

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.



Voids on the margin.



Tearing at the margin.



Margins complete but not sharp.



Distortions.



Facial-oral flow defects.



Show-through of tray.



Wash material displaced.



Impression material not completely set.



Poor bond between tray and wash material.



Poor bond of impression material to the tray.



Stone cast discrepancies.



Incomplete reproduction of preparation margins.



Causes

Insufficient retraction



Blood and saliva contamination around preparation



Working time exceeded, flowability already impaired



Inadequate coverage of marginal area with light body impression material:

- Wash material displaced/washed away from preparation margins when applying 1-step technique
- Initial impression not sufficiently carved when applying 2-step technique

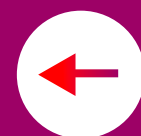


Impression material has low tear resistance



Incomplete reproduction of preparation margins.

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™ Astringent Retraction Paste supports your impression work with excellent gingiva retraction with or without cord and hemostasis.



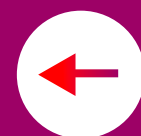
How to use 3M™ Astringent Retraction Paste

View full technique guide
for **3M™ Astringent Retraction Paste**



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™ Astringent Retraction Paste supports your impression work with excellent gingiva retraction with or without cord and hemostasis.

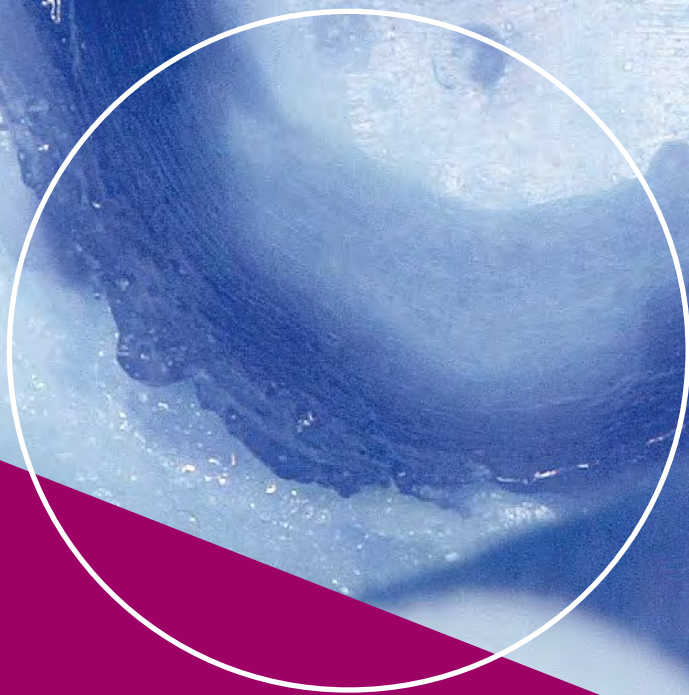


3M™ Astringent Retraction Paste:
How it works

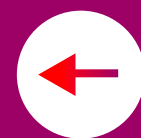
View full technique guide
for **3M™ Astringent Retraction Paste**



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 Oral Care 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.

3M™ 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.

3M™ 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.



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 **3M™ Imprint™ 4 VPS Impression Materials** and **3M™ 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	
1-STEP TECHNIQUE - PENTA™		
Imprint™ 4 Putty Heavy	Imprint™ 4 Light	+
Imprint™ 4 Putty Heavy	Imprint™ 4 Regular	+
Imprint™ 4 Putty Super Quick Heavy	Imprint™ 4 Quick Light	+
Imprint™ 4 Putty Super Quick Heavy	Imprint™ 4 Quick Regular	+
1-STEP TECHNIQUE - CARTRIDGE		
Imprint™ 4 Putty Putty	Imprint™ 4 Quick Light	+
Imprint™ 4 Putty Putty	Imprint™ 4 Quick Regular	+
Imprint™ 4 Super Quick Heavy	Imprint™ 4 Light	+
Imprint™ 4 Super Quick Heavy	Imprint™ 4 Regular	+
Imprint™ 4 Heavy	Imprint™ 4 Quick Light	+
Imprint™ 4 Heavy	Imprint™ 4 Quick Regular	+
2-STEP TECHNIQUE		
Imprint™ 4 Putty Putty	Imprint™ 4 Super Quick Light	+
Imprint™ 4 Putty Putty	Imprint™ 4 Light	+

