ESPE™ Retraction Capsule

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Optional: procedure with cords. For more gingival deflection, the astringent retraction paste can be used in combination with retraction cords.

Leave astringent retraction paste on for a minimum of 2 minutes.

Completely remove astringent retraction paste with air-water spray and suction.
Impression material not completely set.

**Solutions**

Impression material not completely set.

Premature removal from the mouth

What to do.

Follow manufacturer’s instructions for intra-oral setting time and make sure that the impression material has completely set before removal.

Store impression material at room temperature.

Usually, times given in the manufacturer’s instructions for use are valid for a storage temperature of 23 °C/74 °F.

Working times are reduced due to higher temperatures of the product, while intra-oral setting times might be longer if the temperature of the product is lower.

View working and setting times of **Imprint™ 4 VPS Impression Materials** and **Impregum™ Polyether Impression Materials**:

### Imprint™ 4 VPS Impression Material – Portfolio overview

#### Product Dispensing System

<table>
<thead>
<tr>
<th>Low</th>
<th>High</th>
</tr>
</thead>
</table>

#### Viscosity Setting Version

- **Regular Set**
- **Fast Set**

#### Maximum Working Time (23°C/73°F)

- **1:30**
- **2:00**
- **1:15**
- **2:00**
- **1:00**
- **1:35**

#### Maximum Intra-oral Syringing Time (37°C/98°F)

- **–**
- **2:00**
- **1:15**
- **4:00**
- **1:00**
- **1:15**

#### Intra-oral Setting Time (37°C/98°F)

- **2:30**
- **6:00**
- **2:45**
- **6:00**
- **2:00**
- **6:00**
- **1:45**
- **6:00**
- **1:00**
- **4:00**
- **1:00**
- **4:00**
- **1:00**
- **4:00**
- **1:00**
- **4:00**
- **1:00**
- **4:00**

### TRAY MATERIALS

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Imprint™ 4 Penta™ Putty</td>
<td></td>
<td>Putty</td>
<td>Regular Set</td>
<td>1:30</td>
<td>–</td>
<td>2:30</td>
</tr>
<tr>
<td>Imprint™ 4 Penta™ Heavy</td>
<td></td>
<td>Heavy Body</td>
<td>Regular Set</td>
<td>2:00</td>
<td>–</td>
<td>2:00</td>
</tr>
<tr>
<td>Imprint™ 4 Penta™ Super Quick Heavy</td>
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<td>Heavy Body</td>
<td>Fast Set</td>
<td>1:15</td>
<td>–</td>
<td>1:15</td>
</tr>
</tbody>
</table>

### WASH MATERIALS

<table>
<thead>
<tr>
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<td></td>
<td>Fast Set</td>
<td>–</td>
<td>0:35</td>
<td>1:15</td>
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<tr>
<td>Imprint™ 4 Regular</td>
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<td>Regular Set</td>
<td>–</td>
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<td>2:00</td>
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<tr>
<td>Imprint™ 4 Super Quick Regular</td>
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<td>Fast Set</td>
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</tr>
</tbody>
</table>
## Impregum™ Polyether Impression Material

### Portfolio Overview

<table>
<thead>
<tr>
<th>PRODUCT</th>
<th>Dispensing System</th>
<th>Viscosity</th>
<th>Setting Version</th>
<th>Working Time* AT 23°C/74°F Min:Sec</th>
<th>Total Setting Time** Min:Sec</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TRAY AND MONOPHASE MATERIALS</strong></td>
<td></td>
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<tr>
<td>Impregum™ Penta™ Soft Heavy Body</td>
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<td>Regular Set</td>
<td>2:30</td>
<td>6:00</td>
</tr>
<tr>
<td>Impregum™ Penta™ Soft Medium Body</td>
<td></td>
<td></td>
<td>Regular Set</td>
<td>2:45</td>
<td>6:00</td>
</tr>
<tr>
<td>Impregum™ Penta™ Medium Body</td>
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<td></td>
<td>Regular Set</td>
<td>2:45</td>
<td>6:00</td>
</tr>
<tr>
<td>Impregum™ Soft Medium Body (Tray)</td>
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<td></td>
<td>Regular Set</td>
<td>1:45</td>
<td>6:00</td>
</tr>
<tr>
<td>Impregum™ Penta™ Soft Quick Step Heavy Body</td>
<td></td>
<td></td>
<td>Fast Set</td>
<td>1:00</td>
<td>4:00</td>
</tr>
<tr>
<td>Impregum™ Penta™ Soft Quick Step Medium Body</td>
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<td></td>
<td>Fast Set</td>
<td>1:00</td>
<td>4:00</td>
</tr>
<tr>
<td>Impregum™ Soft Quick Step Medium Body (Tray)</td>
<td></td>
<td></td>
<td>Fast Set</td>
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<td>4:00</td>
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<tr>
<td><strong>WASH MATERIALS</strong></td>
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<tr>
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<td>Regular Set</td>
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<tr>
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<td></td>
<td>Fast Set</td>
<td>1:00</td>
<td>4:00</td>
</tr>
</tbody>
</table>

* Working time includes mixing time.

** Includes working time.

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**Premature removal from the mouth**

What to do:

- Follow manufacturer’s instructions for intra-oral setting time and make sure that the impression material has completely set before removal.

- Store impression material at room temperature.

- Usually, times given in the manufacturer’s instructions for use are valid for a storage temperature of 23 °C/74 °F.

- Working times are reduced due to higher temperatures of the product, while intra-oral setting times might be longer if the temperature of the product is lower.

### View working and setting times of **Imprint™ 4 VPS Impression Materials** and **Impregum™ Polyether Impression Materials**: Overview

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**3M ESPE Dental**