

3M Oral Care

# Impression Troubleshooting Guide



# Causes and Solutions.

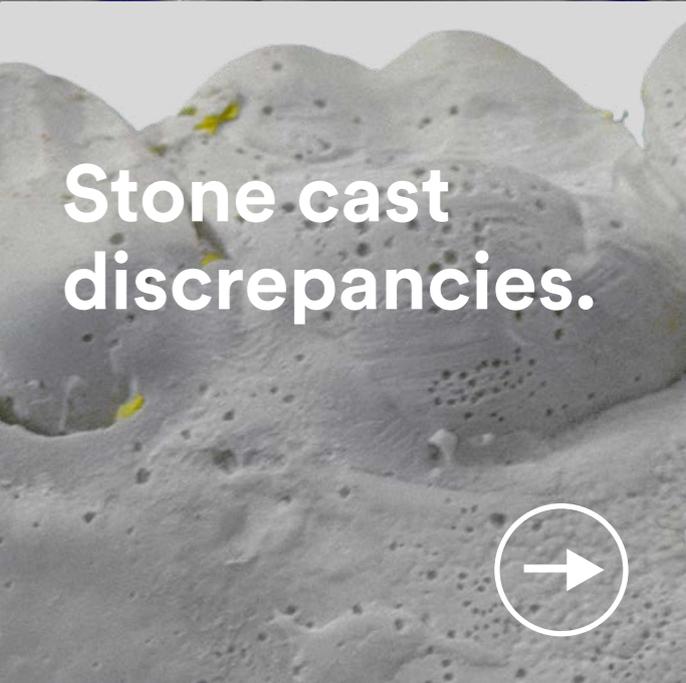
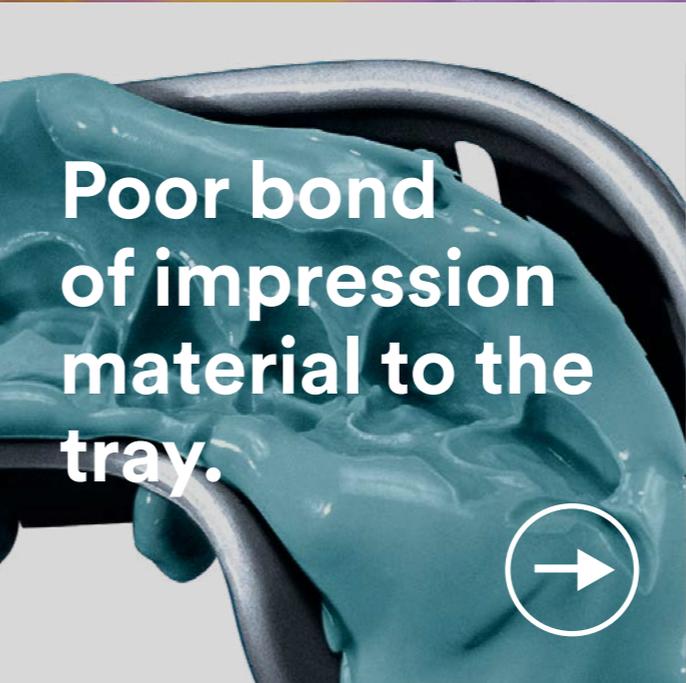
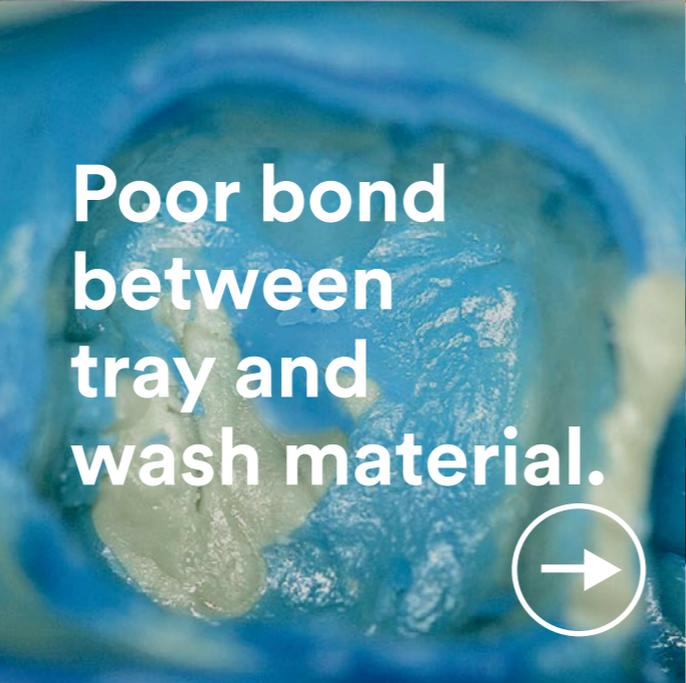
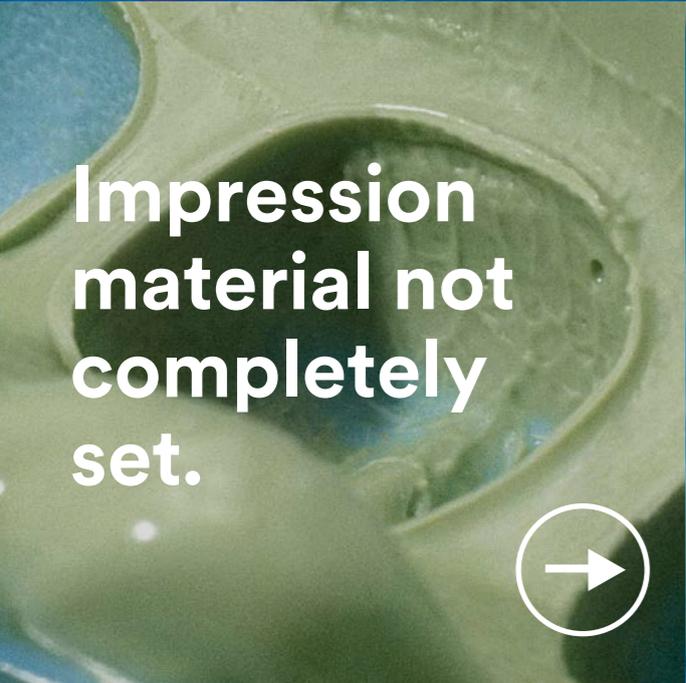
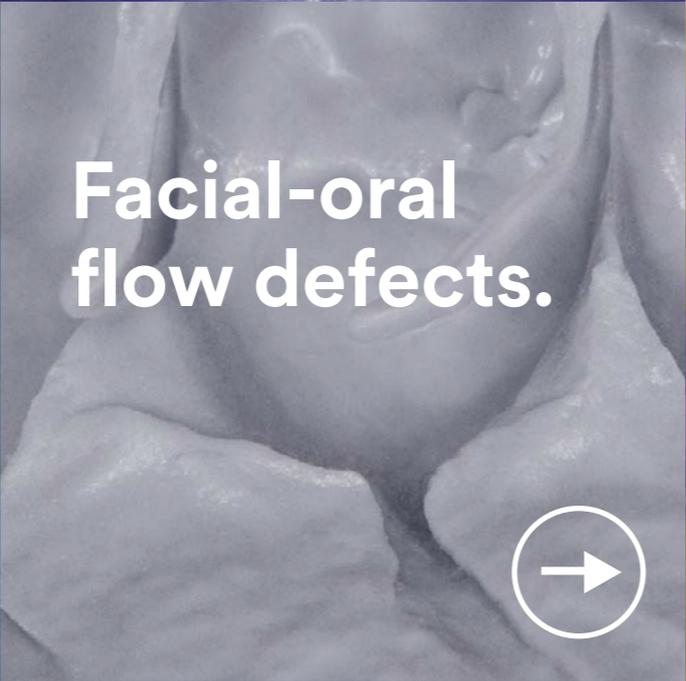
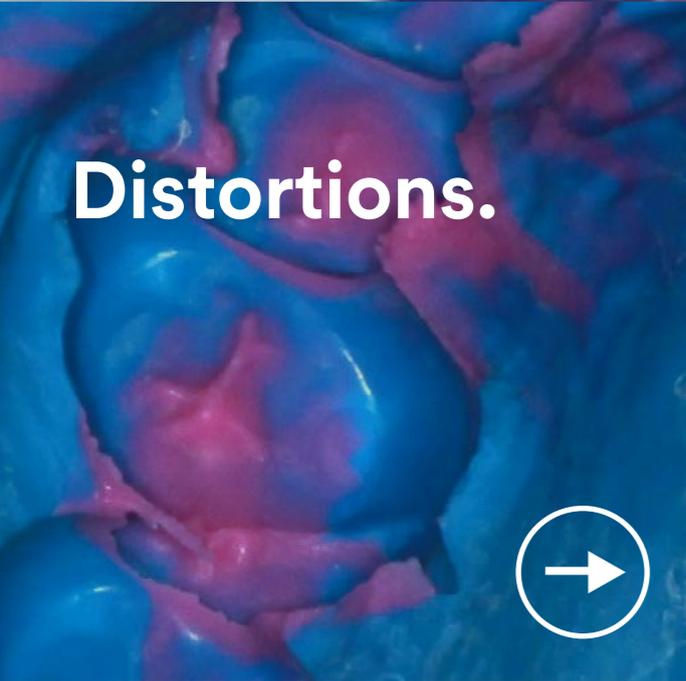
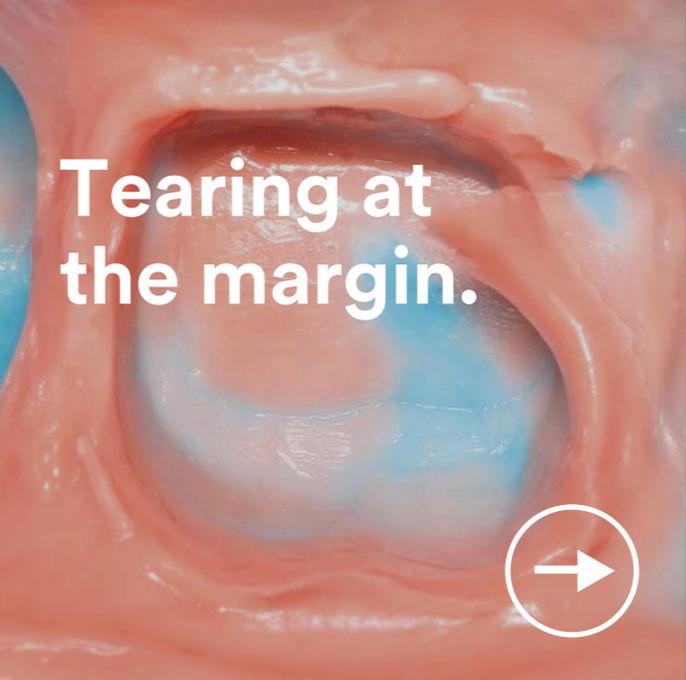


This trouble shooting guide helps identify common impression problems, determine potential causes and provide solutions to get your impression procedure under control.

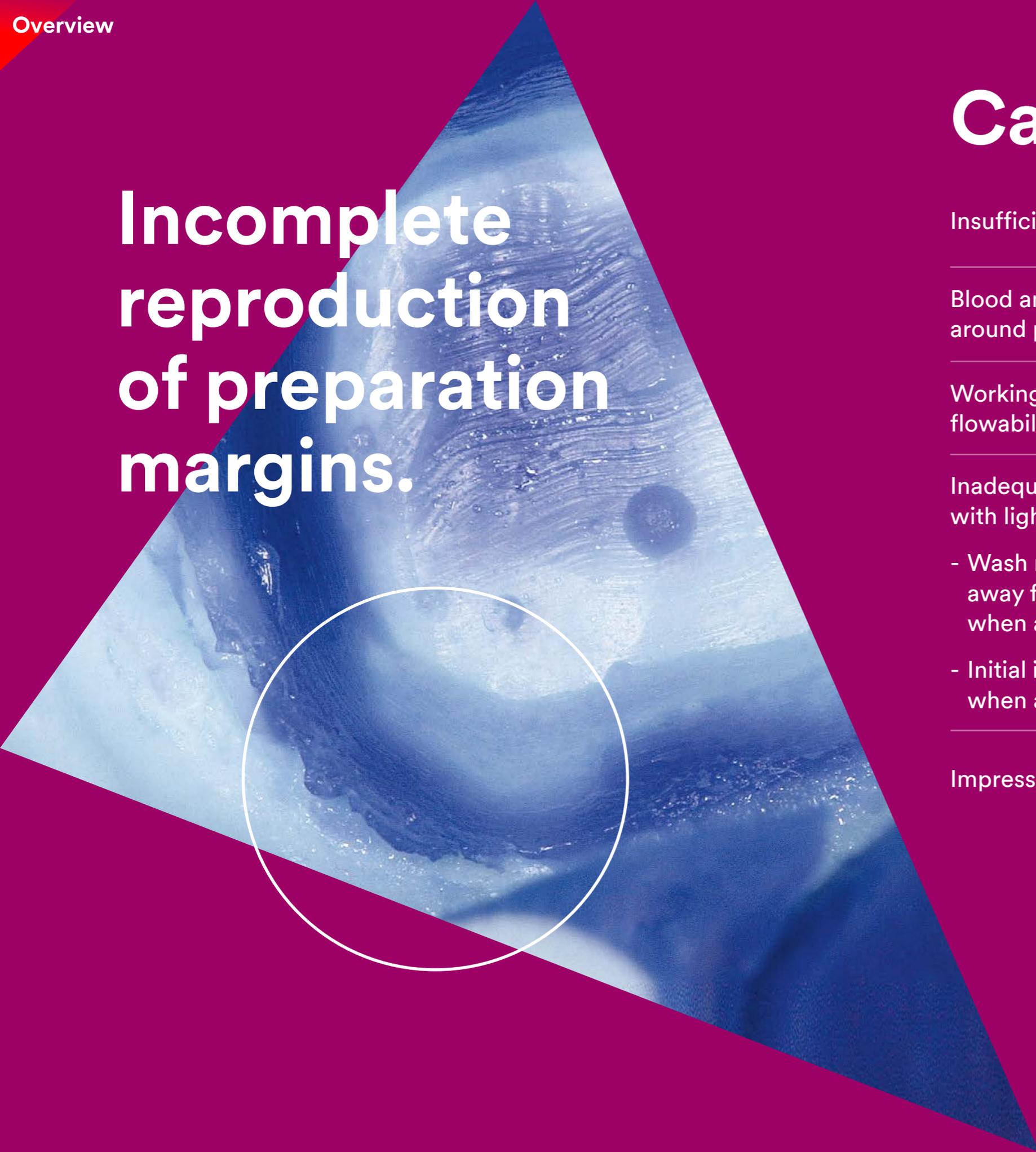
# 10 Golden Rules.



For perfect impressions.



# Incomplete reproduction of preparation margins.



## 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.

## 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.

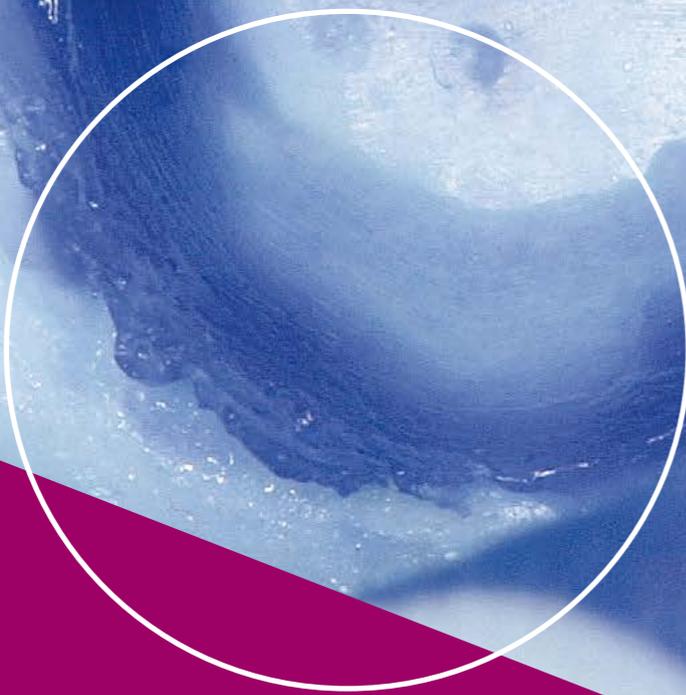


How to use 3M™ ESPE™ Retraction Capsule

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



# 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.

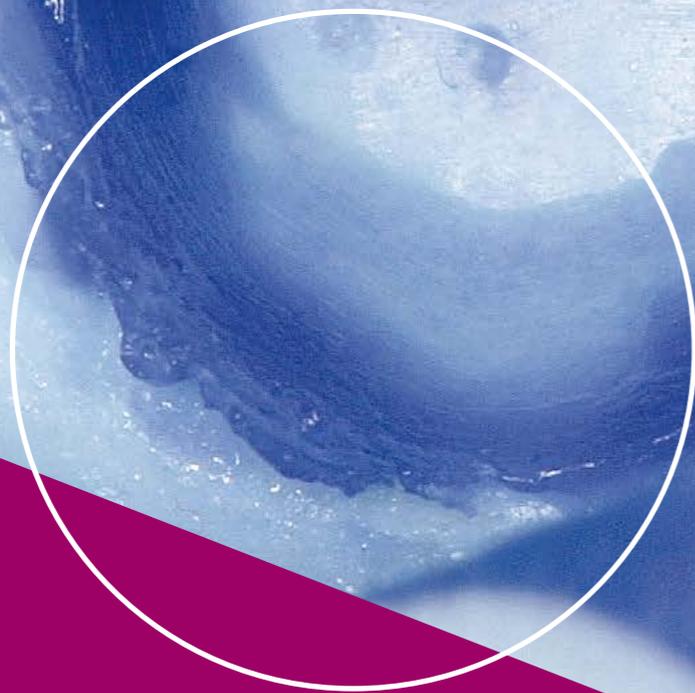


3M™ ESPE™ Retraction Capsule: How it works

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



# Incomplete reproduction of preparation margins.



## 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.*

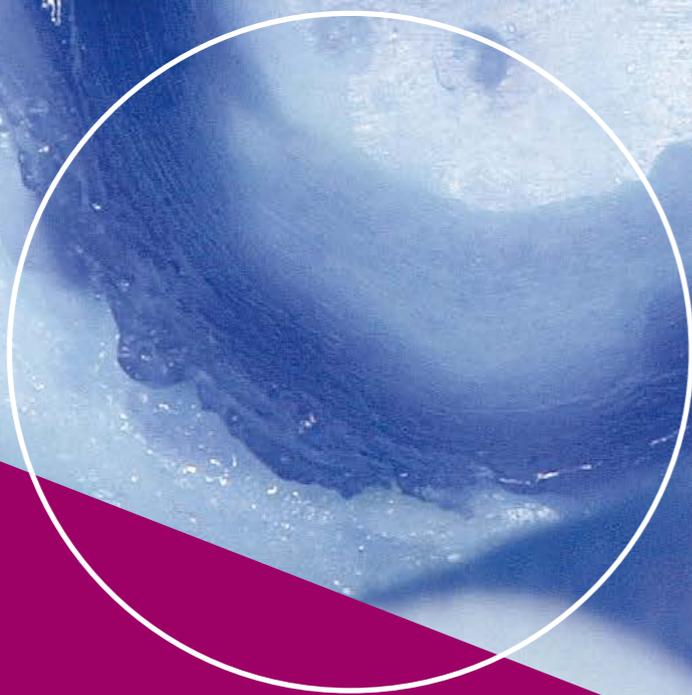
*Pay attention to storage temperature. Working times are reduced due to higher temperatures of the product, while intra-oral setting times might be longer if the temperature of the product is lower.*

**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.

**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**:

**3M Science. Applied to Life.™** 3M ESPE Dental

**Material Combinations per Technique**  
**Imprint™ 4 VPS Impression Material**

TRAY MATERIAL	RECOMMENDED WASH MATERIAL
<b>1-STEP TECHNIQUE - PENTA™</b>	
Imprint™ 4 Putty™ Heavy	Imprint™ 4 Light
Imprint™ 4 Heavy Body	Imprint™ 4 Regular
Imprint™ 4 Paste™ Super Quick Heavy	Imprint™ 4 Quick Light
Fast setting Imprint™ 4 Heavy Body	Imprint™ 4 Quick Regular
Imprint™ 4 Paste™ Putty	Imprint™ 4 Quick Light
Putty consistency	Imprint™ 4 Regular
<b>1-STEP TECHNIQUE - CARTRIDGE</b>	
Imprint™ 4 Super Quick Heavy	Imprint™ 4 Quick Light
Fast setting Imprint™ 4 Heavy Body	Imprint™ 4 Quick Regular
Imprint™ 4 Heavy Body	Imprint™ 4 Light
Imprint™ 4 Heavy Body	Imprint™ 4 Regular
<b>2-STEP TECHNIQUE</b>	
Imprint™ 4 Paste™ Putty	Imprint™ 4 Super Quick Light
Putty consistency	Imprint™ 4 Light

Customer Care Center: 1-800-434-2249 [www.3MESPE.com/Imprint4](http://www.3MESPE.com/Imprint4)

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3M ESPE Mexico, S. de RL  
3M ESPE Asia Pacific Pte. Ltd.  
3M ESPE Europe GmbH  
3M ESPE India Pvt. Ltd.  
3M ESPE Israel Ltd.  
3M ESPE Japan Co., Ltd.  
3M ESPE Korea, Ltd.  
3M ESPE Latin America, S. de RL  
3M ESPE Middle East FZCO  
3M ESPE New Zealand Ltd.  
3M ESPE Singapore Pte. Ltd.  
3M ESPE South Africa (Pty) Ltd.  
3M ESPE Taiwan, Ltd.  
3M ESPE Thailand Co., Ltd.  
3M ESPE United Kingdom  
3M ESPE USA, Inc.  
3M ESPE Vietnam Co., Ltd.