3M Science. Applied to Life.™		3M ESPE Dental
		Material Combinations per Technique Impregum™ Polyether Impression Material
TRAY MATERIAL	RECOMMENDED WASH MATERIAL	
MONOPHASE TECHNIQUE - PENTA™		
Impregum™ Putty Heavy	Impregum™ Soft Medium Body	+
Impregum™ Putty Heavy	Impregum™ Soft Regular	+
Impregum™ Putty Heavy	Impregum™ Soft Quick Step Medium Body	+
1-STEP TECHNIQUE - PENTA™		
Impregum™ Putty Heavy	Impregum™ Soft Light Body	+
Impregum™ Putty Heavy	Impregum™ Soft Quick Step Light Body	+
Impregum™ Putty Heavy	Impregum™ Soft Quick Step Heavy Body	+
1-STEP TECHNIQUE - CARTRIDGE		
Impregum™ Soft Medium Body (Tray)	Impregum™ Soft Light Body	+
Impregum™ Soft Quick Step Medium Body (Tray)	Impregum™ Soft Quick Step Light Body	+

Incomplete reproduction of preparation margins.



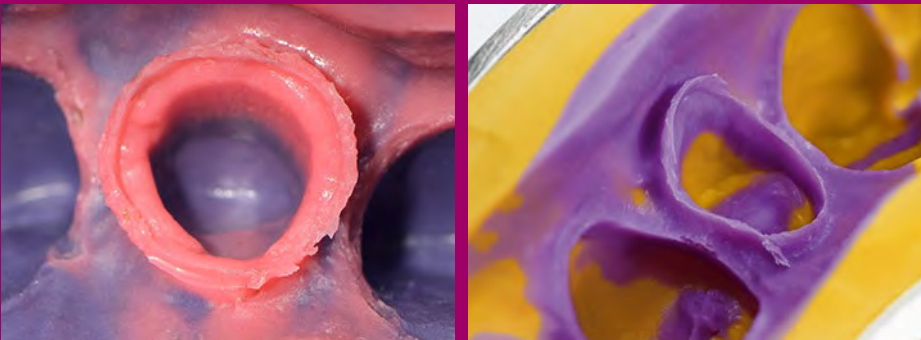
Solutions

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 Oral Care precision impression materials offer clinically proven tear resistance.



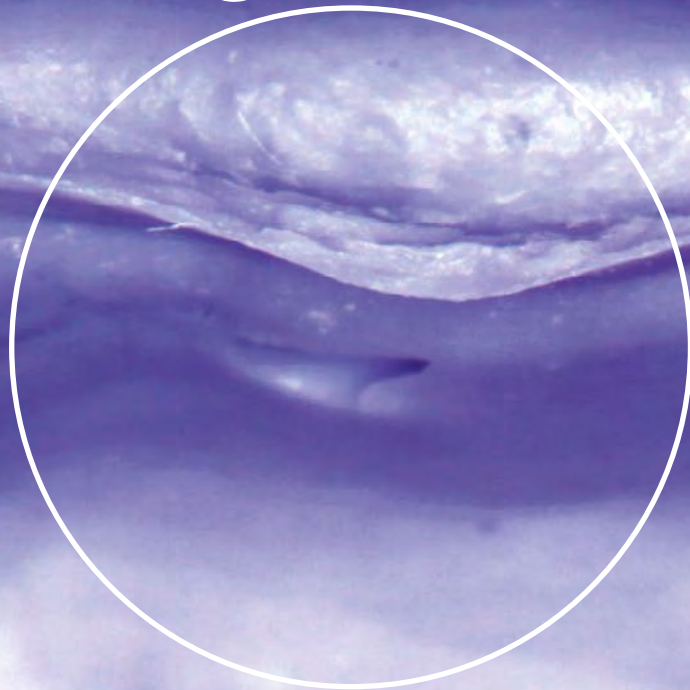
Highly detailed impressions made with 3M™ Impregum™ Polyether Impression Material (left) and 3M™ Imprint™ 4 VPS Impression Material (right).

View working and setting times of **3M™ Imprint™ 4 VPS Impression Materials** and **3M™ 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 (20°C/68°F)	MAXIMUM SETTING TIME (20°C/68°F)	MAXIMUM SETTING TIME (37°C/98°F)	MAXIMUM SETTING TIME (50°C/122°F)	MAXIMUM SETTING TIME (60°C/140°F)	MAXIMUM SETTING TIME (70°C/158°F)
TRAY MATERIALS									
Imprint™ 4 Plus™ Putty				120	-	-	-	-	220
Imprint™ 4 Plus™ Heavy				120	-	-	-	-	200
Imprint™ 4 Plus™ Super Quick Heavy				120	-	-	-	-	115
WAX MATERIALS									
Imprint™ 4 Light			Fast Set	-	100	-	-	-	200
Imprint™ 4 Super Quick Light			Fast Set	-	035	-	-	-	115
Imprint™ 4 Regular			Regular Set	-	100	-	-	-	200
Imprint™ 4 Super Quick Regular			Fast Set	-	035	-	-	-	115

3M Science. Applied to Life.™ 3M ESPE Dental Portfolio Overview Impregum™ Polyether Impression Material									
PRODUCT	DISPENSING SYSTEM	VISCOSITY	SETTING VERSION	WORKING TIME AT 20°C/68°F (MIN/SEC)	TOTAL SETTING TIME AT 20°C/68°F (MIN/SEC)	WORKING TIME AT 37°C/98°F (MIN/SEC)	TOTAL SETTING TIME AT 37°C/98°F (MIN/SEC)	WORKING TIME AT 50°C/122°F (MIN/SEC)	TOTAL SETTING TIME AT 50°C/122°F (MIN/SEC)
TRAY AND MONOPHASE MATERIALS									
Impregum™ Polyether™ Soft Heavy Body			Regular Set	2:30	6:00	-	-	-	-
Impregum™ Polyether™ Soft Medium Body			Regular Set	2:45	6:00	-	-	-	-
Impregum™ Polyether™ Soft Light Body			Regular Set	2:45	6:00	-	-	-	-
Impregum™ Polyether™ Soft Quick Step Heavy Body			Fast Set	1:45	6:00	-	-	-	-
Impregum™ Polyether™ Soft Quick Step Medium Body			Fast Set	1:00	4:00	-	-	-	-
Impregum™ Polyether™ Soft Quick Step Light Body			Fast Set	1:00	4:00	-	-	-	-
WAX MATERIALS									
Impregum™ Polyether™ Light Body			Regular Set	3:15	6:30	-	-	-	-
Impregum™ Polyether™ Regular Body			Regular Set	2:00	5:30	-	-	-	-
Impregum™ Polyether™ Soft Quick Step 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



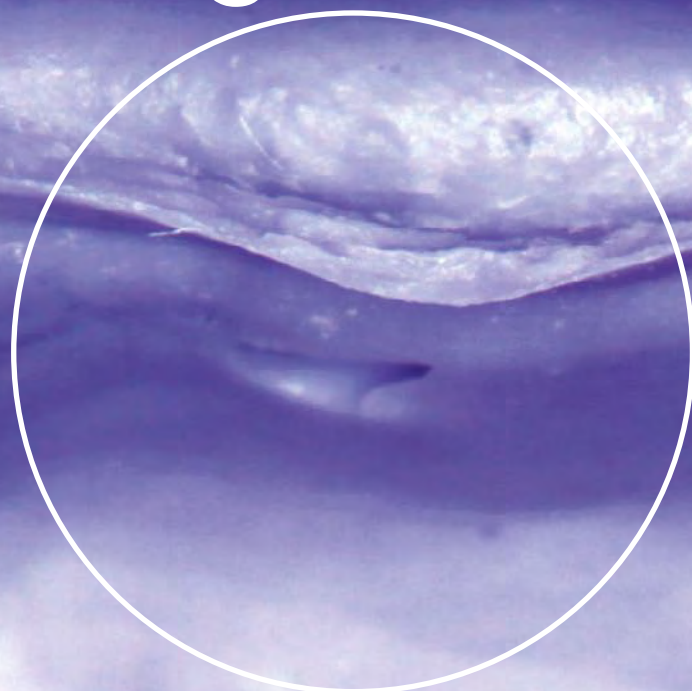
Tray not seated properly



Storage at elevated temperature



Voids on the margin.



Solutions



Blood and saliva contamination around preparation

What to do.