**3M Science. Applied to Life.™** 3M ESPE Dental

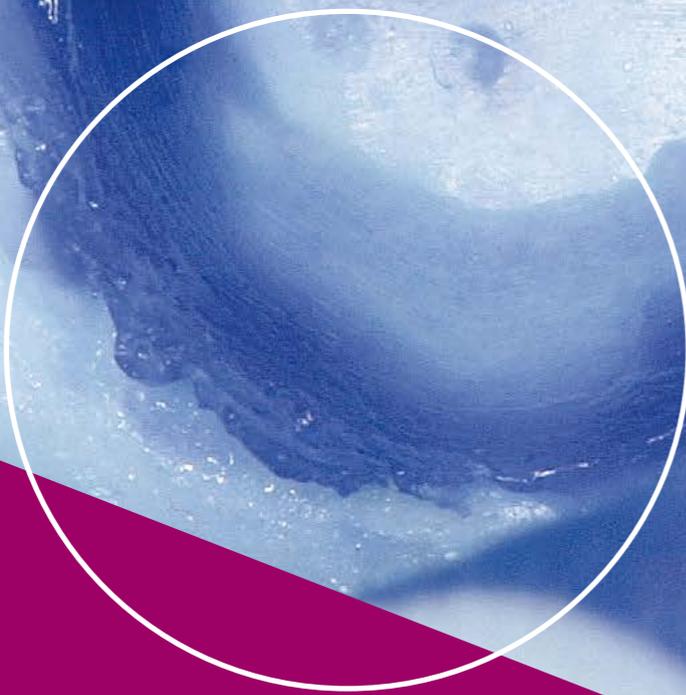
**Material Combinations per Technique**  
**Impregum™ Polyether Impression Material**

TRAY MATERIAL	RECOMMENDED WASH MATERIAL
<b>MONOPHASE TECHNIQUE - PENTA™</b>	
Impregum™ Penta™ Soft Medium Body	Impregum™ Soft Medium Body
Impregum™ Penta™ Medium Body	Impregum™ Soft Medium Body
Impregum™ Penta™ Soft Quick Step Medium Body	Impregum™ Soft Quick Step Medium Body
<b>1-STEP TECHNIQUE - PENTA™</b>	
Impregum™ Penta™ Soft Heavy Body	Impregum™ Soft Heavy Body
Impregum™ Penta™ Soft Heavy Body	Impregum™ Soft Light Body
Impregum™ Penta™ Soft Quick Step Heavy Body	Impregum™ Soft Quick Step Light Body
<b>1-STEP TECHNIQUE - CARTRIDGE</b>	
Impregum™ Soft Medium Body (Tray)	Impregum™ Soft Light Body
Impregum™ Soft Quick Step Medium Body (Tray)	Impregum™ Soft Quick Step Light Body

Customer Care Center: 1-800-434-2249 [www.3MESPE.com](http://www.3MESPE.com)

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3M ESPE South Africa (Pty) Ltd.  
3M ESPE Taiwan, Ltd.  
3M ESPE Thailand Co., Ltd.  
3M ESPE United Kingdom  
3M ESPE USA, Inc.  
3M ESPE Vietnam Co., Ltd.

# 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**:

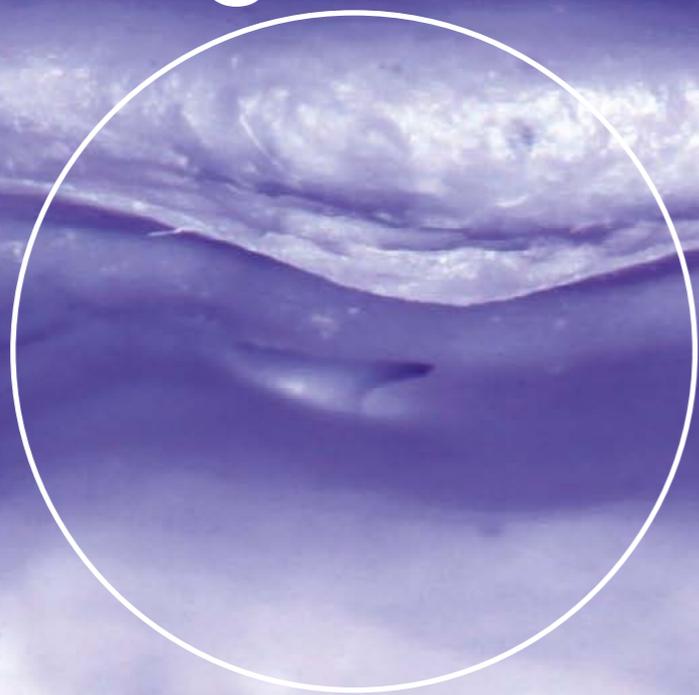
3M ESPE Dental  
Portfolio Overview  
Imprint™ 4 VPS Impression Material

PRODUCT	DISPENSING SYSTEM	VISCOITY	SETTING VERSION	MAXIMUM WORKING TIME (30°C/86°F)	MAXIMUM SETTING TIME (20°C/68°F)	INITIAL SETTING TIME (20°C/68°F)
<b>TRAY MATERIALS</b>						
Impregum™ "Fines" Soft Heavy Body			Light Set	130	-	200
Impregum™ "Fines" Soft Medium Body			Light Set	130	-	200
Impregum™ "Fines" Heavy Medium Body			Light Set	130	-	200
Impregum™ "Fines" Super Quick Heavy			Fast Set	75	-	115
Impregum™ "Fines" Super Quick Heavy			Fast Set	75	-	115
<b>WASH MATERIALS</b>						
Imprint™ 4 Light			Fast Set	100	-	200
Imprint™ 4 Super Quick Light			Fast Set	75	0:35	115
Imprint™ 4 Regular			Regular Set	100	-	200
Imprint™ 4 Super Quick Regular			Fast Set	75	0:35	115

3M ESPE Dental  
Portfolio Overview  
Impregum™ Polyether Impression Material

PRODUCT	DISPENSING SYSTEM	VISCOITY	SETTING VERSION	WORKING TIME AT 20°C/68°F (Min:Sec)	TOTAL SETTING TIME (Min:Sec)
<b>TRAY AND MONOPHASE MATERIALS</b>					
Impregum™ "Fines" Soft Heavy Body			Light Set	2:30	6:00
Impregum™ "Fines" Soft Medium Body			Light Set	2:45	6:00
Impregum™ "Fines" Medium Body			Light Set	2:45	6:00
Impregum™ "Fines" Soft Quick Shear Heavy Body			Fast Set	1:45	6:00
Impregum™ "Fines" Soft Quick Shear Heavy Body			Fast Set	1:00	4:00
Impregum™ "Fines" Soft Quick Shear Medium Body			Fast Set	1:00	4:00
Impregum™ "Fines" Soft Quick Shear Medium Body (Tray)			Fast Set	1:00	4:00
<b>WASH MATERIALS</b>					
Impregum™ "Fines" Soft Light Body			Regular Set	3:15	6:30
Impregum™ "Fines" Light Body			Regular Set	2:00	5:30
Impregum™ "Fines" Soft Quick Shear Light Body			Fast Set	1:00	4:00

# Voids on the margin.



## Causes

Blood and saliva contamination around preparation



Improper syringe technique



Working time exceeded, flowability already impaired



Air bubbles in elastomer syringe or intra-oral syringe



Tray not seated properly



Storage at elevated temperature



# Solutions

## Voids on the margin.



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.

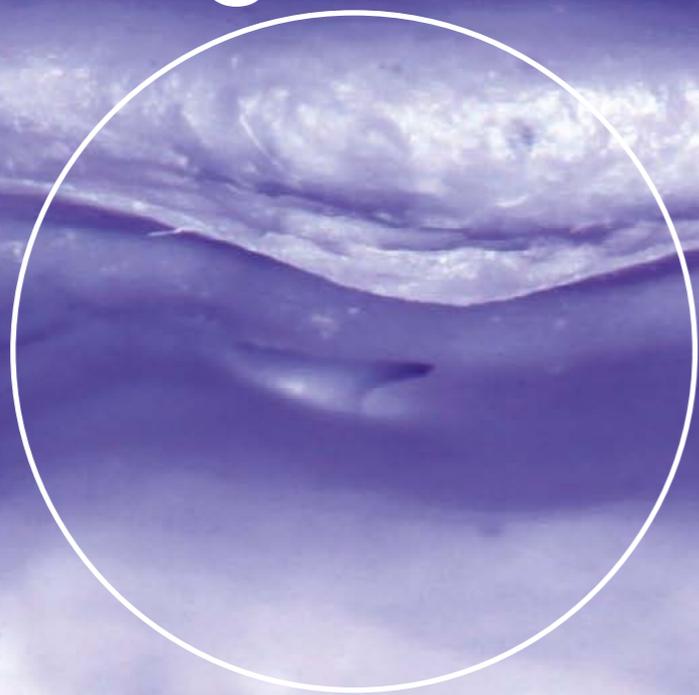


3M™ ESPE™ Retraction Capsule: How it works

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.

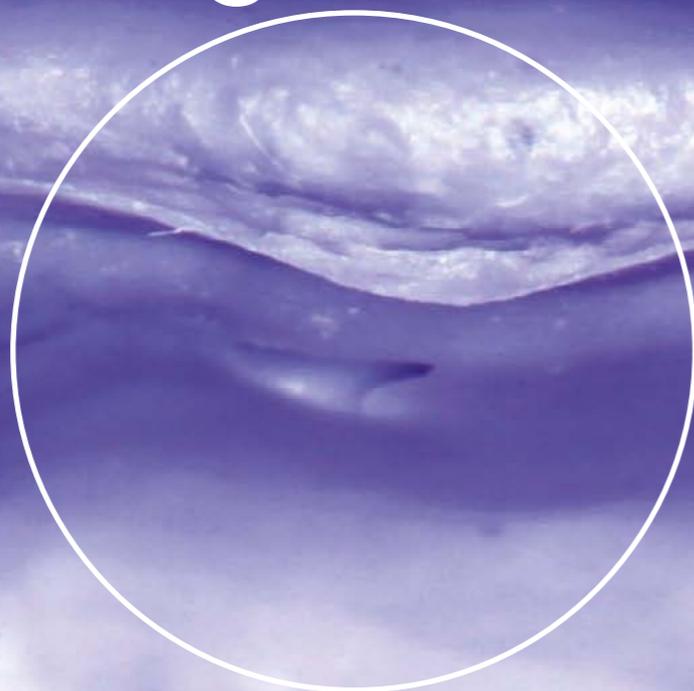


Tips for syringing

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.*

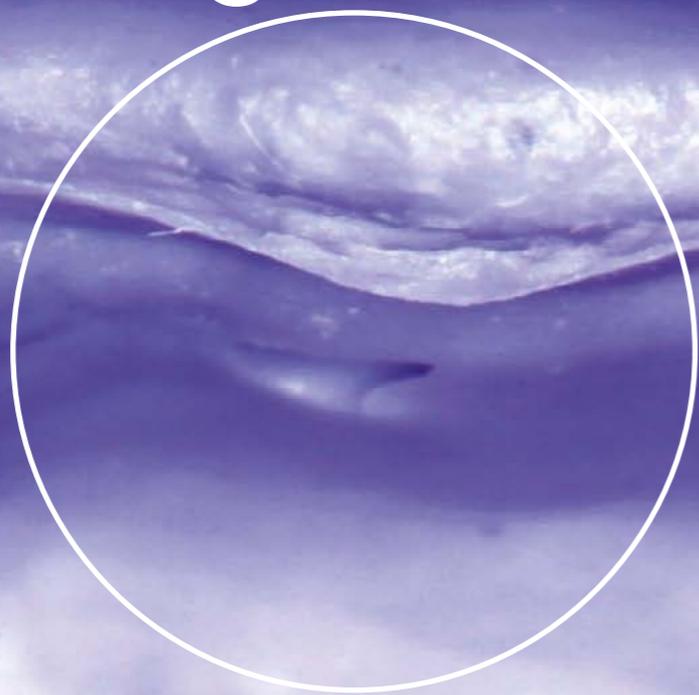
*Pay attention to storage temperature. Working times are reduced due to higher temperatures of the product, while intra-oral setting times might be longer if the temperature of the product is lower.*

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**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.



# Voids on the margin.



## 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.

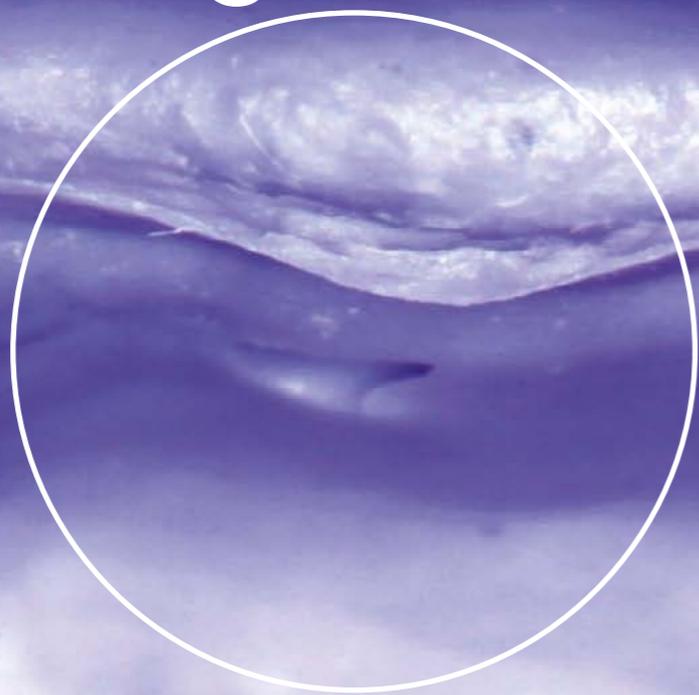


How to load 3M™ ESPE™ Intra-Oral Syringe Green/Purple

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



# Voids on the margin.



# Solutions



Tray not seated properly



## 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.

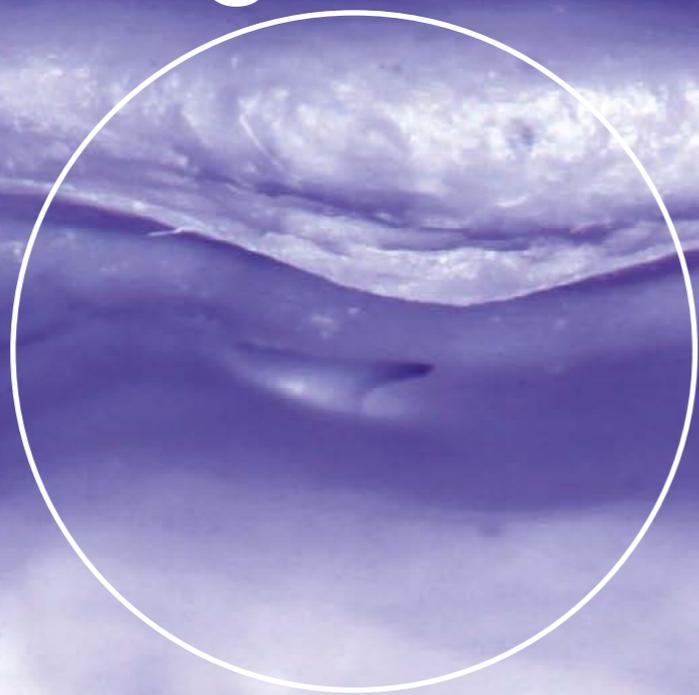


*Mandibular arch:* Seat the impression straight down over the arch while pulling out the patient's cheek. Make sure the tray handle is aligned with the patient's midline. Apply passive pressure in the premolar areas with your thumbs for stability.



# Solutions

## Voids on the margin.



Tray not seated properly



**W** 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.

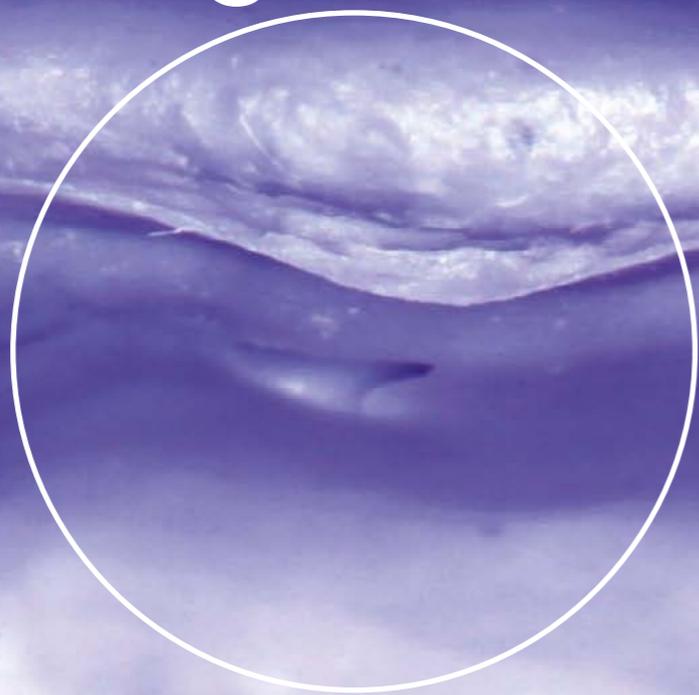
patient's midline. Always hold the impression tray in the premolar area for stability.



*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.



## Solutions

Storage at elevated temperature

### 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.





**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





# Solutions



Insufficient retraction

## What to do.

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

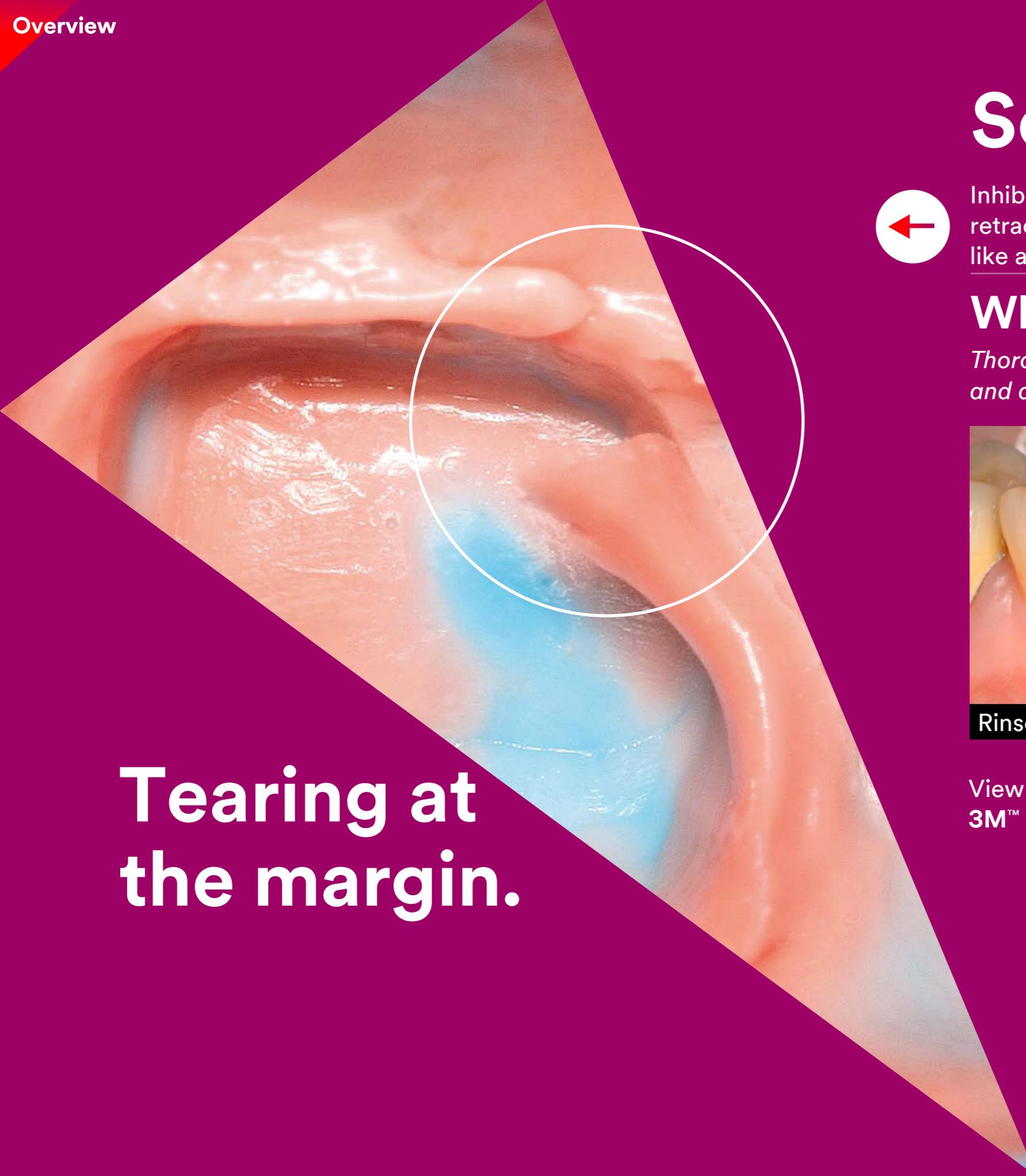
**3M™ ESPE™ Retraction Capsule** supports your impression work with excellent gingiva retraction with or without cord and hemostasis.



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.*



Rinse and dry preparation

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



# Solutions



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

## What to do.

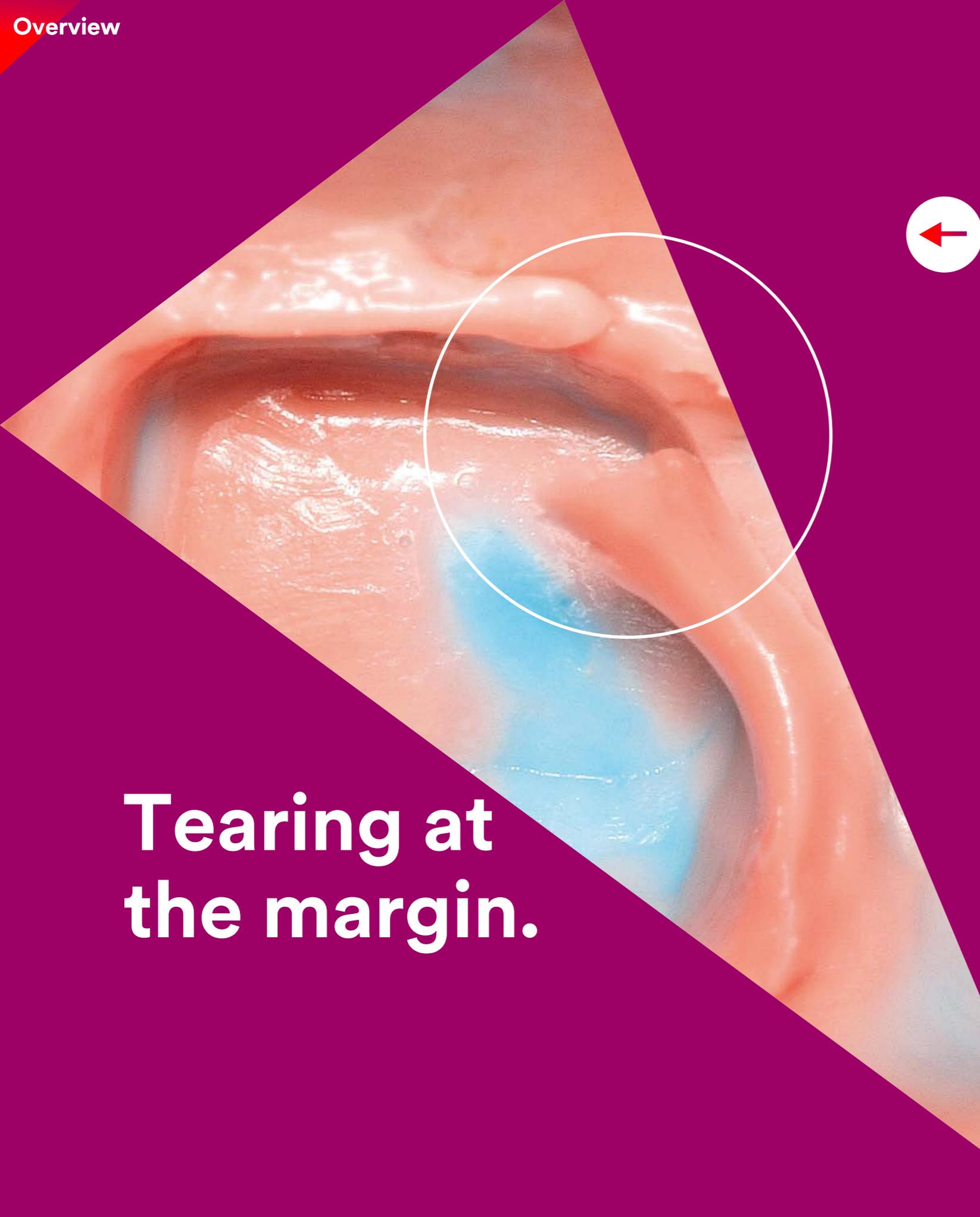
Smear layers from acrylates (e.g. core build-up or temporary materials) can inhibit the setting of impression materials.