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



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

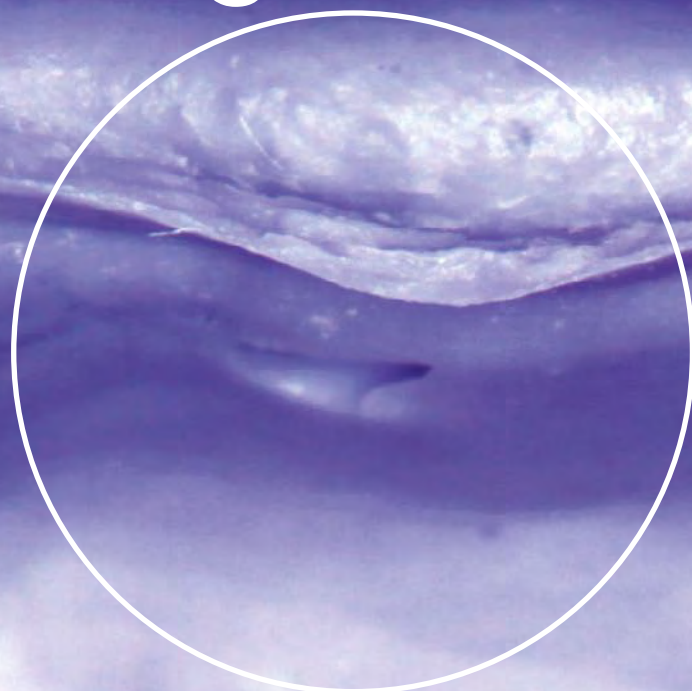


3M™ Astringent Retraction Paste:
How it works

View full technique guide for
3M™ Astringent Retraction Paste



Voids on the margin.



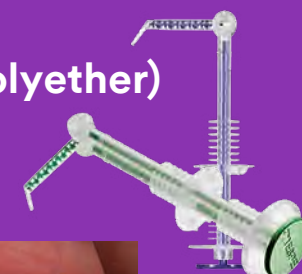
Solutions

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

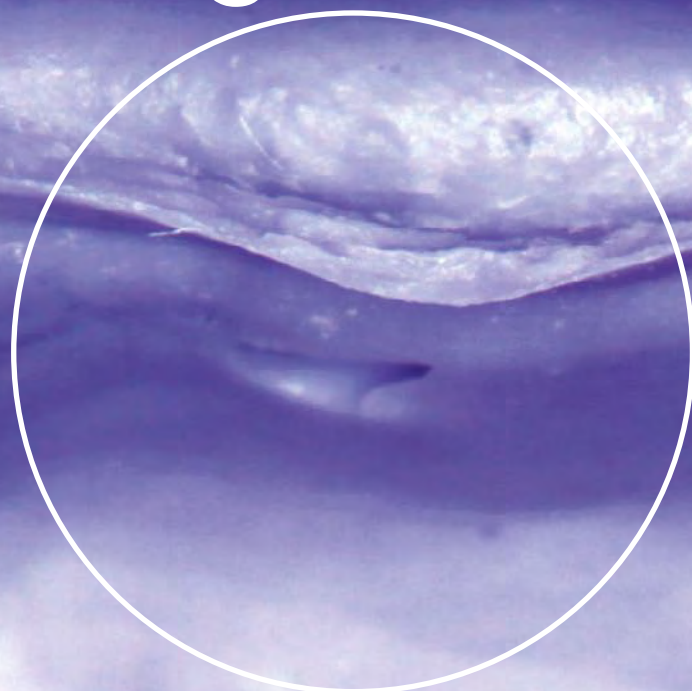


Tips for syringing

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



Voids on the margin.



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 Oral Care 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.

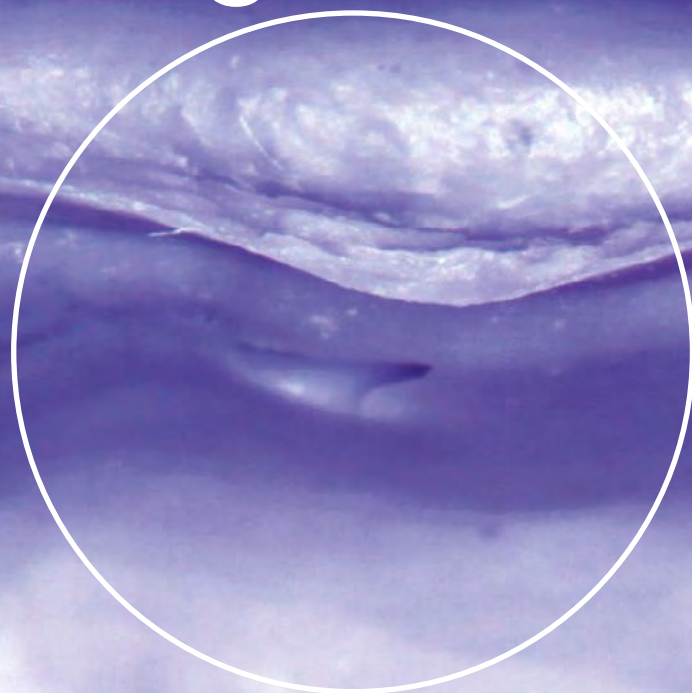


3M™ Impregum™ Soft Polyether Impression Material offers a very long working time with constant flow. And, polyether impression material is less temperature sensitive in its setting reaction than VPS materials.

3M™ 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.

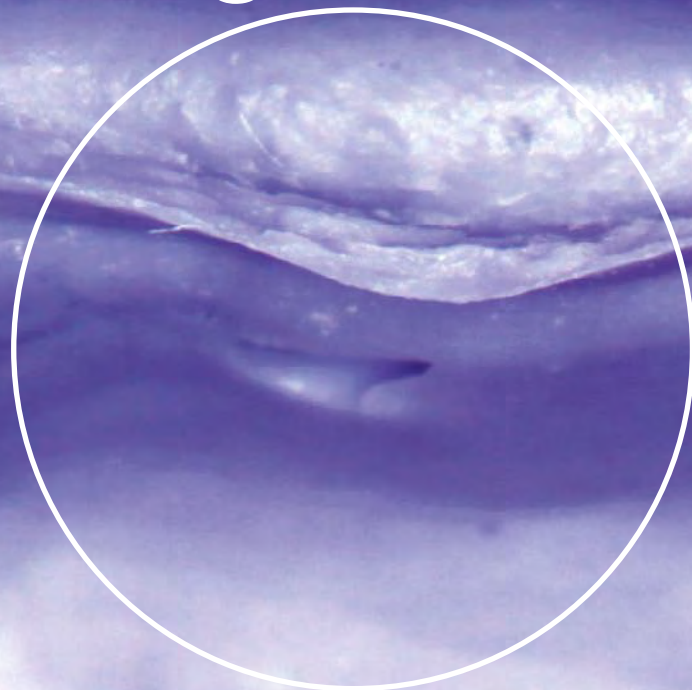


How to load 3M™ Intra-Oral Syringe Green/Purple

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



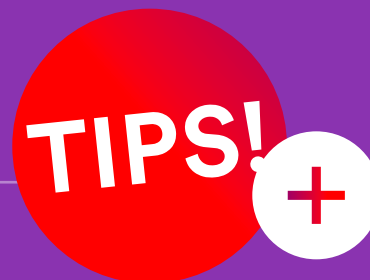
Voids on the margin.



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.

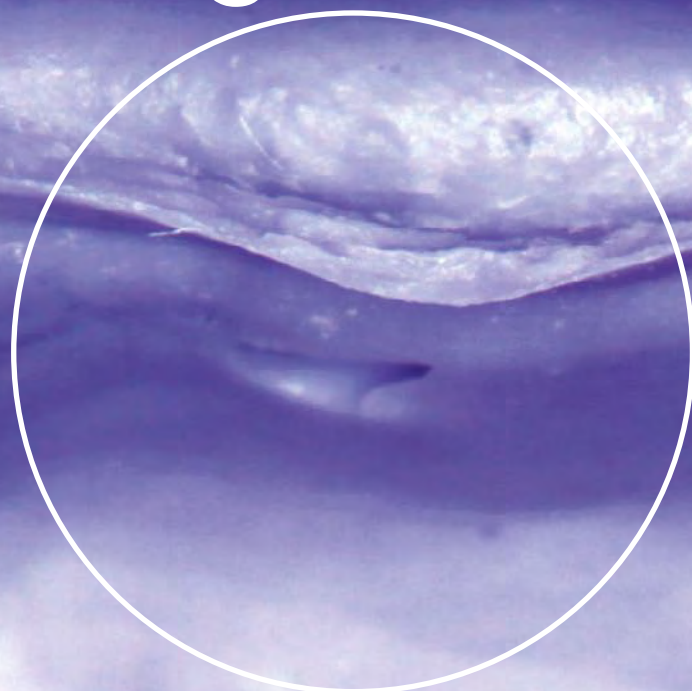
Maxillary arch: Seat the impression straight up. Make sure the handle is aligned with the patient's midline. Always hold the impression tray in the premolar area for stability.