*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.



Bleed syringe

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



# Tearing at the margin.



# 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**:

**3M Science. Applied to Life.™** 3M ESPE Dental  
Portfolio Overview  
Imprint™ 4 VPS Impression Material

PRODUCT	DISPENSING SYSTEM	VISCOSITY	SETTING VERSION	MAXIMUM WORKING TIME (SEC)	MAXIMUM SETTING TIME (SEC)	INTRA-ORAL SETTING TIME (MIN:SEC)
<b>TRAY MATERIALS</b>						
Imprint™ 4 Fast™ Fast	+	Low	Fast	130	-	2:30
Imprint™ 4 Fast™ Heavy	+	Low	Fast	130	-	2:00
Imprint™ 4 Fast™ Super Quick Heavy	+	Low	Fast	-	-	1:15
<b>MIXED MATERIALS</b>						
Imprint™ 4 Light	+	Low	Fast	-	100	2:00
Imprint™ 4 Super Quick Light	+	Low	Fast	-	0:35	1:00
Imprint™ 4 Regular	+	Low	Fast	-	100	2:00
Imprint™ 4 Super Quick Regular	+	Low	Fast	-	0:35	1:15

**3M Science. Applied to Life.™** 3M ESPE Dental  
Portfolio Overview  
Impregum™ Polyether Impression Material

PRODUCT	DISPENSING SYSTEM	VISCOSITY	SETTING VERSION	WORKING TIME AT 23°C/74°F (MIN:SEC)	TOTAL SETTING TIME (MIN:SEC)
<b>TRAY AND MICROPHASE MATERIALS</b>					
Impregum™ Fast™ Soft Heavy Body	+	Low	Regular Set	2:30	6:00
Impregum™ Fast™ Soft Medium Body	+	Low	Regular Set	2:45	6:00
Impregum™ Fast™ Soft Heavy Body	+	Low	Fast Set	2:45	6:00
Impregum™ Soft Medium Body (Tray)	+	Low	Fast Set	1:45	6:00
Impregum™ Fast™ Soft Quick Step Heavy Body	+	Low	Fast Set	1:00	4:00
Impregum™ Fast™ Soft Quick Step Medium Body	+	Low	Fast Set	1:00	4:00
Impregum™ Soft Quick Step Medium Body	+	Low	Fast Set	1:00	4:00
<b>MIXED MATERIALS</b>					
Impregum™ Fast™ Soft Light Body	+	Low	Regular Set	2:15	6:30
Impregum™ Soft Light Body	+	Low	Regular Set	2:00	5:30
Impregum™ Soft Quick Step Light Body	+	Low	Fast Set	1:00	4:00

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.

**Tearing at the margin.**



**Tearing at the margin.**

# 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).



# 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.

**Tearing at the margin.**



# 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



**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.



Margins complete but not sharp.



3M™ ESPE™ Retraction Capsule: How it works

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



# Solutions



Insufficient retraction

## What to do.

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

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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



**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.

A close-up photograph of a dental impression. The impression is a light-colored, semi-transparent material. The margins of the impression are highlighted with a white circle. The margins appear complete but not sharp.

**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.*

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**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.

A close-up photograph of a dental impression in a green tray. A white circle highlights the margins of the impression, which are complete but not sharp.

**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.

**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.

A close-up photograph of a dental crown on a tooth. The crown is light-colored and has a white circular highlight around its margin. The background is a dark, textured surface.

**Margins  
complete  
but not sharp.**

# 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.



# 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.

**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.

# Distortions.



# 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.

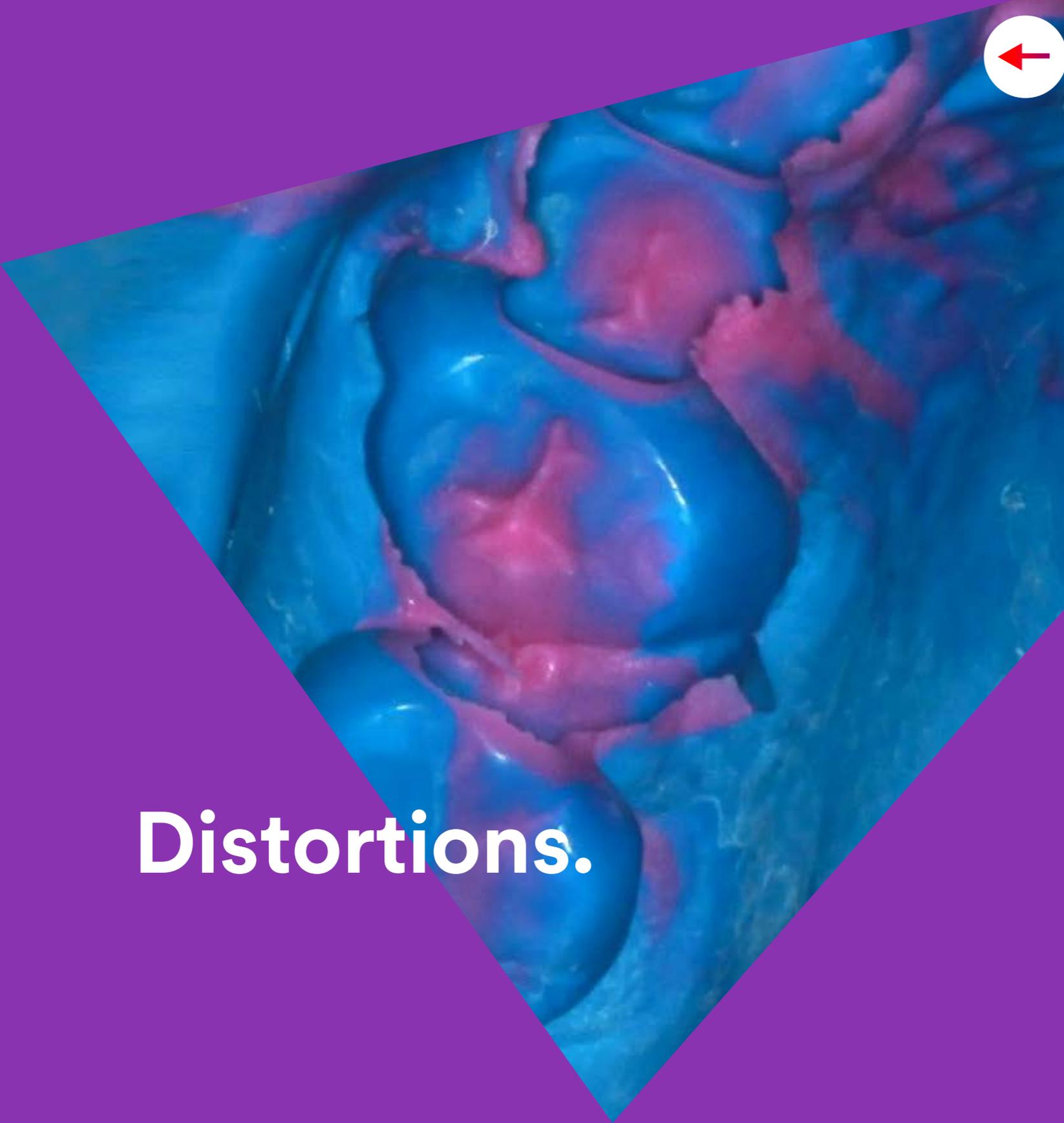


With impressions of the *lower jaw* it is recommended to support the tray on the mandibula.

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.

# Distortions.



# 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*.

A close-up photograph of a dental impression. The impression material is a light blue color and shows significant distortions, particularly in the form of irregular, elongated shapes that do not accurately represent the original teeth. The background is a solid purple color.

# Distortions.

# Solutions



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.

**Distortions.**



# Solutions



Selected impression tray is too flexible

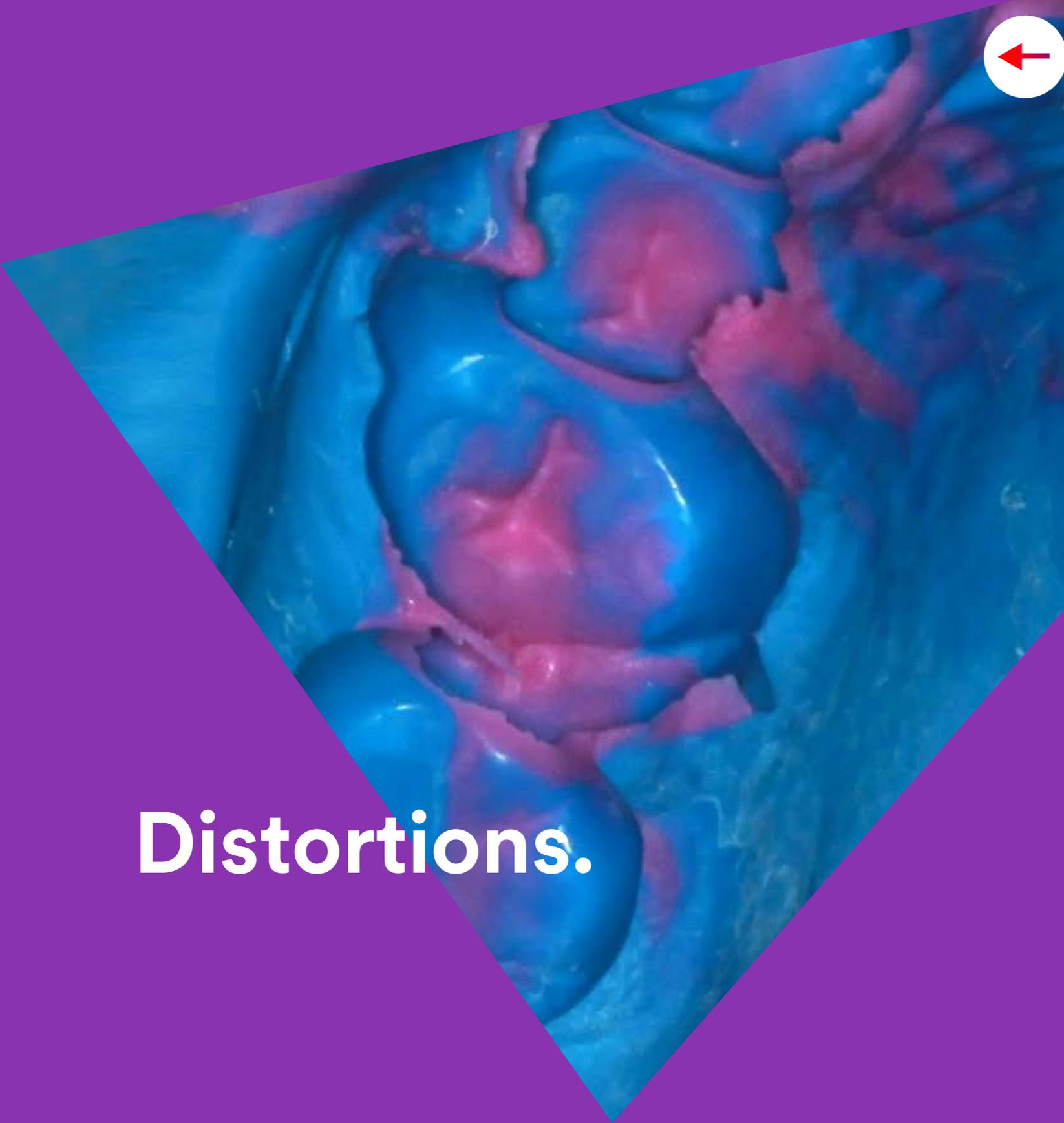
## What to do.

*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.



# Distortions.



# Solutions



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)

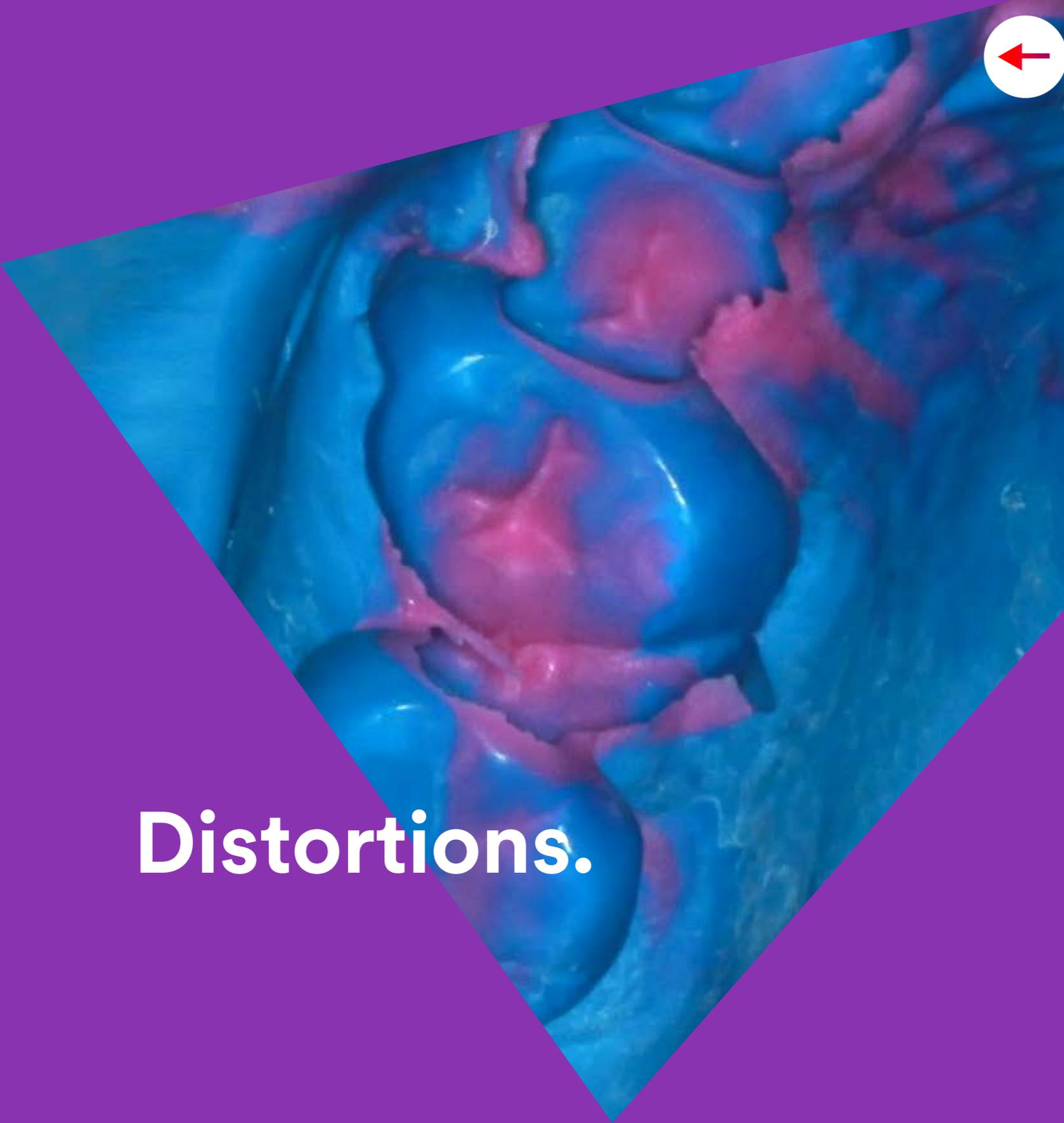
## What to do.

*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.



# 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.



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.

3M ESPE Dental gives recommendations for optimized impression material combinations. View recommended material combinations for **Imprint™ 4 VPS Impression Material:**

# Distortions.

**3M Science. Applied to Life.™** 3M ESPE Dental

**Material Combinations per Technique**  
Imprint™ 4 VPS Impression Material

TRAY MATERIAL	RECOMMENDED WASH MATERIALS
<b>1-STEP TECHNIQUE—PENTA™</b>	
Imprint™ 4 Penta™ Heavy Hydrophilic heavy body	Imprint™ 4 Light Imprint™ 4 Regular
Imprint™ 4 Penta™ Super Quick Heavy Fast setting hydrophilic heavy body	Imprint™ 4 Super Quick Light Imprint™ 4 Super Quick Regular
Imprint™ 4 Penta™ Putty Putty consistency	Imprint™ 4 Regular
<b>1-STEP TECHNIQUE—CARTRIDGE</b>	
Imprint™ 4 Super Quick Heavy Fast setting hydrophilic heavy body	Imprint™ 4 Light Imprint™ 4 Super Quick Regular
Imprint™ 4 Heavy Hydrophilic heavy body	Imprint™ 4 Light Imprint™ 4 Regular
<b>2-STEP TECHNIQUE</b>	
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](http://www.3MESPE.com/Imprint4)

3M ESPE Dental  
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St. Paul, MN 55144-1000 USA  
1-800-634-2249 3M Canada  
Post Office Box 5757  
London, Ontario N6A 4T1 Canada  
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# Solutions



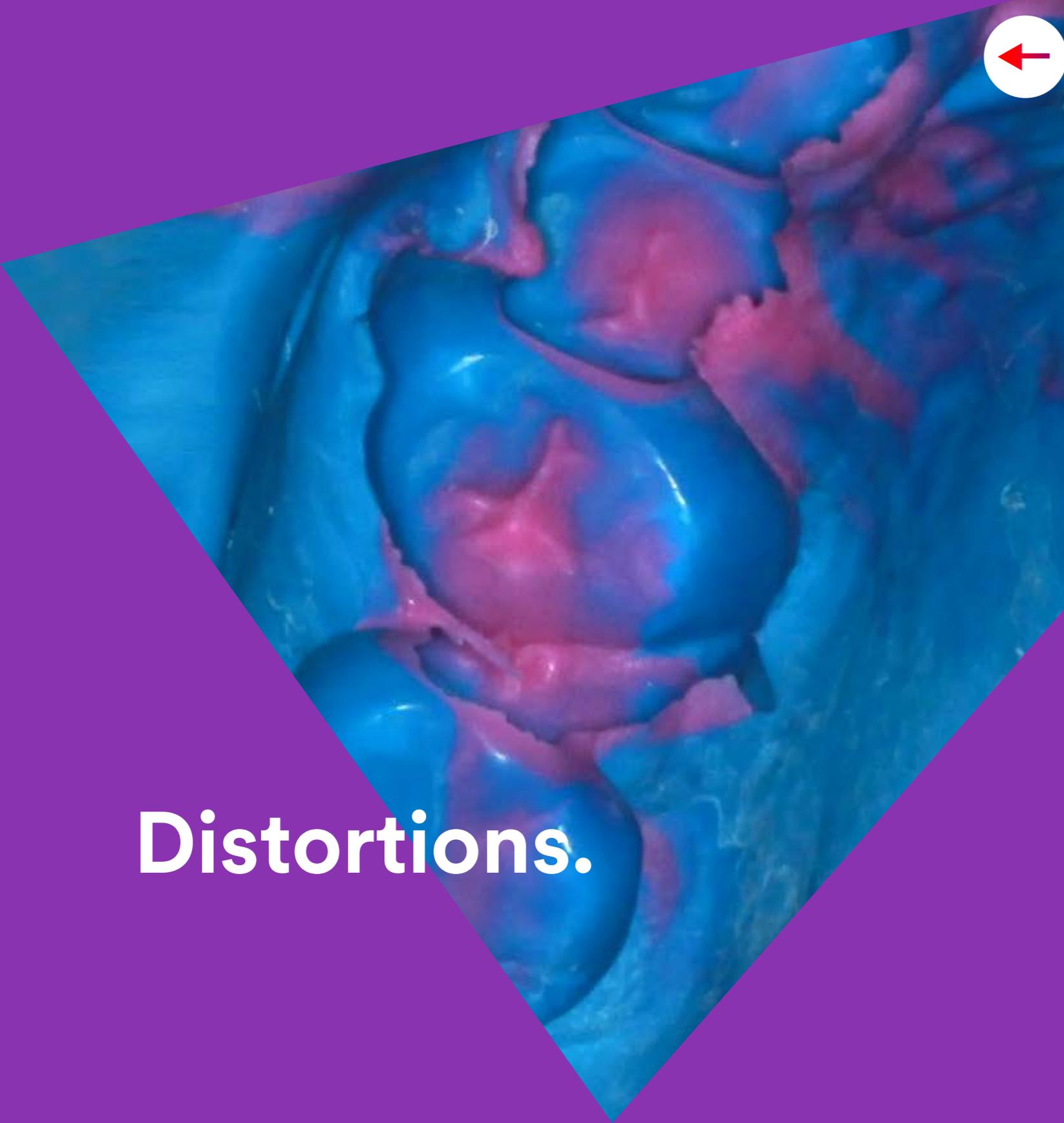
Tray material used is too flexible and distortion occurs during second impression (2-step technique)

## 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)

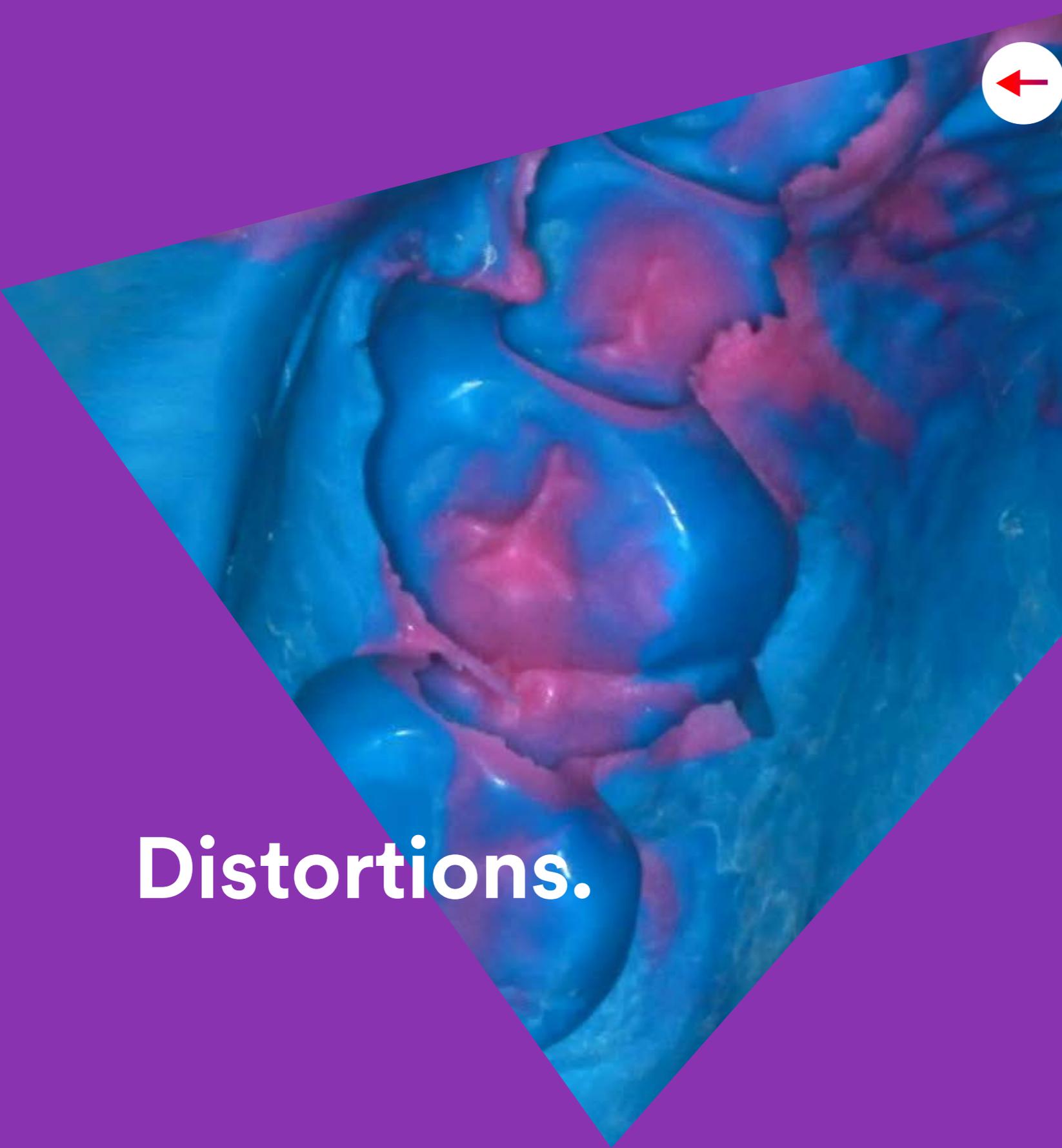
## What to do.

*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.



# 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.*

# Distortions.



# 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



# Solutions

## Facial-oral flow defects.



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.

**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.



# Solutions

## Facial-oral flow defects.



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.



# Solutions

## Facial-oral flow defects.



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

# Solutions

## Facial-oral flow defects.



Too fast tray insertion

### What to do.

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



# Solutions

## Facial-oral flow defects.



Tray repositioning after seating

### What to do.



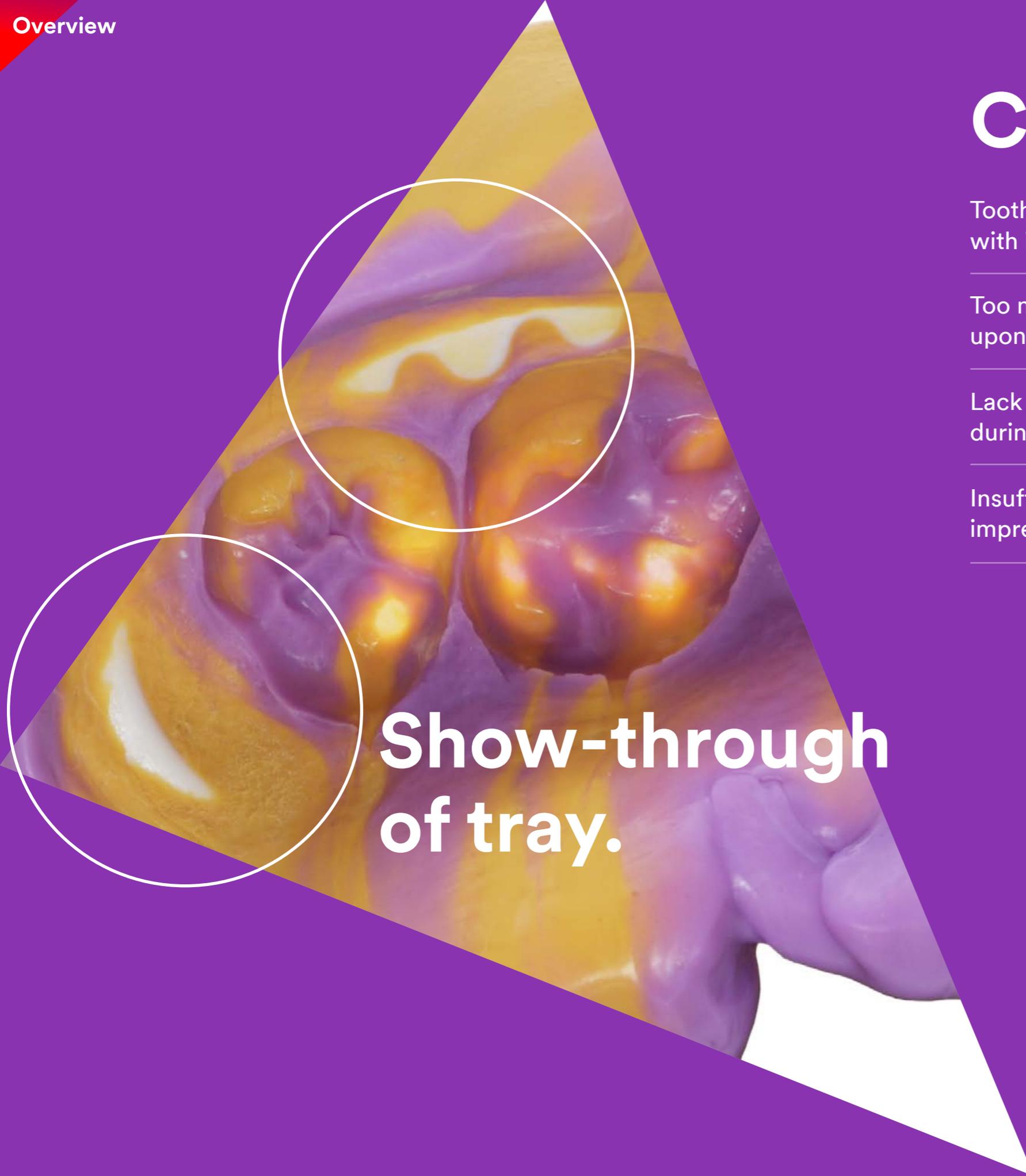
*Stabilize the tray after seating, avoid any movements.* When taking an impression of the *upper jaw*, you can easily find support on the chin or cheek bone of the patient.



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.





**Show-through  
of tray.**

# 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.

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.**

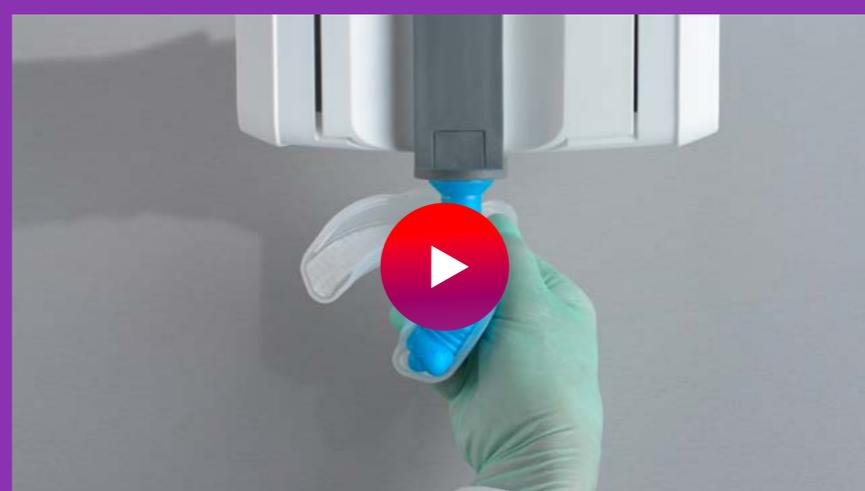
# Solutions



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.*



Tray filling using Pentamix™ Lite Automatic Mixing Unit



# 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.



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



# Wash material displaced.





# 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.*

**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.





# 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.



Bleed syringe

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





# 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.*

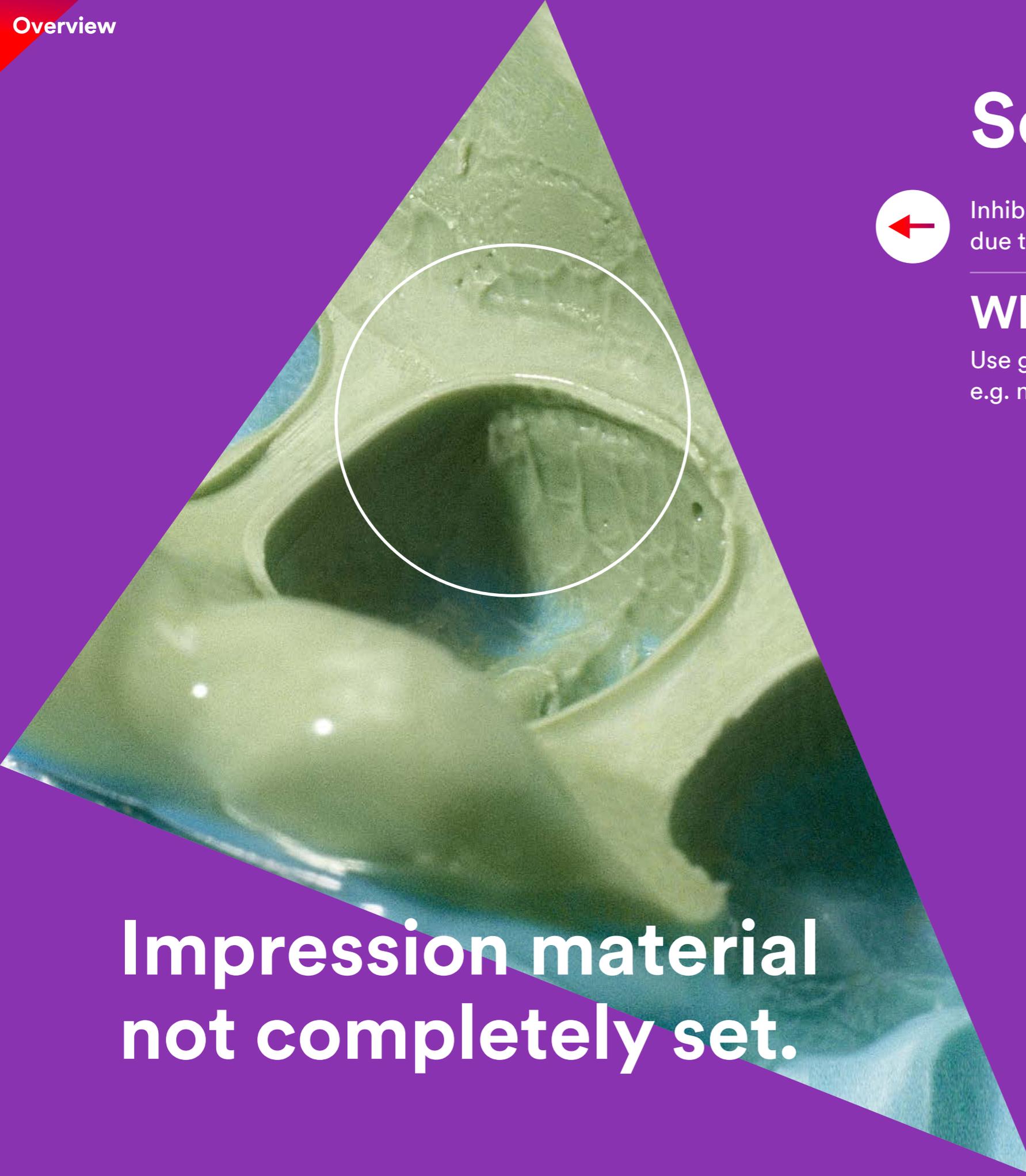


Rinse and dry preparation

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



# 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.

**Impression material  
not completely set.**

# Solutions



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

## What to do.

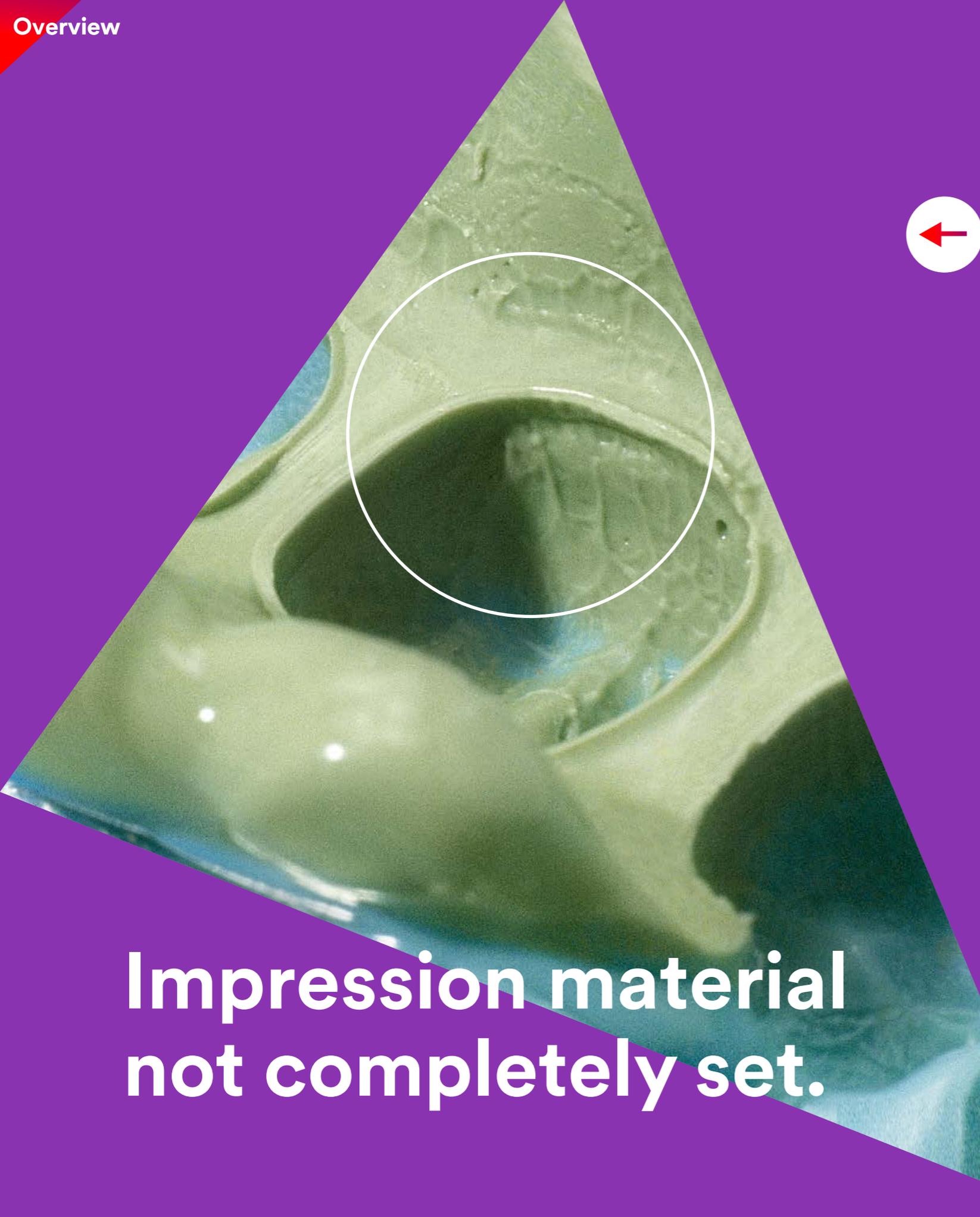
Smear layers from acrylates (e.g. core build-up or temporary materials) can inhibit the setting of impression materials.

*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.



**Impression material  
not completely set.**

# Solutions



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**:

**3M Science. Applied to Life.™** 3M ESPE Dental  
**Portfolio Overview**  
**Imprint™ 4 VPS Impression Material**

PRODUCT	DISPENSING SYSTEM	VISCOSITY	SETTING VERSION	MAXIMUM WORKING TIME (23°C/74°F)	MAXIMUM INTRA-ORAL SETTING TIME (23°C/74°F)	INTRA-ORAL SETTING TIME (23°C/74°F)
<b>TREAT AND MONOPHASE MATERIALS</b>						
Imprint™ 4 Paste® Putty			Regular Set	1:30	-	2:30
Imprint™ 4 Paste® Heavy			Regular Set	1:30	-	2:00
Imprint™ 4 Paste® Super Quick Heavy			Fast Set	-	-	1:15
<b>WASH MATERIALS</b>						
Imprint™ 4 Light			Regular Set	-	1:00	2:00
Imprint™ 4 Super Quick Light			Fast Set	-	0:35	1:15
Imprint™ 4 Regular			Regular Set	-	1:00	2:00
Imprint™ 4 Super Quick Regular			Fast Set	-	0:35	1:15

**3M Science. Applied to Life.™** 3M ESPE Dental  
**Portfolio Overview**  
**Impregum™ Polyether Impression Material**

PRODUCT	DISPENSING SYSTEM	VISCOSITY	SETTING VERSION	WORKING TIME* (23°C/74°F)	TOTAL SETTING TIME* (MIN:SEC)
<b>TREAT AND MONOPHASE MATERIALS</b>					
Impregum™ Paste® Soft Heavy Body			Regular Set	2:30	6:00
Impregum™ Paste® Soft Medium Body			Regular Set	2:45	6:00
Impregum™ Paste® Medium Body			Regular Set	2:45	6:00
Impregum™ Paste® Soft Medium Body (Flow)			Fast Set	1:45	6:00
Impregum™ Paste® Soft Quick Shear Heavy Body			Fast Set	1:00	4:00
Impregum™ Paste® Soft Quick Shear Medium Body			Fast Set	1:00	4:00
<b>WASH MATERIALS</b>					
Impregum™ Paste® Soft Light Body			Regular Set	3:15	6:30
Impregum™ Soft Light Body			Regular Set	2:00	5:30
Impregum™ Soft Quick Shear Light Body			Fast Set	1:00	4:00

Impression material not completely set.



# Solutions



Impression material stored at elevated or too low temperature

## 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.

**Impression material  
not completely set.**

# Causes

Working time exceeded



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



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



Relining of impression to correct defect in the impression



**Poor bond  
between tray and  
wash material.**

# Solutions



Working time exceeded

## 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.



**Poor bond  
between tray and  
wash material.**

A close-up photograph of a dental impression material (blue) in a tray. A circular inset highlights a specific area where the material is peeling away from the tray, demonstrating a poor bond between the wash material and the set material.

# Causes

No tray adhesive used



Inadequate layer of tray adhesive



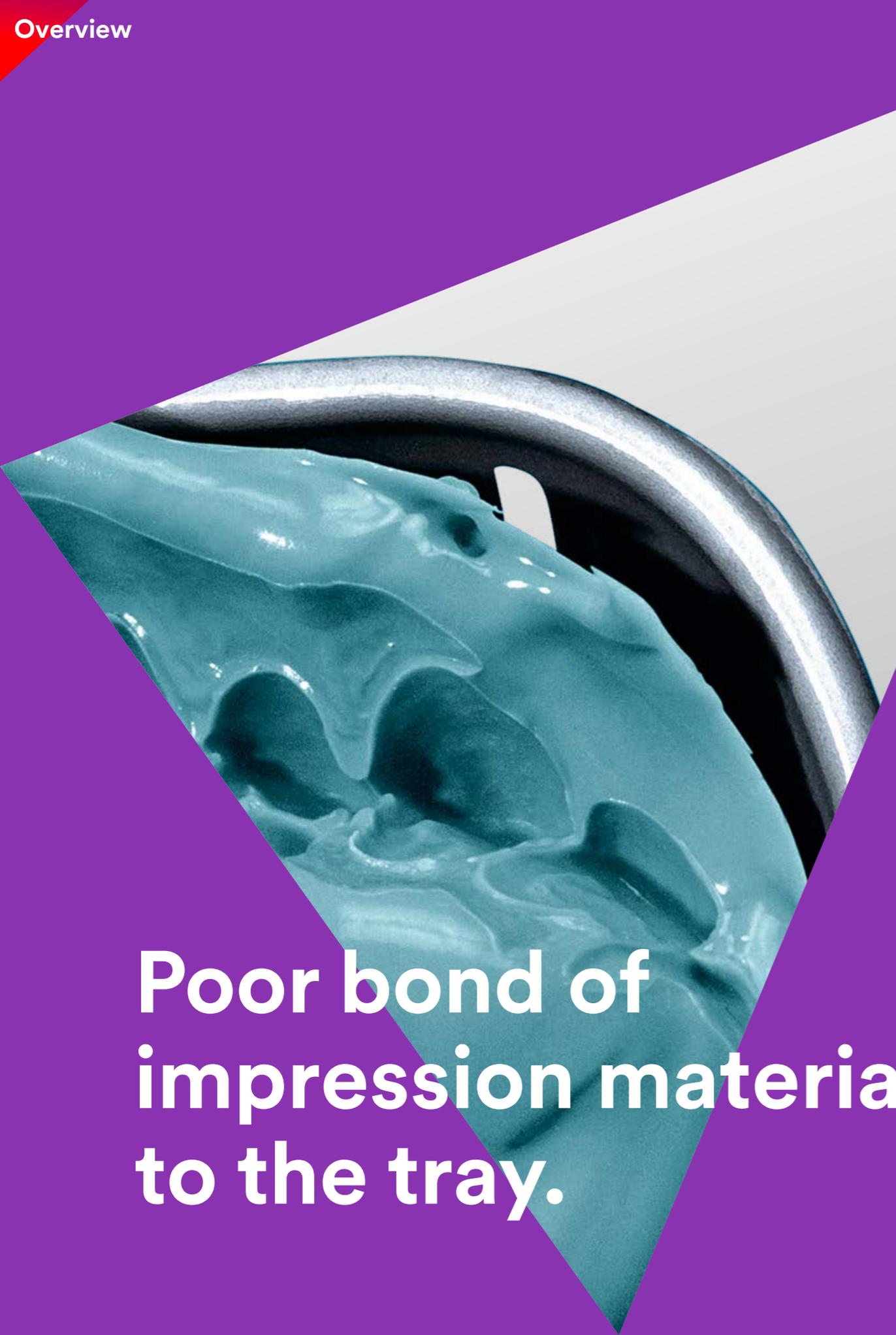
Smear layer on custom trays



Tray distortion upon removal



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



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

# 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.**

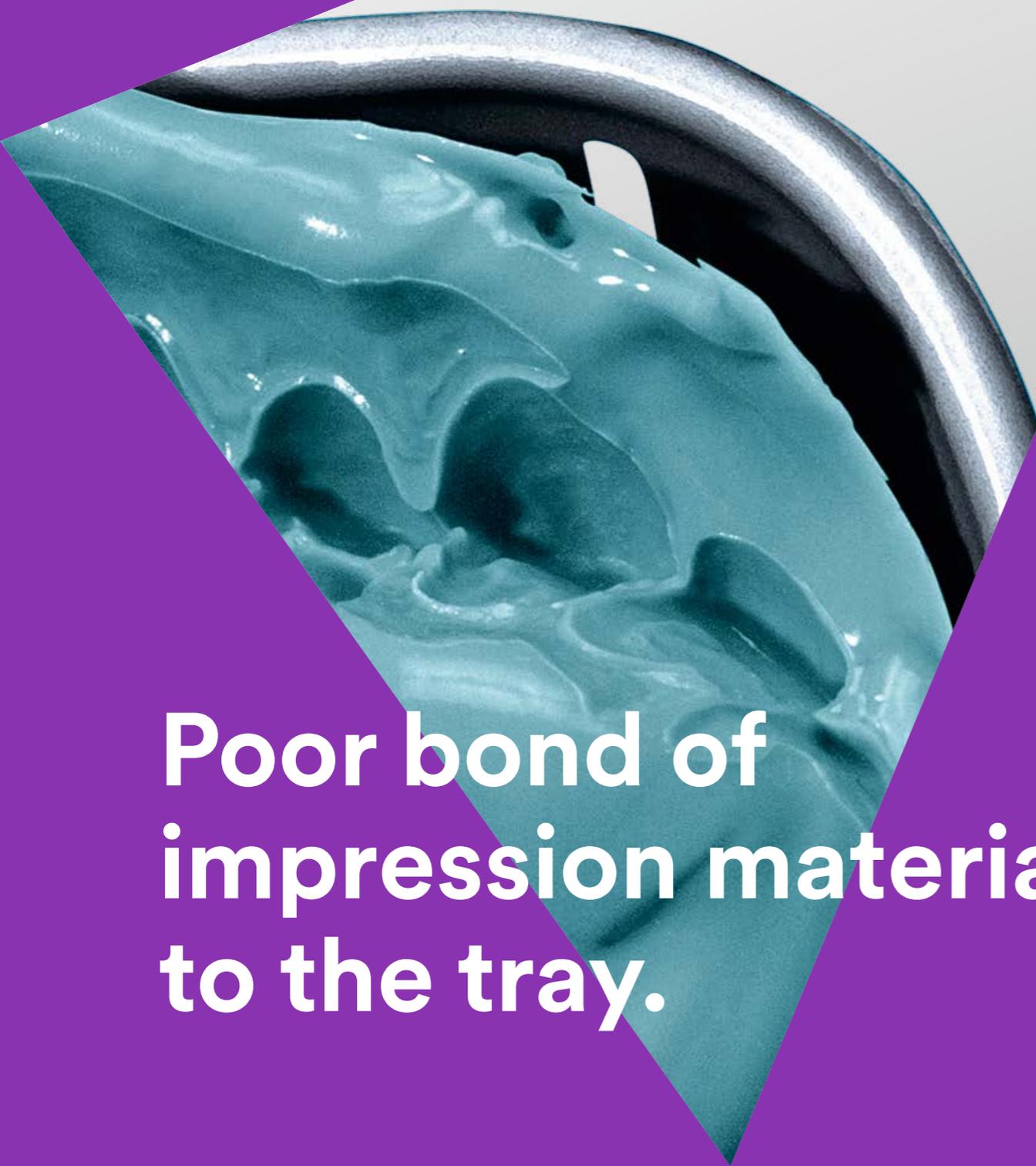
# Solutions



Inadequate layer of tray adhesive

## What to do.

*Follow manufacturer's instructions for use for application and drying time.*

A close-up photograph of a dental tray containing a light blue impression material. The material is being applied to a metal tray, and the image shows the texture and flow of the material as it fills the tray's contours.