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.



Voids on the margin.



Solutions



Tray not seated properly

TIPS!



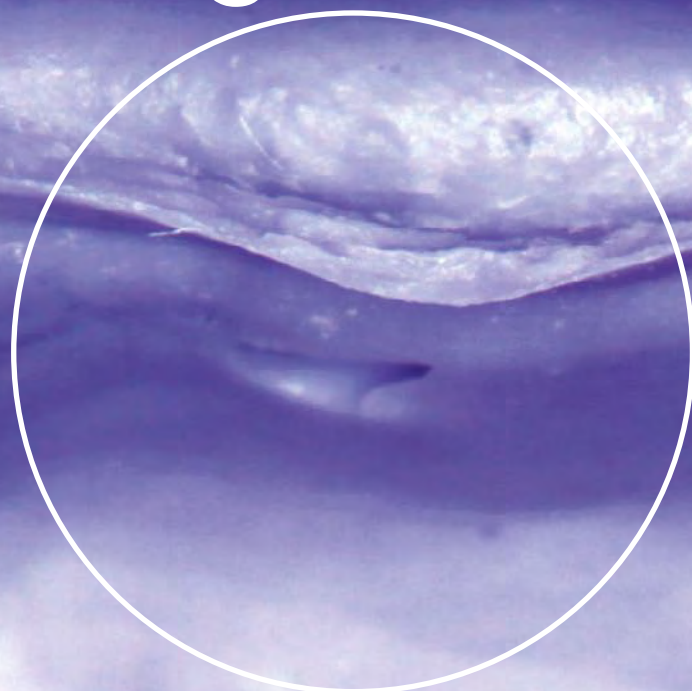
W When the tray is in place, apply passive pressure while holding the impression tray in place. Never ask the patient to hold the tray. Never ask the patient to bite down on the tray. Make sure the tray is aligned with the patient's midline. Always hold the impression tray in the premolar area for stability.



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



Voids on the margin.



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, **3M™ Impregum™ Soft Polyether Impression Material** is less affected by fluctuations in storage temperature than VPS materials.