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

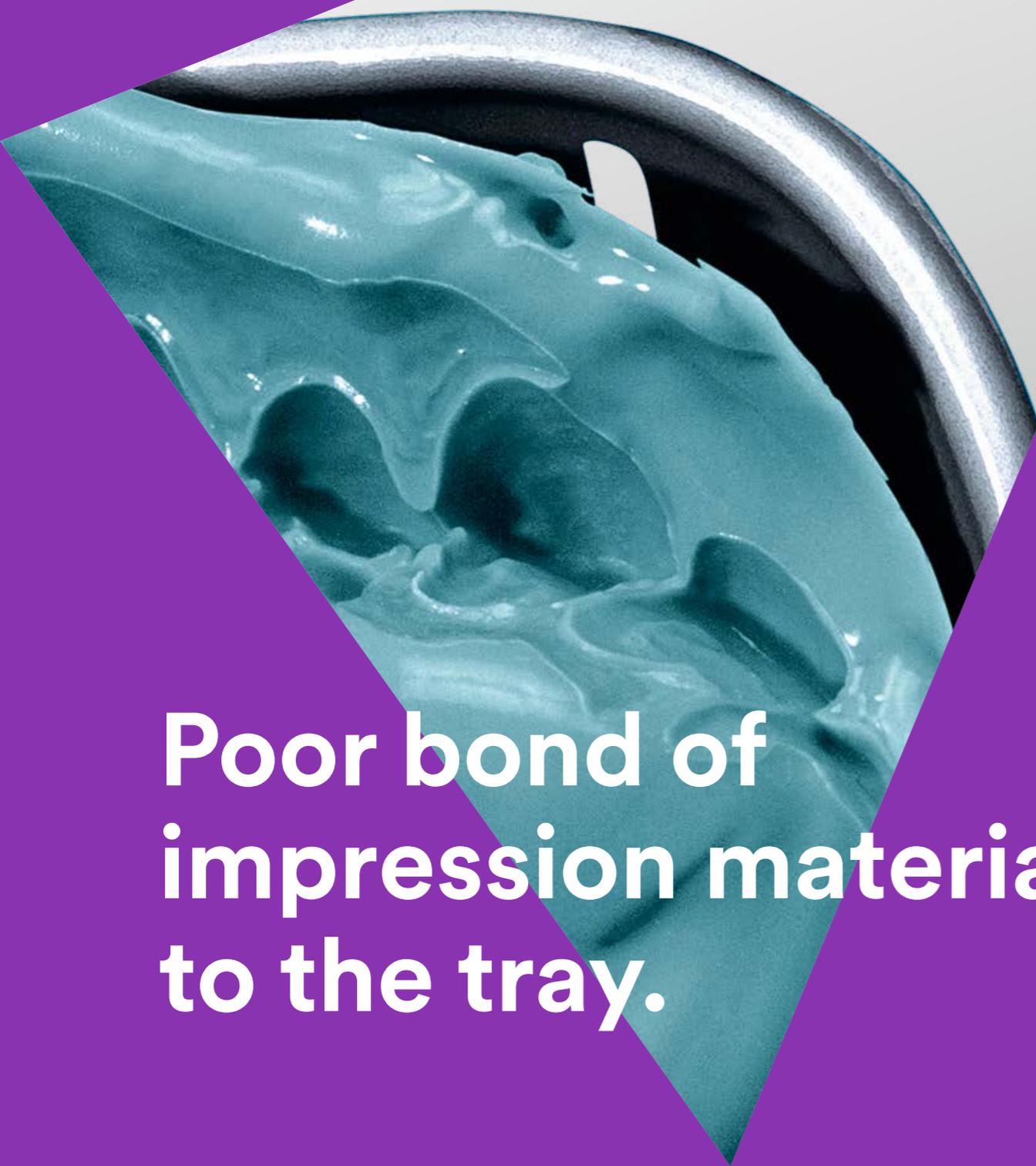
# Solutions



Smear layer on custom trays

## What to do.

Remove smear layer with *acetone, grinding instruments or sandblast*. Always make sure to clean trays after mouth try-in.

A close-up photograph of a dental impression tray. The tray is made of a dark, metallic material and contains a teal-colored impression material. The material is slightly uneven and appears to be in the process of being set or has just been set. The background is a solid purple color.

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

# Solutions



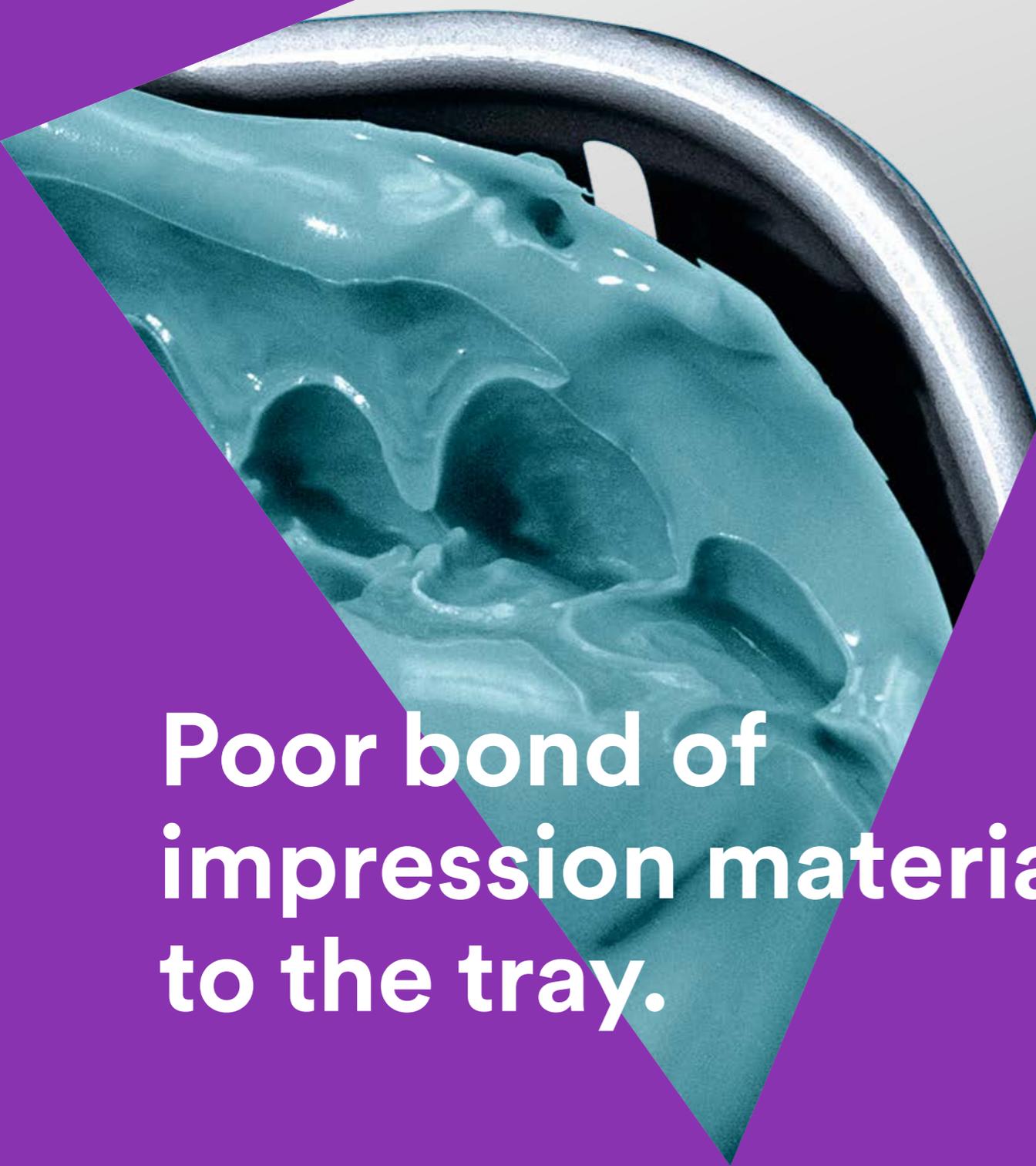
Tray distortion upon removal

## 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*.

A close-up photograph of a dental impression tray. The tray is a dark, metallic-looking metal. Inside the tray, there is a thick, blue, glossy material that has been applied to form an impression of a tooth. The material is slightly distorted, showing some unevenness and a slight gap between it and the tray's edge, illustrating the problem of poor bond.

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

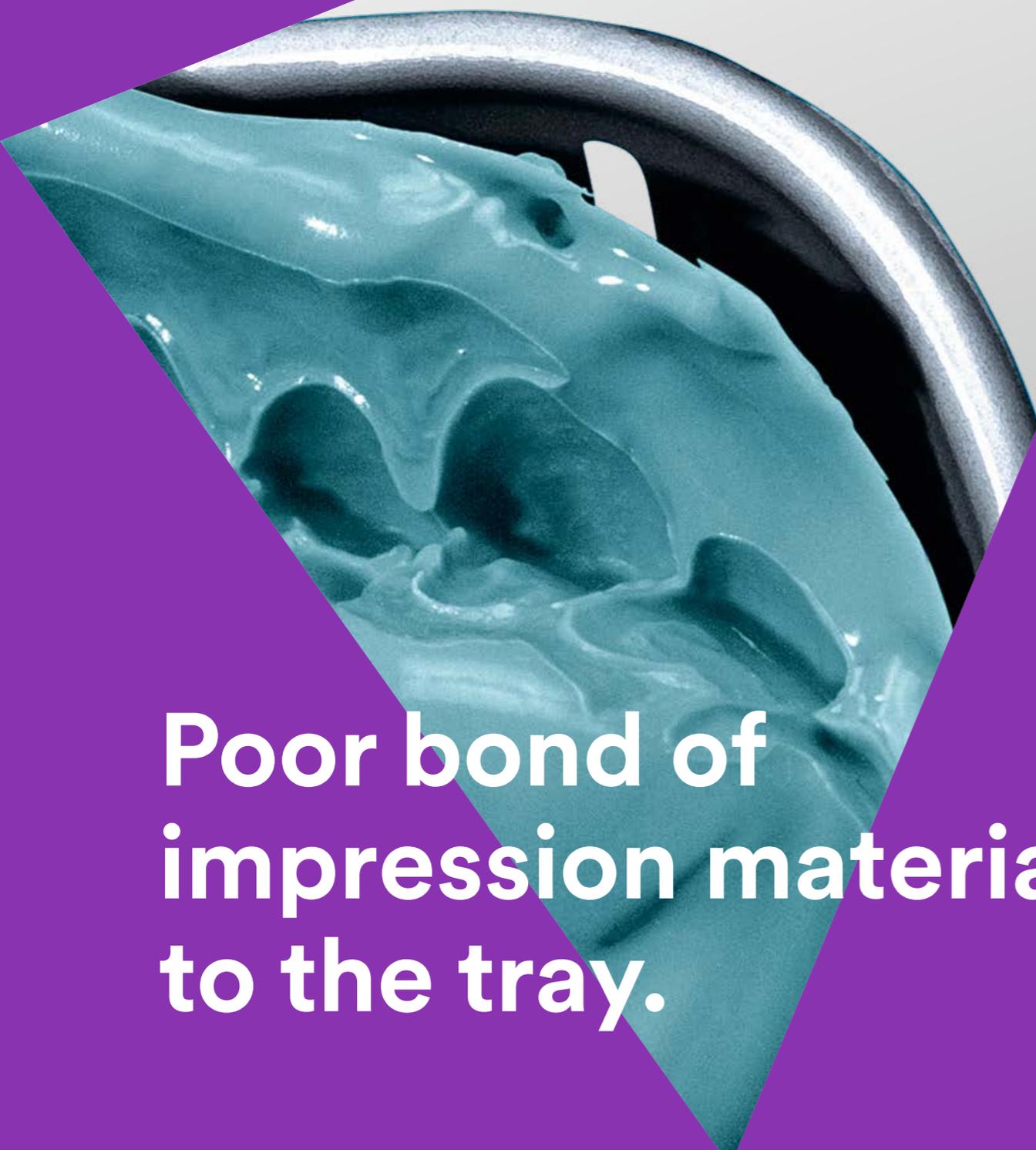
# Solutions



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.*

A close-up photograph of a dental tray containing a light blue impression material. The material is being carved, and there is a visible gap between the material and the tray's edge, indicating a poor bond.

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

# Causes

Outgassing of hydrogen when using VPS impression materials



Bump/swelling in gypsum model



Cast not made according to preparation guidelines and lacks detail



**Stone cast discrepancies.**



# 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.



Pentamix™ 3 Automatic Mixing Unit



Pentamix™ Lite Automatic Mixing Unit



Automatic mixing of impression materials with Pentamix™ Lite Mixing Unit

# 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.

A photograph of a white stone dental cast. A circular white border highlights a specific area of the cast, which is magnified to show a porous, granular surface texture. The background is a dark purple gradient.

**Stone cast  
discrepancies.**

# 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.
- 02. Ensure adequate retraction**  
and, if necessary, stop any bleeding to achieve a clean and dry situation. If retraction agents are used, rinse and dry thoroughly.
- 03. Thoroughly apply tray adhesive**  
... and let dry appropriately to make sure that the impression material will not be detached upon tray removal. Alternatively use a 3M™ ESPE™ Impression Tray. Due to its integrated self-retentive fleece strip a tray adhesive is not needed.
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of the impression material. Fill the tray sufficiently with the impression material. With all Penta™ materials and materials in Garant™ cartridges from 3M ESPE Dental proper automatic mixing is guaranteed.
- 05. Use gloves**  
that do not inhibit the setting of the impression material. Latex gloves can inhibit the setting of VPS impression materials, use nitrile gloves instead.
- 06. Keep the tip immersed**  
in the material at all times during intra-oral syringing of the wash material to avoid entrapping air.
- 07. Slowly insert the loaded tray**  
into the mouth parallel to the long axes of the prepared teeth. Apply controlled pressure upon seating the tray to avoid contact between teeth/tissue and bottom of tray. Stay within working time of tray and wash material. Hold the tray in place without exerting pressure and avoid any movements that could shift the position of the tray and may lead to distortions.
- 08. When removing the tray**  
from the mouth avoid unilateral rotation. Follow the setting times indicated in the manufacturer's instructions for use before removing the impression.
- 09. Check preparation margins**  
and make sure that margins are captured entirely and properly. The following appearances may lead to inaccurate results: voids, tears, material distortions, flow defects, detachment from tray, delamination between heavy and light body, shine-through of tray.
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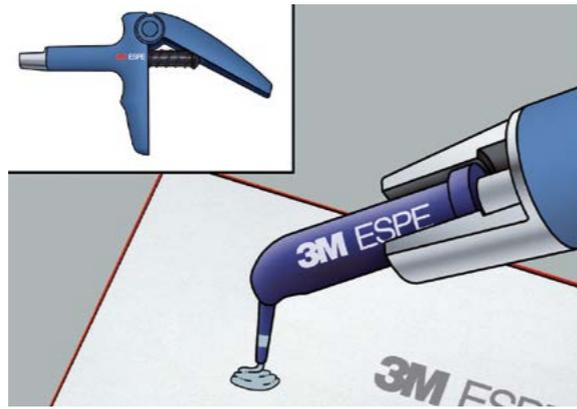
**3M Canada**  
Post Office Box 5757  
London, Ontario N6A 4T1 Canada  
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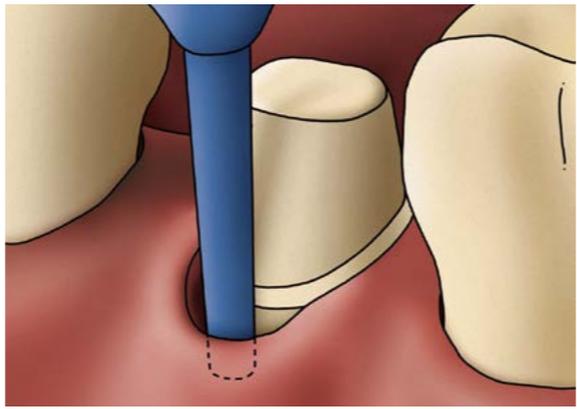
# Appendix



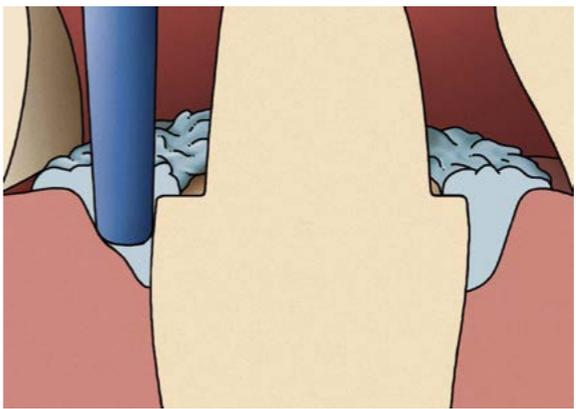
# 3M™ ESPE™ Retraction Capsule



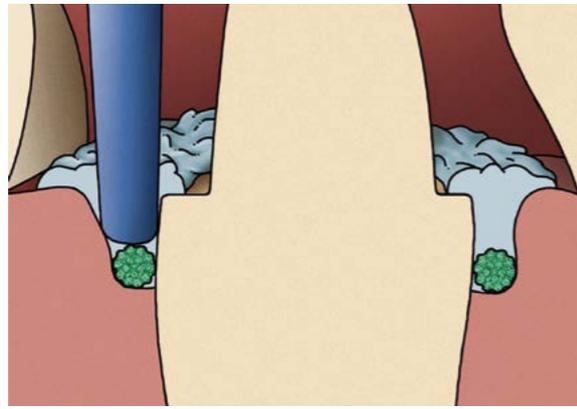
Remove a retraction capsule from the blister and insert into dispenser (fits into most composite dispensers). Extrude a small amount of paste and discard.



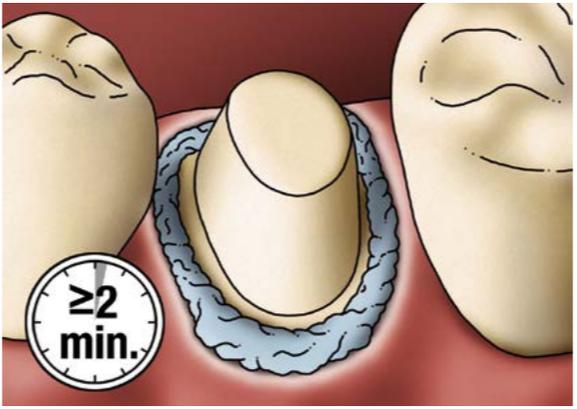
Insert retraction capsule tip into the sulcus.



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.



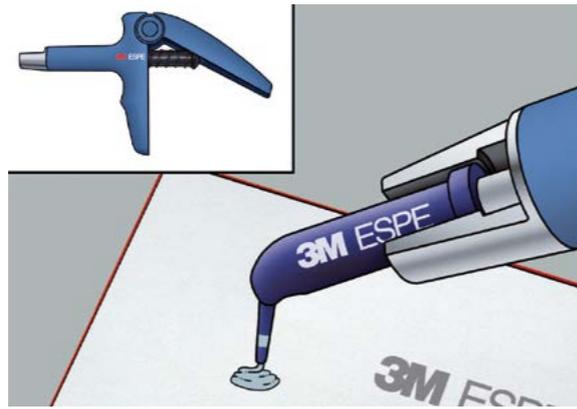
Leave astringent retraction paste on for a minimum of 2 minutes.



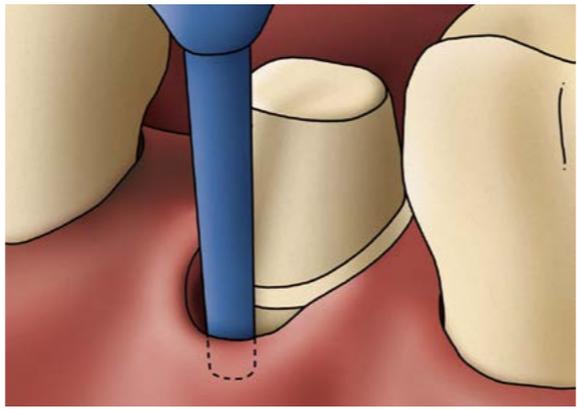
Completely remove astringent retraction paste with air-water spray and suction.



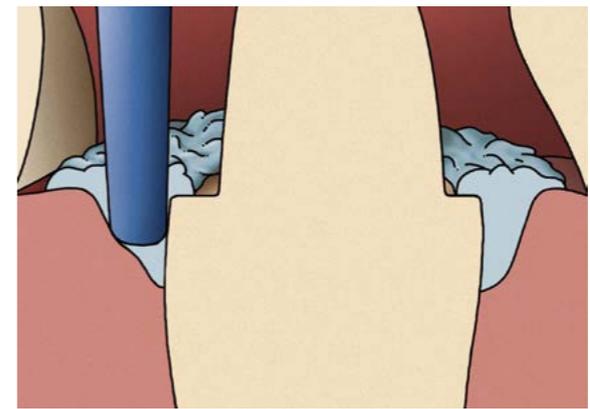
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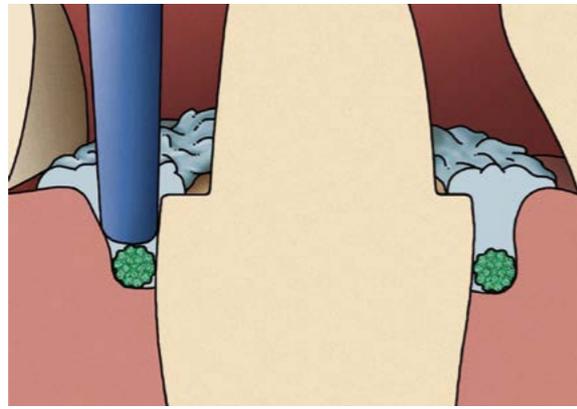
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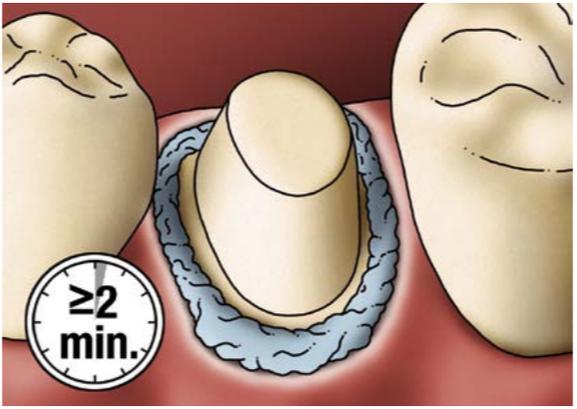
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**3M** Science.  
Applied to Life.™

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**Material Combinations per Technique  
Imprint™ 4 VPS Impression Material**

TRAY MATERIAL		RECOMMENDED WASH MATERIALS	
<b>1-STEP TECHNIQUE—PENTA™</b>			
<b>Imprint™ 4 Penta™ Heavy</b> Hydrophilic heavy body 		Imprint™ 4 Light	
		Imprint™ 4 Regular	
<b>Imprint™ 4 Penta™ Super Quick Heavy</b> Fast setting hydrophilic heavy body 		Imprint™ 4 Super Quick Light	
		Imprint™ 4 Super Quick Regular	
<b>Imprint™ 4 Penta™ Putty</b> Putty consistency 		Imprint™ 4 Regular	
<b>1-STEP TECHNIQUE—CARTRIDGE</b>			
<b>Imprint™ 4 Super Quick Heavy</b> Fast setting hydrophilic heavy body 		Imprint™ 4 Super Quick Light	
		Imprint™ 4 Super Quick Regular	
<b>Imprint™ 4 Heavy</b> Hydrophilic heavy body 		Imprint™ 4 Light	
		Imprint™ 4 Regular	
<b>2-STEP TECHNIQUE</b>			
<b>Imprint™ 4 Penta™ Putty</b> Putty consistency 		Imprint™ 4 Super Quick Light	
		Imprint™ 4 Light	

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Applied to Life.™

3M ESPE Dental

**Material Combinations per Technique  
Impregum™ Polyether Impression Material**

TRAY MATERIAL		RECOMMENDED WASH MATERIAL	
<b>MONOPHASE TECHNIQUE – PENTA™</b>			
Impregum™ Penta™ Soft Medium Body			
Impregum™ Penta™ Medium Body			
Impregum™ Penta™ Soft Quick Step Medium Body			
<b>1-STEP TECHNIQUE – PENTA™</b>			
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	
<b>1-STEP TECHNIQUE – CARTRIDGE</b>			
Impregum™ Soft Medium Body (Tray)		Impregum™ Soft Light Body	
Impregum™ Soft Quick Step Medium Body (Tray)		Impregum™ Soft Quick Step Light Body	

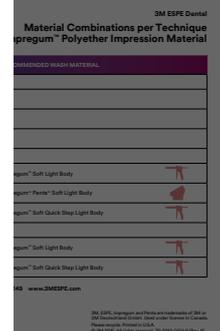
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3M ESPE Dental

**Portfolio Overview**  
**Impregum™ Polyether Impression Material**

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

\*Working time includes mixing time.

\*\*includes working time.

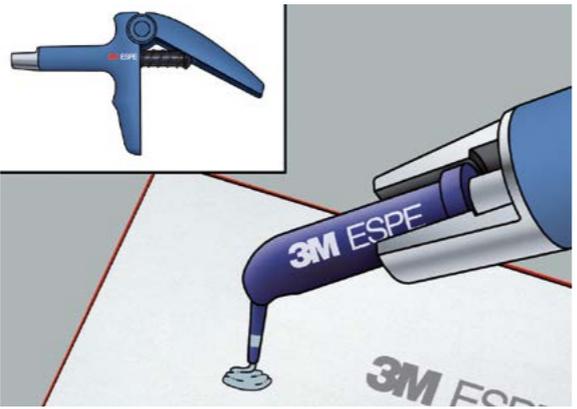


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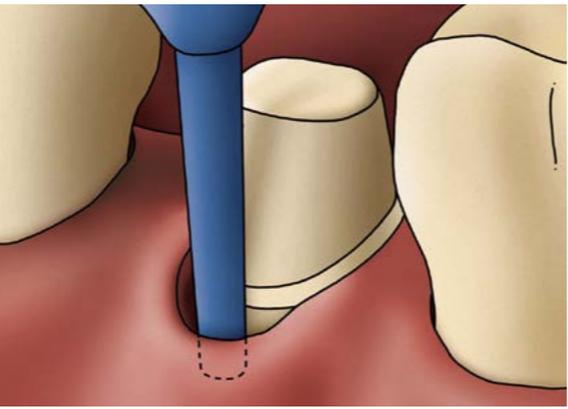
SETTING VERSION	WORKING TIME* AT 23°C/74°F MIN:SEC	TOTAL SETTING TIME** MIN:SEC
Regular Set	2:30	6:00
Regular Set	2:45	6:00
Regular Set	2:45	6:00
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Fast Set	1:00	4:00
Fast Set	1:00	4:00
Fast Set	1:00	4:00
Regular Set	3:15	6:30
Regular Set	2:00	5:30
Fast Set	1:00	4:00



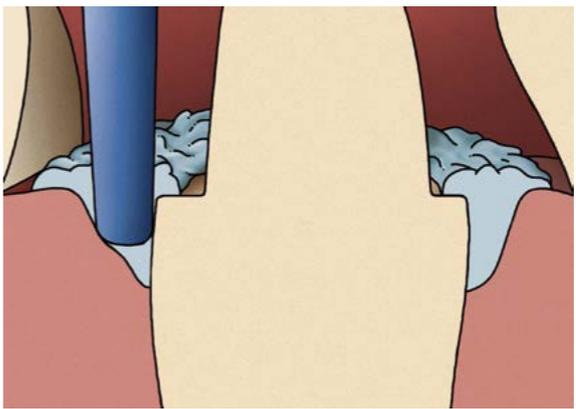
# 3M™ ESPE™ Retraction Capsule



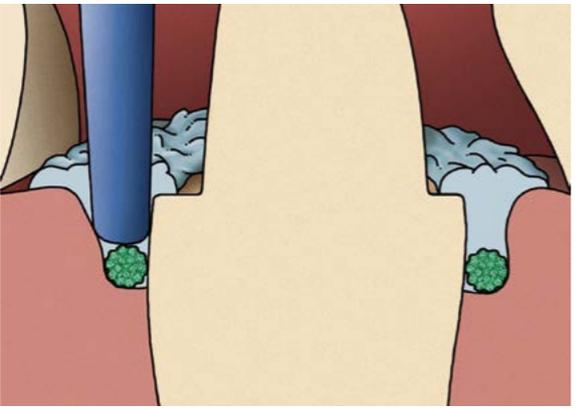
Remove a retraction capsule from the blister and insert into dispenser (fits into most composite dispensers). Extrude a small amount of paste and discard.



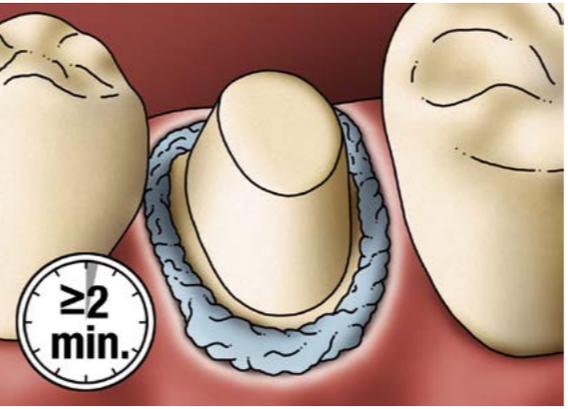
Insert retraction capsule tip into the sulcus.



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.

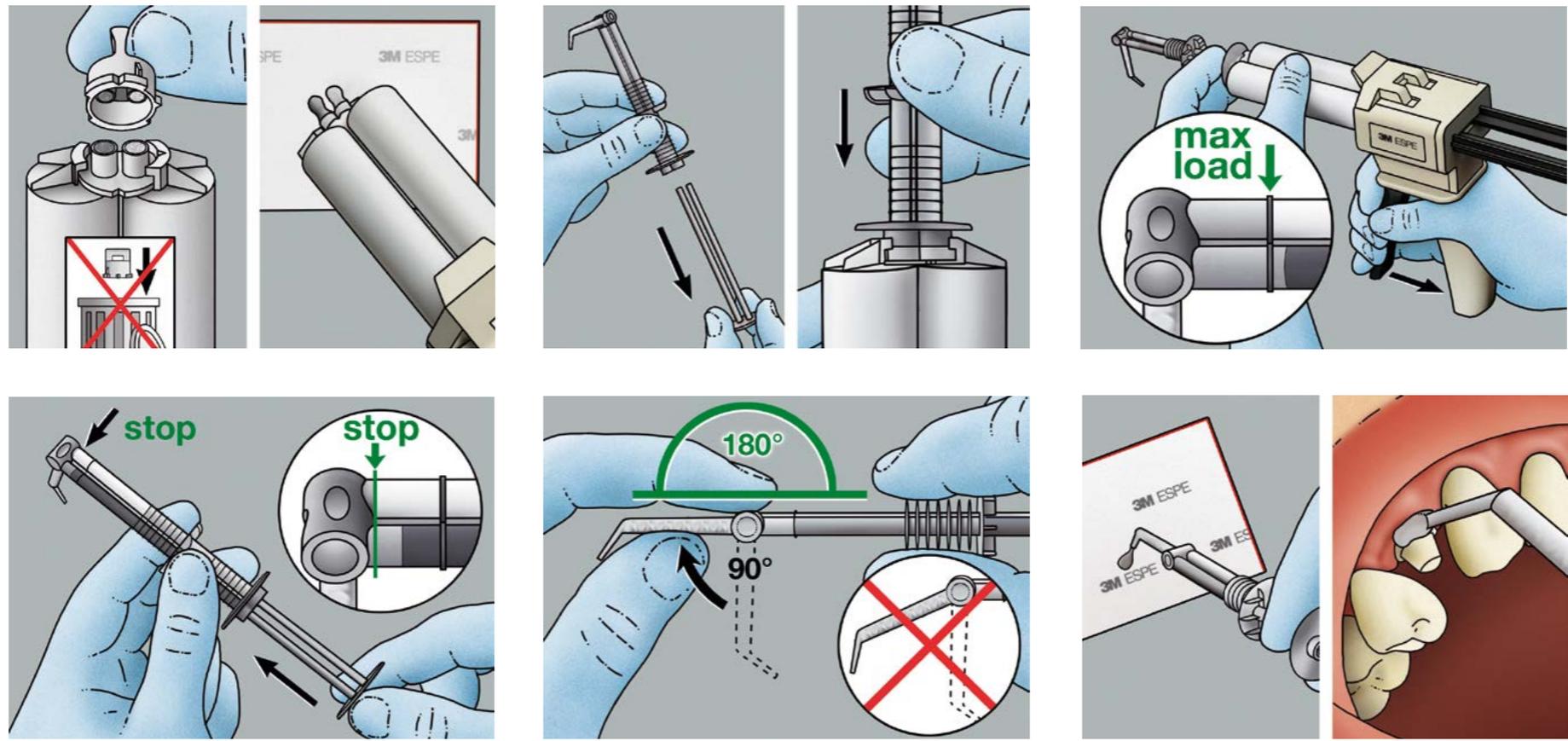


Completely remove astringent retraction paste with air-water spray and suction.

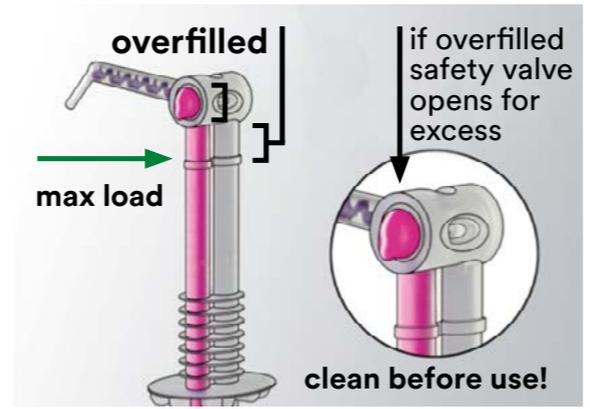
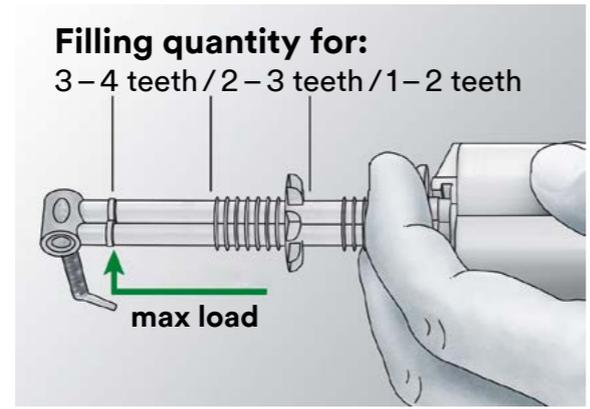
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# 3M™ ESPE™ Intra-oral Syringe Green/Purple

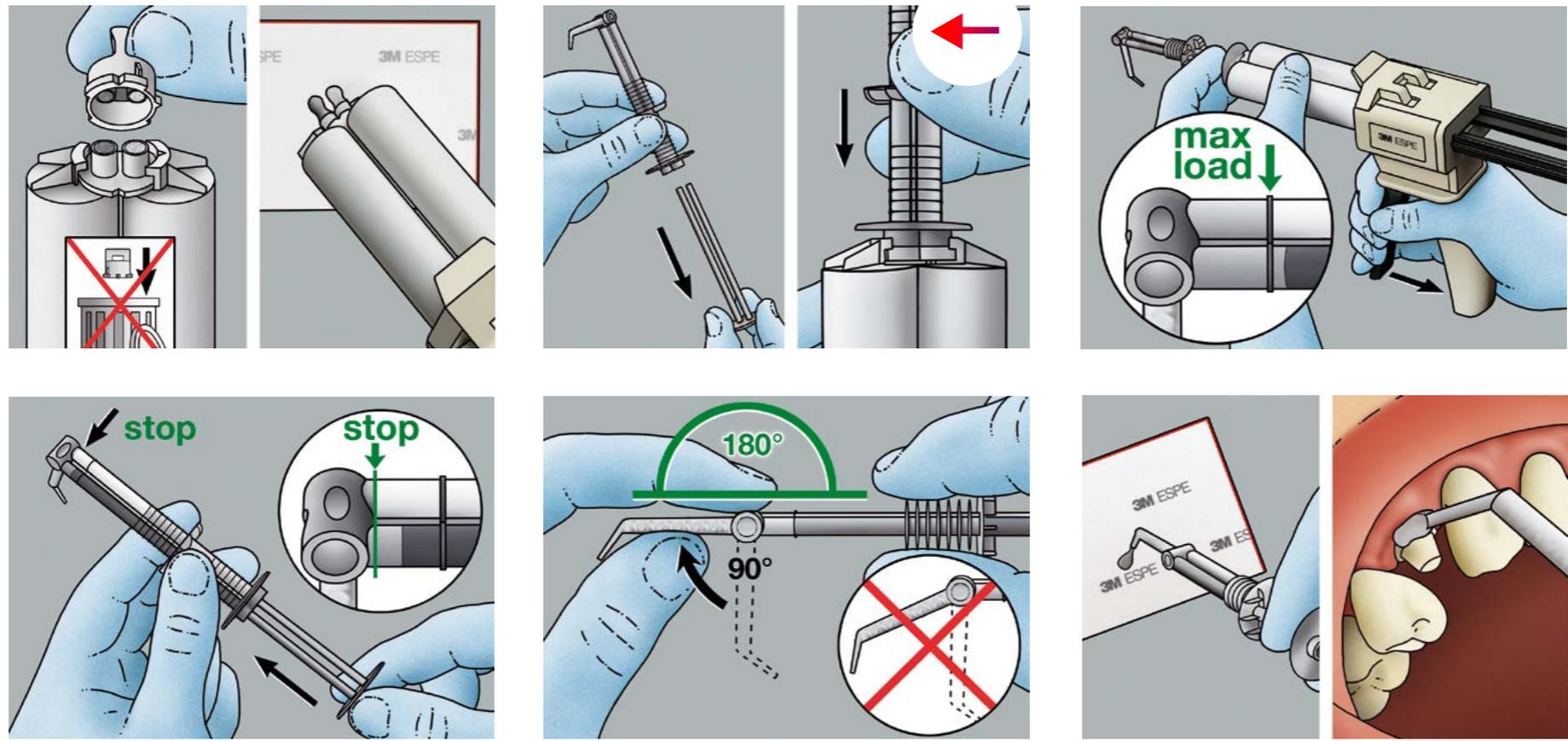


## Tips for success.

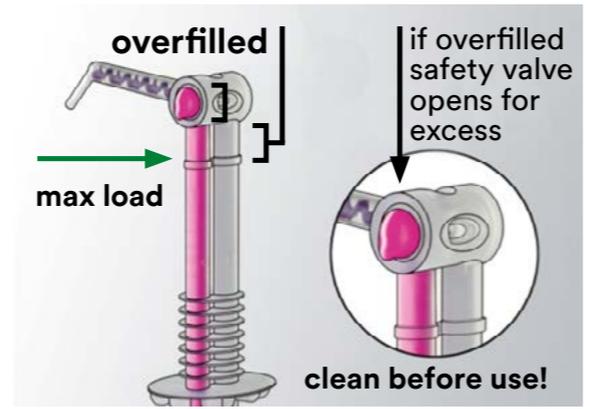
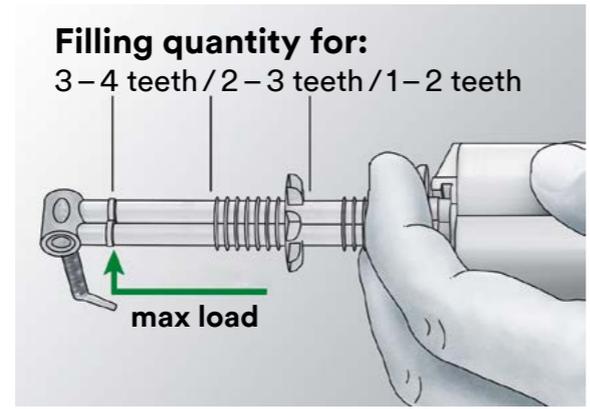




# 3M™ ESPE™ Intra-oral Syringe Green/Purple

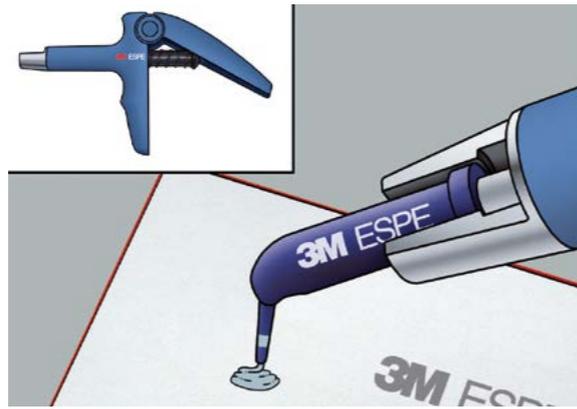


## Tips for success.

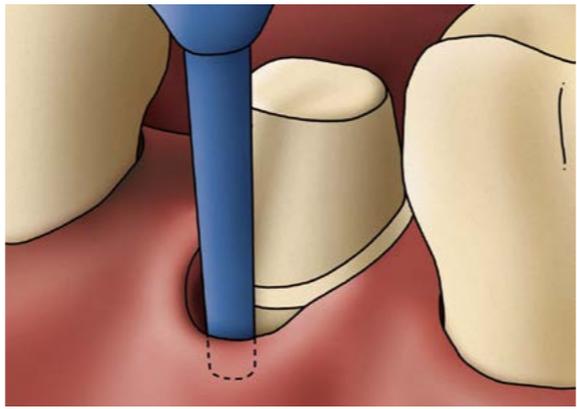




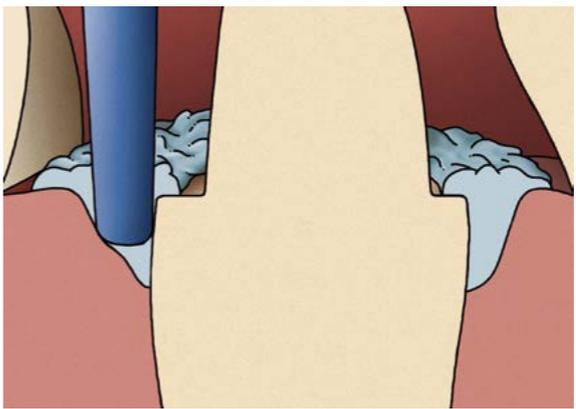
# 3M™ ESPE™ Retraction Capsule



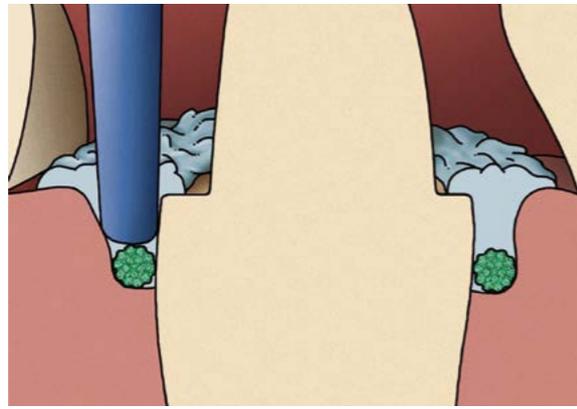
Remove a retraction capsule from the blister and insert into dispenser (fits into most composite dispensers). Extrude a small amount of paste and discard.