Causes

Insufficient retraction



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



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



Inadequately mixed materials



Premature removal of the impression



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



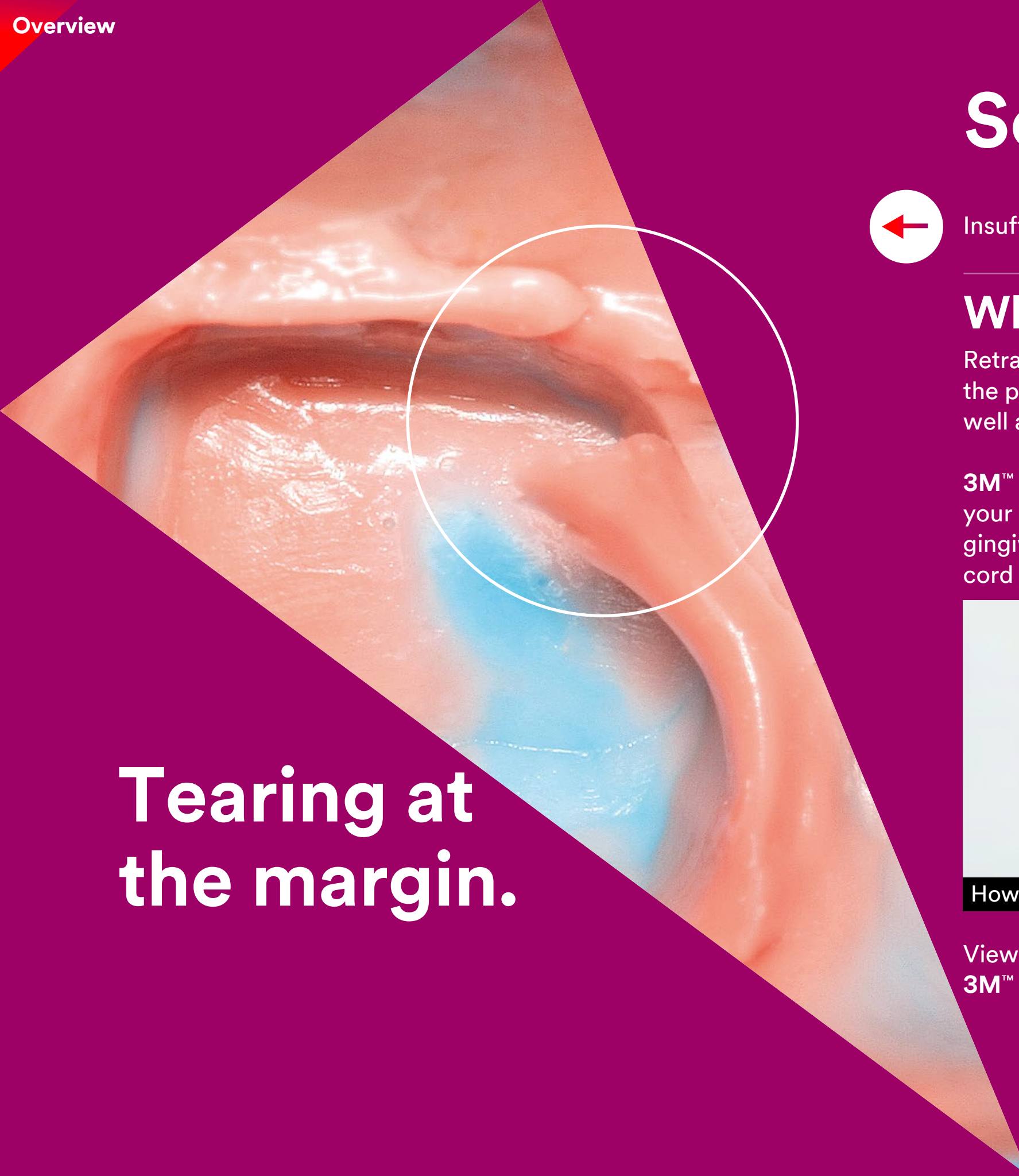
Impression material has low tear resistance



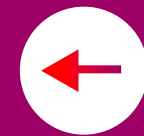
Expired impression material



Tearing at the margin.



Solutions



Insufficient retraction

What to do.

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

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



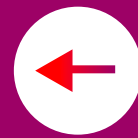
How to use 3M™ Astringent Retraction Paste

View full technique guide for
3M™ Astringent Retraction Paste



**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™ Astringent Retraction Paste



**Tearing at
the margin.**



Tearing at the margin.

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.

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™ Intra-oral Syringe Green/Purple



Tearing at
the margin.



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.

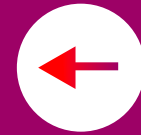
View working and setting times of **3M™ Imprint™ 4 VPS Impression Materials** and **3M™ Impregum™ Polyether Impression Materials**:

3M Science. Applied to Life.™ 3M ESPE Dental Portfolio Overview Imprint™ 4 VPS Impression Material									
PRODUCT	DISPENSING SYSTEM	VISCOSITY	SETTING VERSION	MAXIMUM WORKING TIME (MIN)	MAXIMUM SETTING TIME (MIN)	MAXIMUM SETTING TIME (MIN)	MAXIMUM SETTING TIME (MIN)	MAXIMUM SETTING TIME (MIN)	MAXIMUM SETTING TIME (MIN)
TRAY MATERIALS									
Imprint™ 4 Paste™ Putty			Regular Set	130	230				
Imprint™ 4 Paste™ Heavy Impression Putty			Regular Set	130	230				
Imprint™ 4 Paste™ Super Quick Heavy Impression Putty			Fast Set	115					
WAX MATERIALS									
Imprint™ 4 Light			Regular Set	100	200				
Imprint™ 4 Super Quick Light			Fast Set	100	115				
Imprint™ 4 Regular			Regular Set	100	200				
Imprint™ 4 Super Quick Regular			Fast Set	100	115				