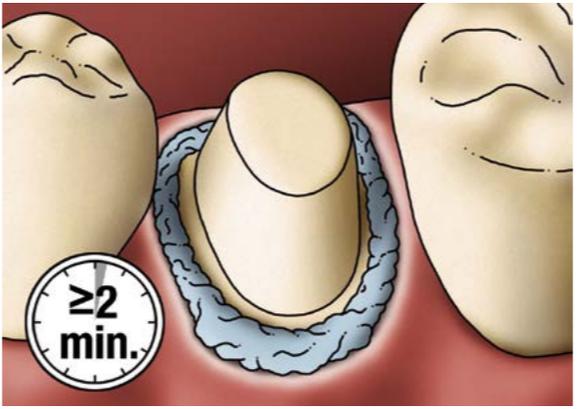
Insert retraction capsule tip into the sulcus.



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.



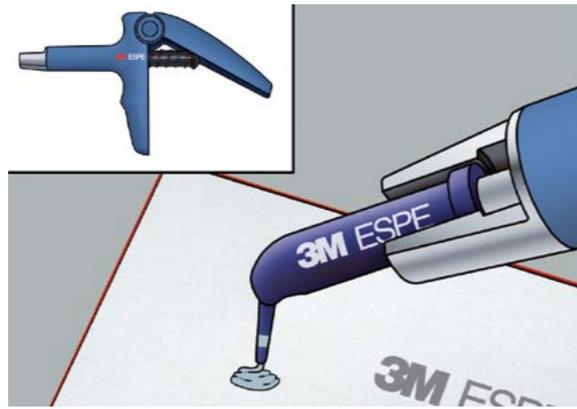
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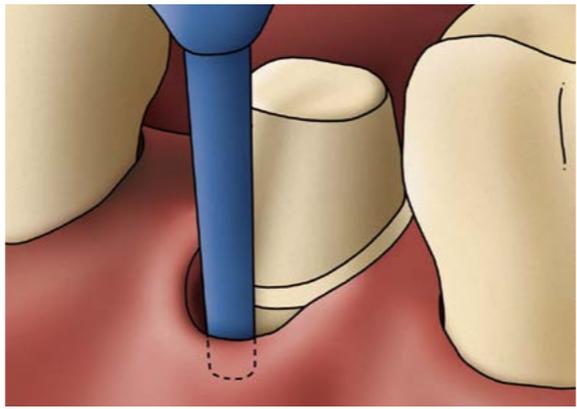
Completely remove astringent retraction paste with air-water spray and suction.



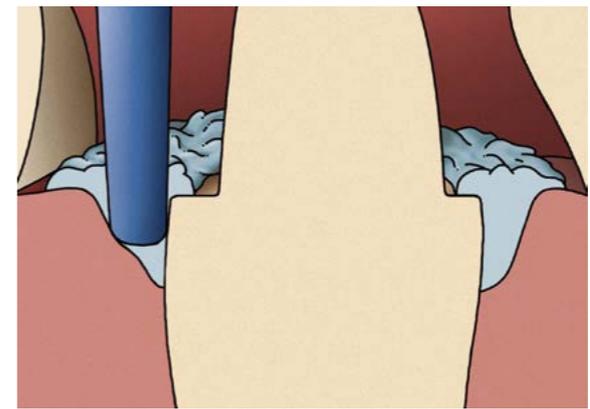
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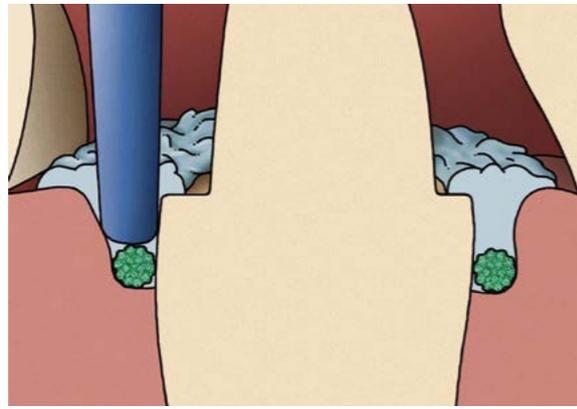
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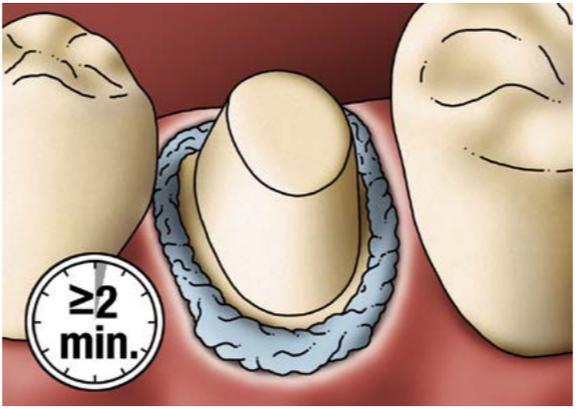
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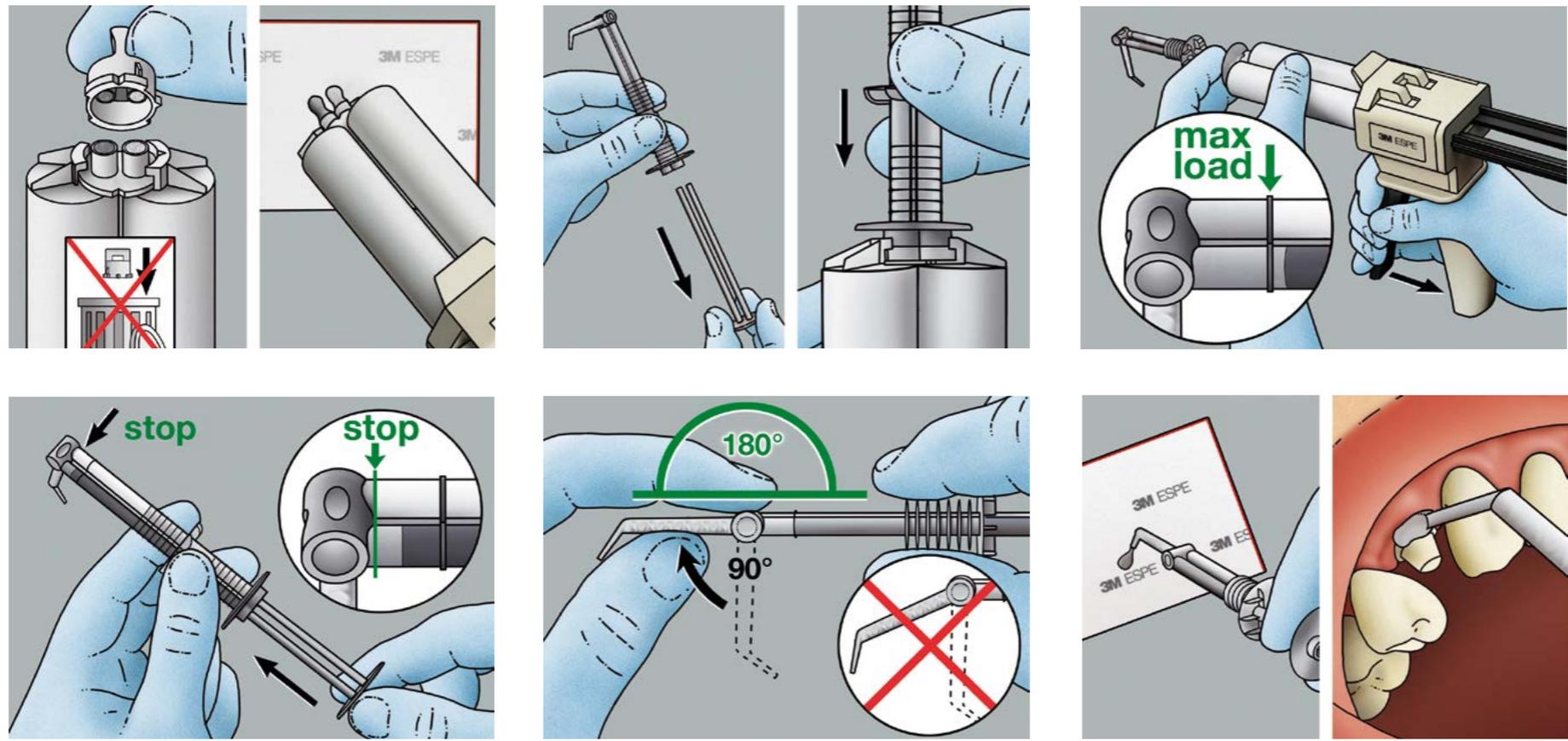
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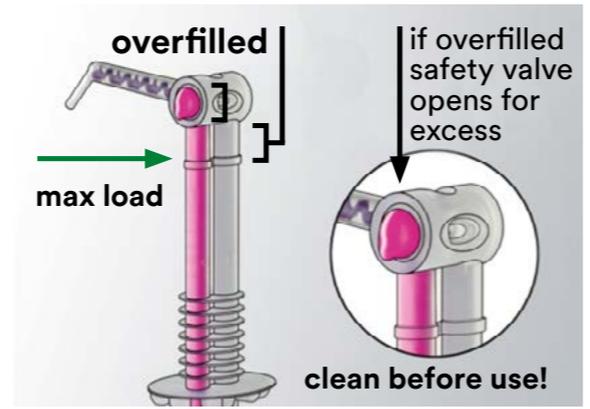
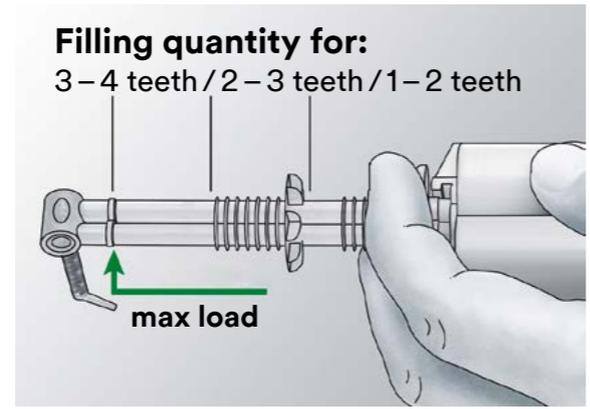
Completely remove astringent retraction paste with air-water spray and suction.



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



## Tips for success.



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**Portfolio Overview**  
**Imprint™ 4 VPS Impression Material**

PRODUCT	DISPENSING SYSTEM	VISCOSITY		SETTING VERSION	MAXIMUM WORKING TIME (23°C/73°F)	MAXIMUM INTRA-ORAL SYRINGING TIME (37°C/98°F)	INTRA-ORAL SETTING TIME (37°C/98°F)
		LOW	HIGH				
<b>TRAY MATERIALS</b>							
Imprint™ 4 Penta™ Putty		Putty	Regular Set	1:30	–	2:30	
Imprint™ 4 Penta™ Heavy Imprint™ 4 Heavy		Heavy Body	Regular Set	2:00	–	2:00	
Imprint™ 4 Penta™ Super Quick Heavy Imprint™ 4 Super Quick Heavy		Heavy Body	Fast Set	1:15	–	1:15	
<b>WASH MATERIALS</b>							
Imprint™ 4 Light			Regular Set	–	1:00	2:00	
Imprint™ 4 Super Quick Light			Fast Set	–	0:35	1:15	
Imprint™ 4 Regular			Regular Set	–	1:00	2:00	
Imprint™ 4 Super Quick Regular			Fast Set	–	0:35	1:15	

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3M ESPE Dental  
Portfolio Overview  
Imprint™ 4 Polyether Impression Material

SETTING VERSION	WORKING TIME AT 23°C/73°F MIN:SEC	TOTAL SETTING TIME™ MIN:SEC
Regular Set	2:30	6:00
Regular Set	2:45	6:00
Regular Set	2:45	6:00
Regular Set	1:45	6:00
Fast Set	1:00	4:00
Fast Set	1:00	4:00
Fast Set	1:00	4:00
Regular Set	3:15	6:30
Regular Set	3:00	5:30
Fast Set	1:00	4:00



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**Portfolio Overview**  
**Impregum™ Polyether Impression Material**

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

\*Working time includes mixing time.

\*\*includes working time.

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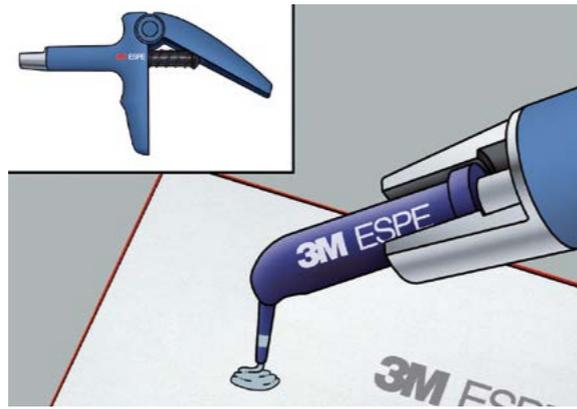
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3M ESPE Dental  
Portfolio Overview  
Impregum™ Polyether Impression Material

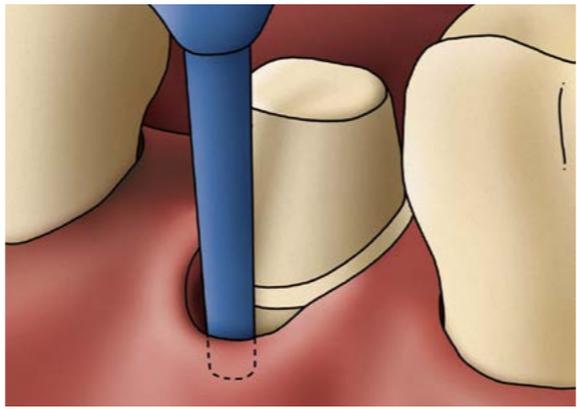
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Regular Set	2:00	5:30
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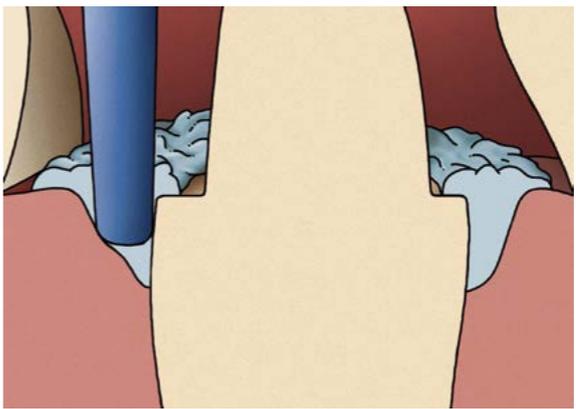
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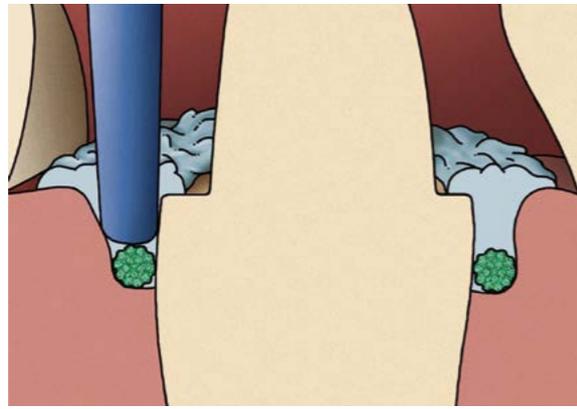
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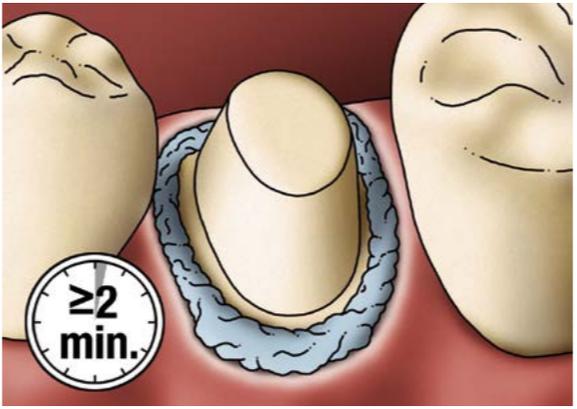
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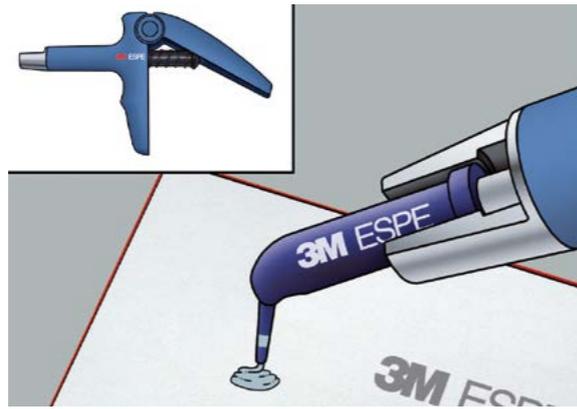
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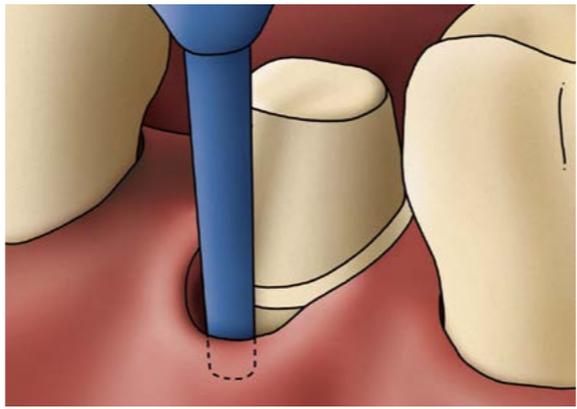
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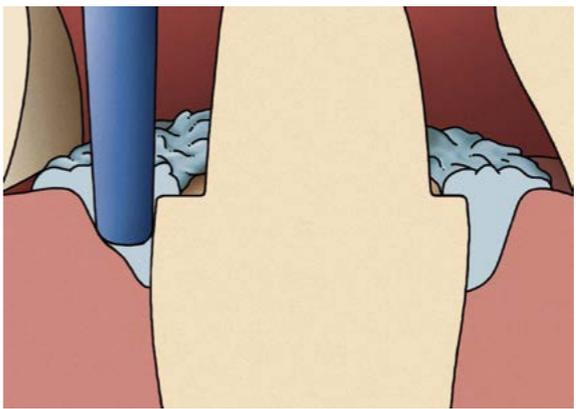
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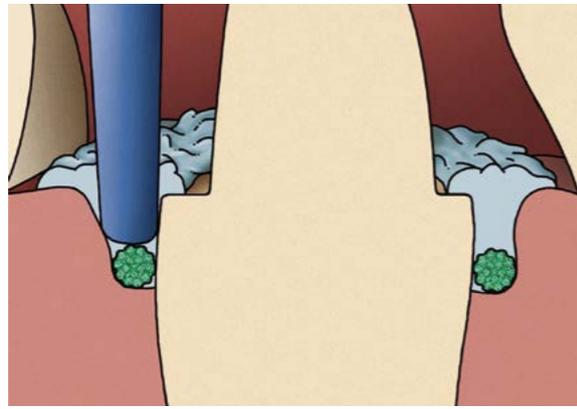
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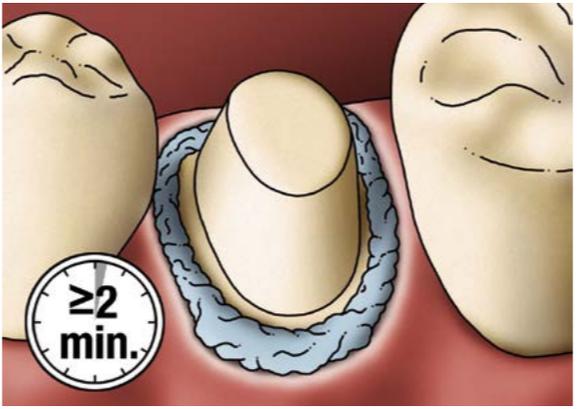
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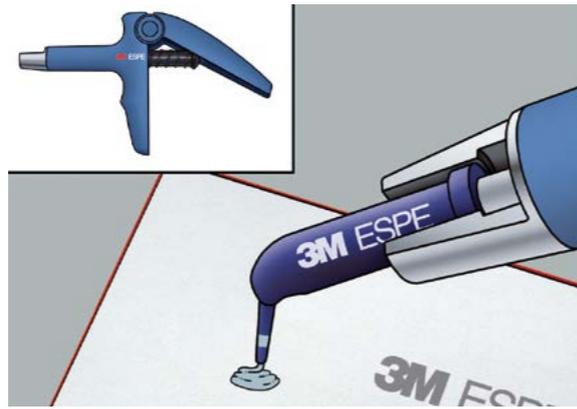
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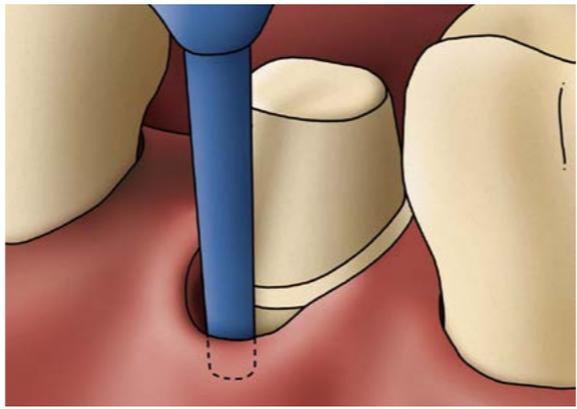
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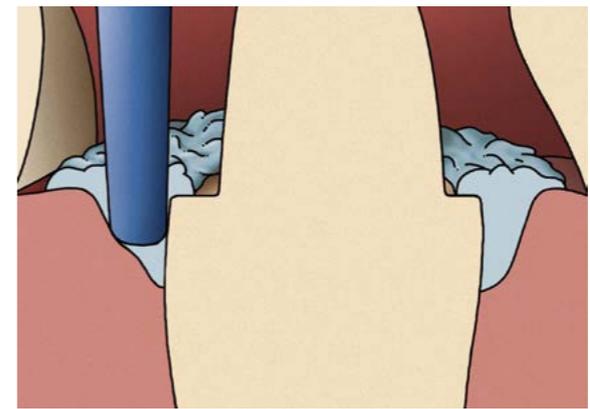
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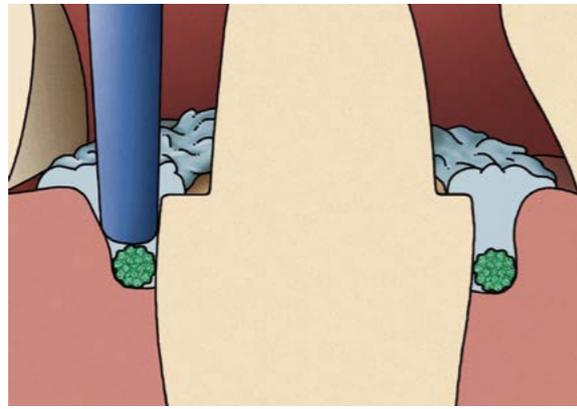
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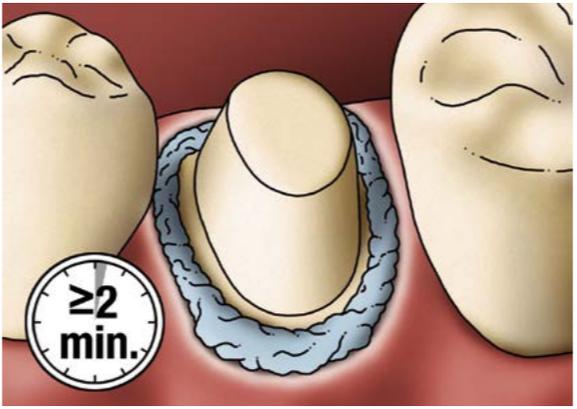
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Completely remove astringent retraction paste with air-water spray and suction.



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**Material Combinations per Technique  
Imprint™ 4 VPS Impression Material**

TRAY MATERIAL		RECOMMENDED WASH MATERIALS	
<b>1-STEP TECHNIQUE—PENTA™</b>			
<b>Imprint™ 4 Penta™ Heavy</b> Hydrophilic heavy body 		Imprint™ 4 Light	
		Imprint™ 4 Regular	
<b>Imprint™ 4 Penta™ Super Quick Heavy</b> Fast setting hydrophilic heavy body 		Imprint™ 4 Super Quick Light	
		Imprint™ 4 Super Quick Regular	
<b>Imprint™ 4 Penta™ Putty</b> Putty consistency 		Imprint™ 4 Regular	
<b>1-STEP TECHNIQUE—CARTRIDGE</b>			
<b>Imprint™ 4 Super Quick Heavy</b> Fast setting hydrophilic heavy body 		Imprint™ 4 Super Quick Light	
		Imprint™ 4 Super Quick Regular	
<b>Imprint™ 4 Heavy</b> Hydrophilic heavy body 		Imprint™ 4 Light	
		Imprint™ 4 Regular	
<b>2-STEP TECHNIQUE</b>			
<b>Imprint™ 4 Penta™ Putty</b> Putty consistency 		Imprint™ 4 Super Quick Light	
		Imprint™ 4 Light	

Customer Care Center: 1-800-634-2249 [www.3MESPE.com/Imprint4](http://www.3MESPE.com/Imprint4)



**3M ESPE Dental**  
2510 Conway Avenue  
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1-800-634-2249

**3M Canada**  
Post Office Box 5757  
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1-888-363-3685

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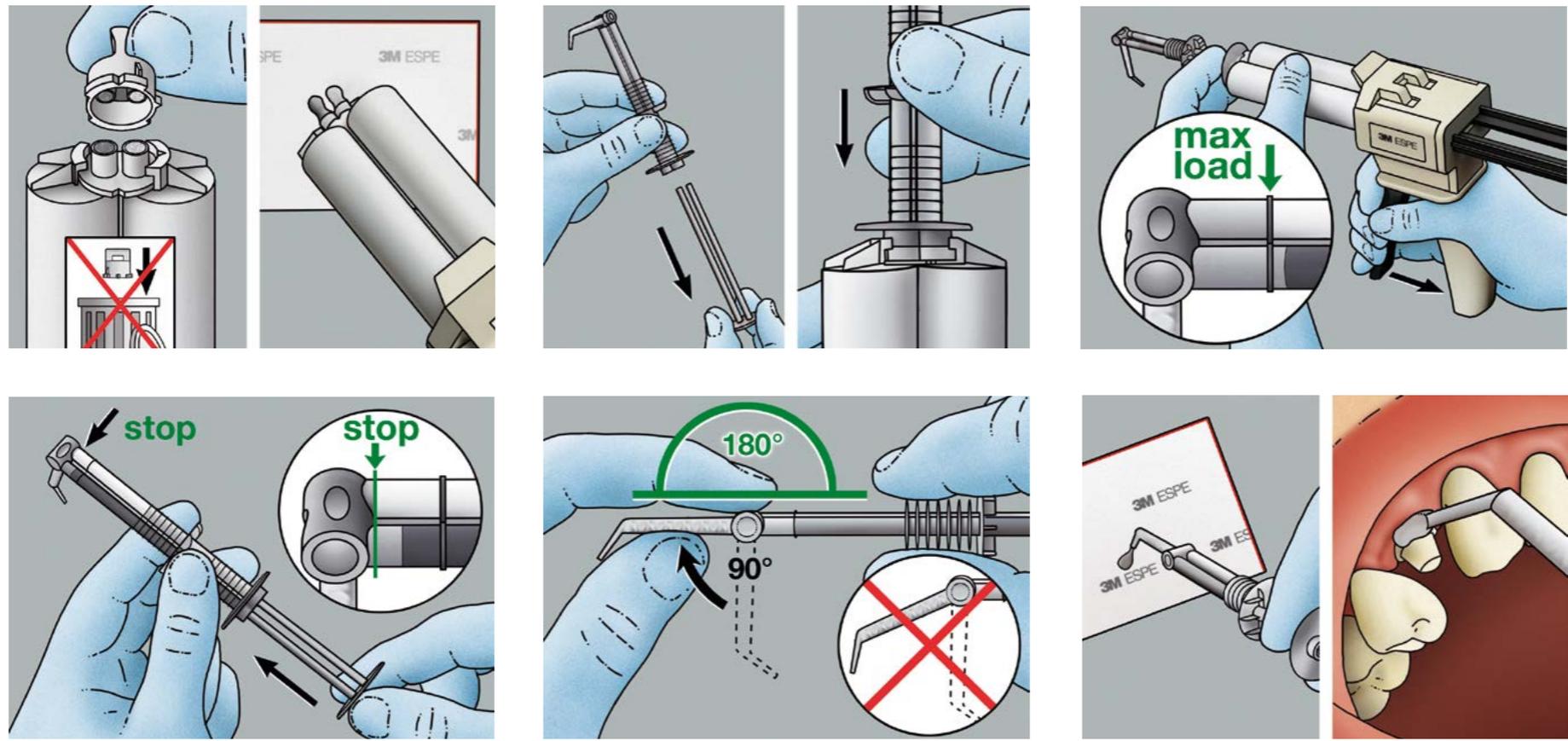
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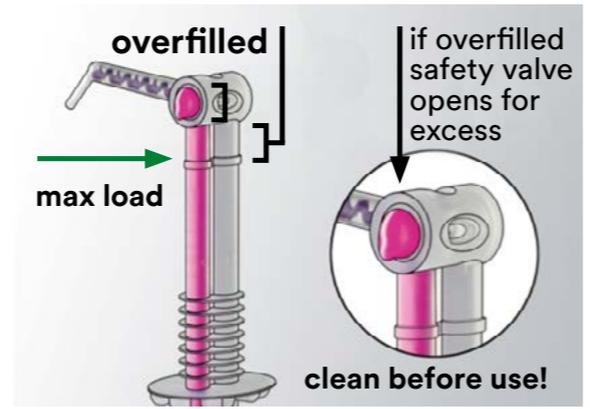
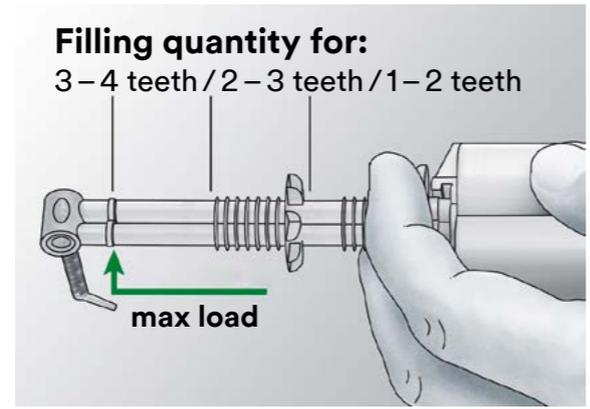
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# 3M™ ESPE™ Intra-oral Syringe Green/Purple



## Tips for success.





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**Material Combinations per Technique  
Imprint™ 4 VPS Impression Material**

TRAY MATERIAL		RECOMMENDED WASH MATERIALS	
<b>1-STEP TECHNIQUE—PENTA™</b>			
<b>Imprint™ 4 Penta™ Heavy</b> Hydrophilic heavy body		Imprint™ 4 Light	
		Imprint™ 4 Regular	
<b>Imprint™ 4 Penta™ Super Quick Heavy</b> Fast setting hydrophilic heavy body		Imprint™ 4 Super Quick Light	
		Imprint™ 4 Super Quick Regular	
<b>Imprint™ 4 Penta™ Putty</b> Putty consistency		Imprint™ 4 Regular	
<b>1-STEP TECHNIQUE—CARTRIDGE</b>			
<b>Imprint™ 4 Super Quick Heavy</b> Fast setting hydrophilic heavy body		Imprint™ 4 Super Quick Light	
		Imprint™ 4 Super Quick Regular	
<b>Imprint™ 4 Heavy</b> Hydrophilic heavy body		Imprint™ 4 Light	
		Imprint™ 4 Regular	
<b>2-STEP TECHNIQUE</b>			
<b>Imprint™ 4 Penta™ Putty</b> Putty consistency		Imprint™ 4 Super Quick Light	
		Imprint™ 4 Light	

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3M ESPE Dental

### Material Combinations per Technique Impregum™ Polyether Impression Material

TRAY MATERIAL		RECOMMENDED WASH MATERIAL	
<b>MONOPHASE TECHNIQUE – PENTA™</b>			
Impregum™ Penta™ Soft Medium Body			
Impregum™ Penta™ Medium Body			
Impregum™ Penta™ Soft Quick Step Medium Body			
<b>1-STEP TECHNIQUE – PENTA™</b>			
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	
<b>1-STEP TECHNIQUE – CARTRIDGE</b>			
Impregum™ Soft Medium Body (Tray)		Impregum™ Soft Light Body	
Impregum™ Soft Quick Step Medium Body (Tray)		Impregum™ Soft Quick Step Light Body	

Customer Care Center: 1-800-634-2249 [www.3MESPE.com](http://www.3MESPE.com)



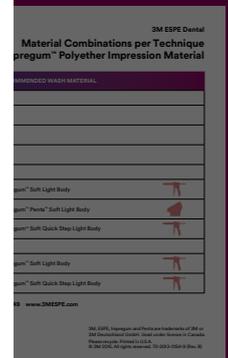
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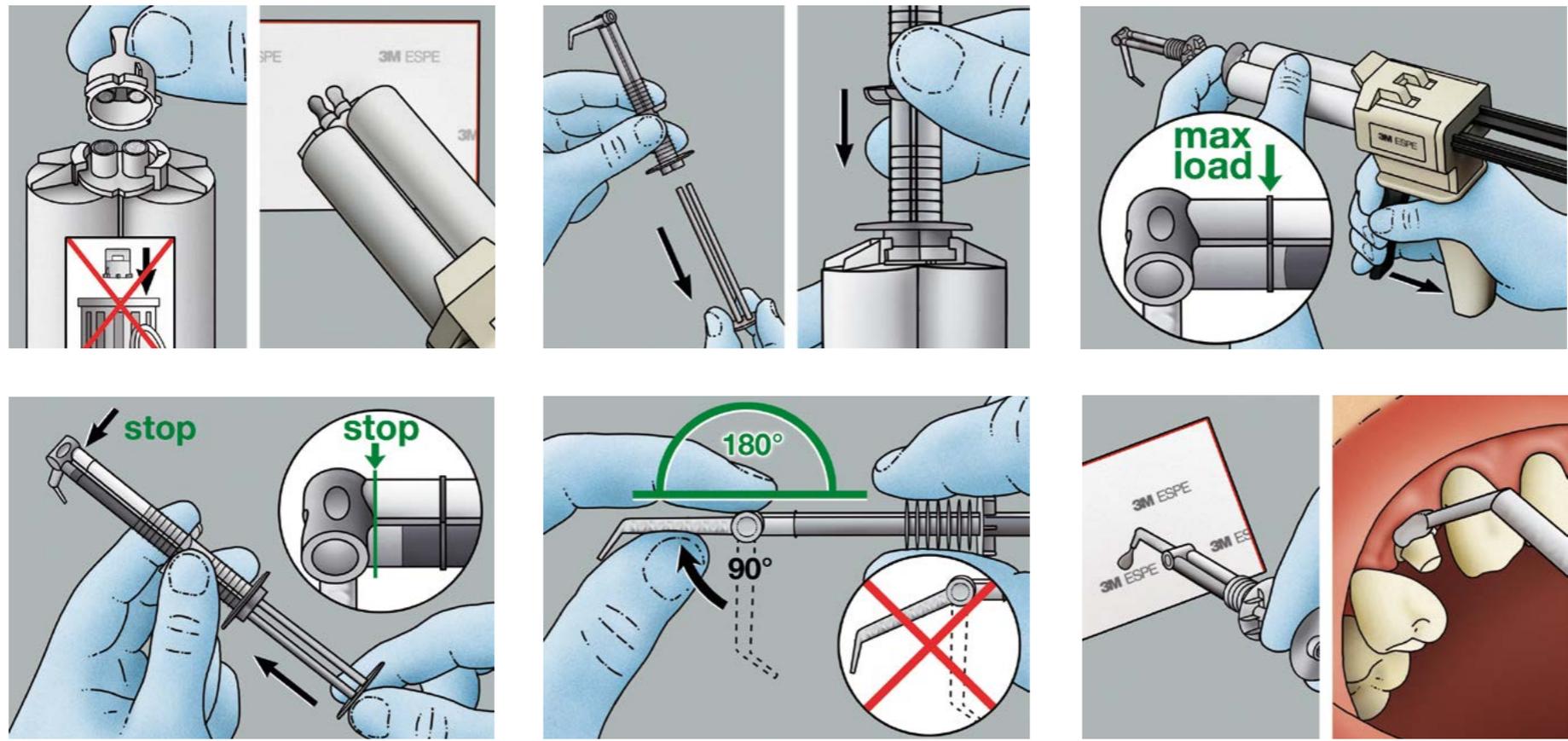
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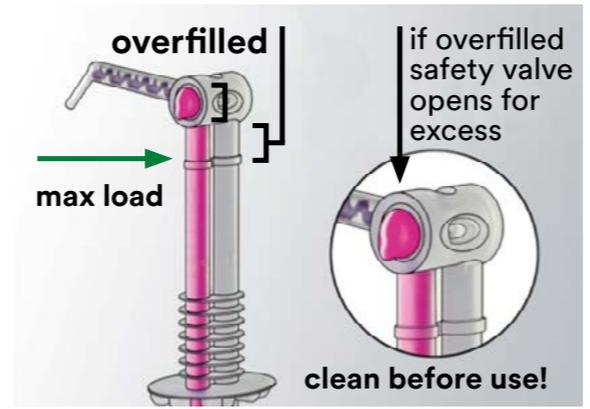
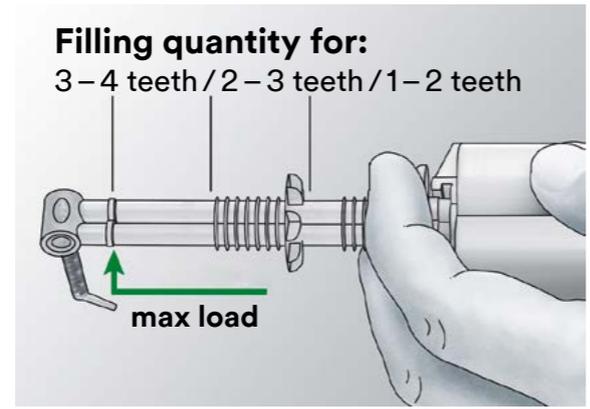
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# 3M™ ESPE™ Intra-oral Syringe Green/Purple

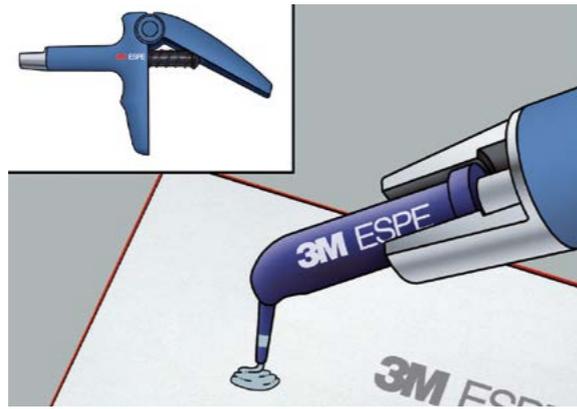


## Tips for success.

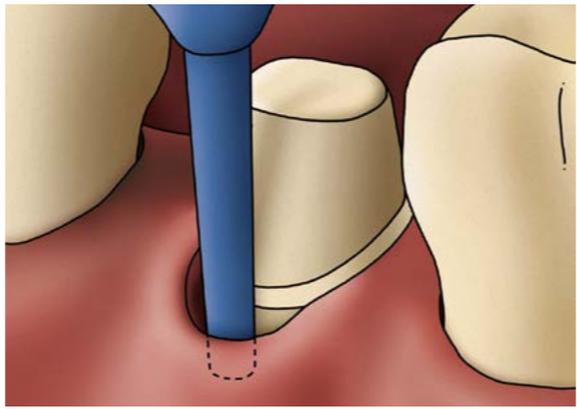




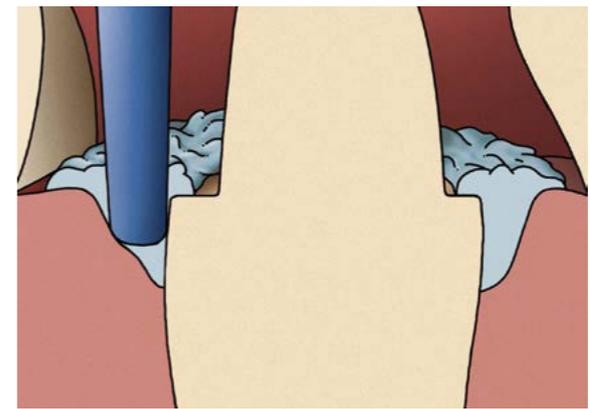
# 3M™ ESPE™ Retraction Capsule



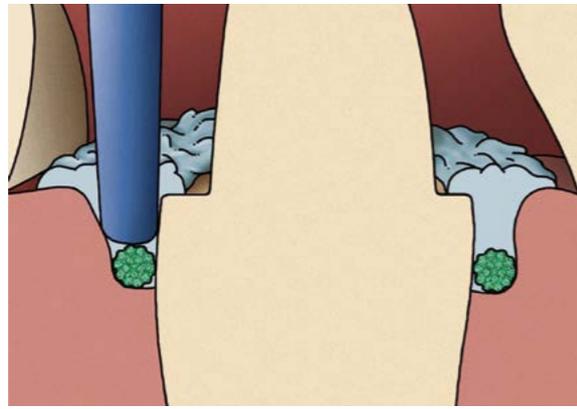
Remove a retraction capsule from the blister and insert into dispenser (fits into most composite dispensers). Extrude a small amount of paste and discard.



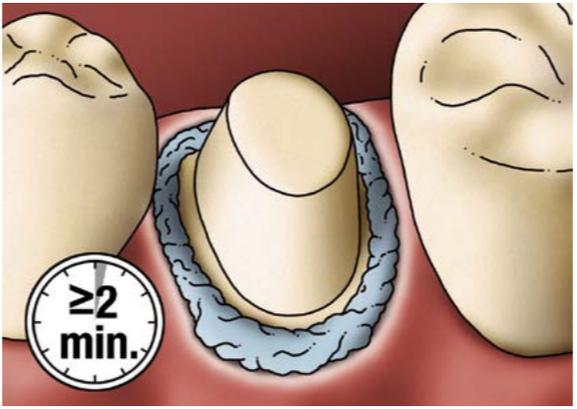
Insert retraction capsule tip into the sulcus.



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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**Portfolio Overview**  
**Imprint™ 4 VPS Impression Material**

PRODUCT	DISPENSING SYSTEM	VISCOSITY		SETTING VERSION	MAXIMUM WORKING TIME (23°C/73°F)	MAXIMUM INTRA-ORAL SYRINGING TIME (37°C/98°F)	INTRA-ORAL SETTING TIME (37°C/98°F)
		LOW	HIGH				
<b>TRAY MATERIALS</b>							
Imprint™ 4 Penta™ Putty		Putty	Regular Set	1:30	–	2:30	
Imprint™ 4 Penta™ Heavy Imprint™ 4 Heavy		Heavy Body	Regular Set	2:00	–	2:00	
Imprint™ 4 Penta™ Super Quick Heavy Imprint™ 4 Super Quick Heavy		Heavy Body	Fast Set	1:15	–	1:15	
<b>WASH MATERIALS</b>							
Imprint™ 4 Light			Regular Set	–	1:00	2:00	
Imprint™ 4 Super Quick Light			Fast Set	–	0:35	1:15	
Imprint™ 4 Regular			Regular Set	–	1:00	2:00	
Imprint™ 4 Super Quick Regular			Fast Set	–	0:35	1:15	

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3M ESPE Dental  
Portfolio Overview  
Imprint™ 4 VPS Polyether Impression Material

SETTING VERSION	WORKING TIME (23°C/73°F) MIN:SEC	TOTAL SETTING TIME MIN:SEC
Regular Set	2:30	6:00
Regular Set	2:45	6:00
Regular Set	2:45	6:00
Regular Set	1:45	6:00
Fast Set	1:00	4:00
Fast Set	1:00	4:00
Fast Set	1:00	4:00
Regular Set	3:15	6:30
Regular Set	2:00	5:30
Fast Set	1:00	4:00

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**Portfolio Overview**  
**Impregum™ Polyether Impression Material**

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

\*Working time includes mixing time.

\*\*includes working time.

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3M ESPE Dental  
Portfolio Overview  
Impregum™ Polyether Impression Material

SETTING VERSION	WORKING TIME* AT 23°C/74°F MIN:SEC	TOTAL SETTING TIME** MIN:SEC
Regular Set	2:30	6:00
Regular Set	2:45	6:00
Regular Set	2:45	6:00
Regular Set	1:45	6:00
Fast Set	1:00	4:00
Fast Set	1:00	4:00
Fast Set	1:00	4:00
Regular Set	3:15	6:30
Regular Set	2:00	5:30
Fast Set	1:00	4:00

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