3M Science. Applied to Life.™ 3M ESPE Dental Portfolio Overview Impregum™ Polyether Impression Material									
PRODUCT	DISPENSING SYSTEM	VISCOSITY	SETTING VERSION	WORKING TIME (MIN)	SETTING TIME (MIN)	SETTING TIME (MIN)	SETTING TIME (MIN)	SETTING TIME (MIN)	SETTING TIME (MIN)
TRAY AND MONOPHASE MATERIALS									
Impregum™ Fast™ Soft Heavy Body			Regular Set	2:30	6:00				
Impregum™ Fast™ Soft Medium Body			Regular Set	2:45	6:00				
Impregum™ Fast™ Soft Light Body			Regular Set	2:45	6:00				
Impregum™ Fast™ Soft Quick Heavy Body			Fast Set	1:45	6:00				
Impregum™ Fast™ Soft Quick Medium Body			Fast Set	1:00	4:00				
Impregum™ Fast™ Soft Quick Light Body			Fast Set	1:00	4:00				
WAX MATERIALS									
Impregum™ Fast™ Soft Light Body			Regular Set	3:15	6:30				
Impregum™ Fast™ Soft Quick Heavy Body			Regular Set	2:00	5:30				
Impregum™ Fast™ Soft Quick Medium Body			Fast Set	1:00	4:00				



Solutions



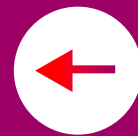
Inhibition of setting of VPS impression materials due to contact with sulfur from latex gloves

What to do.

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

**Tearing at
the margin.**

Solutions

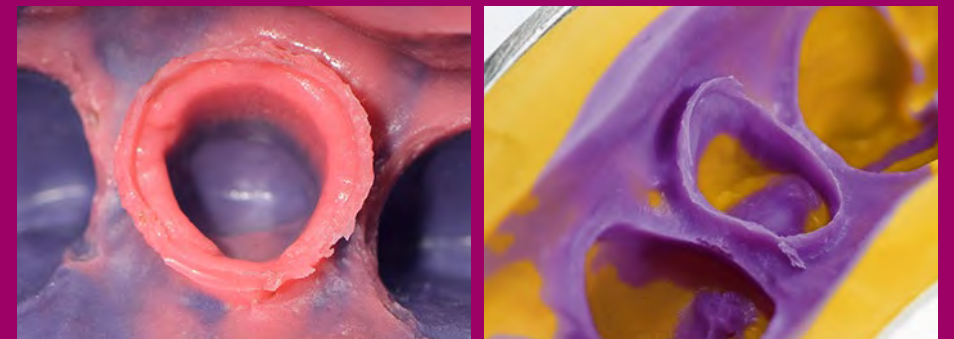


Impression material has low tear resistance

What to do.

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

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

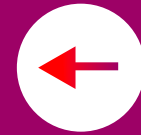


Highly detailed impressions made with 3M™ Impregum™ Polyether Impression Material (left) and 3M™ Imprint™ 4 VPS Impression Material (right).

Tearing at the margin.



Solutions



Expired impression material

What to do.

Do not use expired impression material.

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

**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

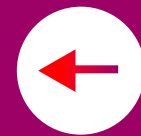


Inadequate disinfection



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.

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3M™ Astringent Retraction Paste: How it works

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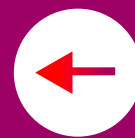
How to use 3M™ Astringent Retraction Paste

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3M™ Astringent Retraction Paste



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.

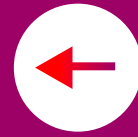


View full technique guide for
3M™ Astringent Retraction Paste



**Margins
complete
but not sharp.**

Solutions



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

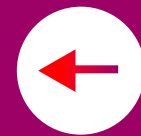
What to do.

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

A close-up photograph of a dental impression taken in a green VPS material. The impression shows a tooth with a prepared margin. A white circle is drawn around the margin area, highlighting that the margins are complete but not sharp. The background is a solid magenta color.

**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 Oral Care 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.

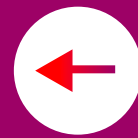
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**Margins
complete
but not sharp.**



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 taken in a green plastic tray. The impression shows a central area and two side areas. A white circle is drawn around the central area, highlighting the margins. The margins appear complete but not sharp.

**Margins
complete
but not sharp.**

Solutions



Incorrect storage conditions of the final impression

What to do.

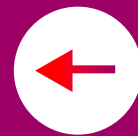
After disinfection *rinse impressions with water and dry before sending it to the lab.*



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.

**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



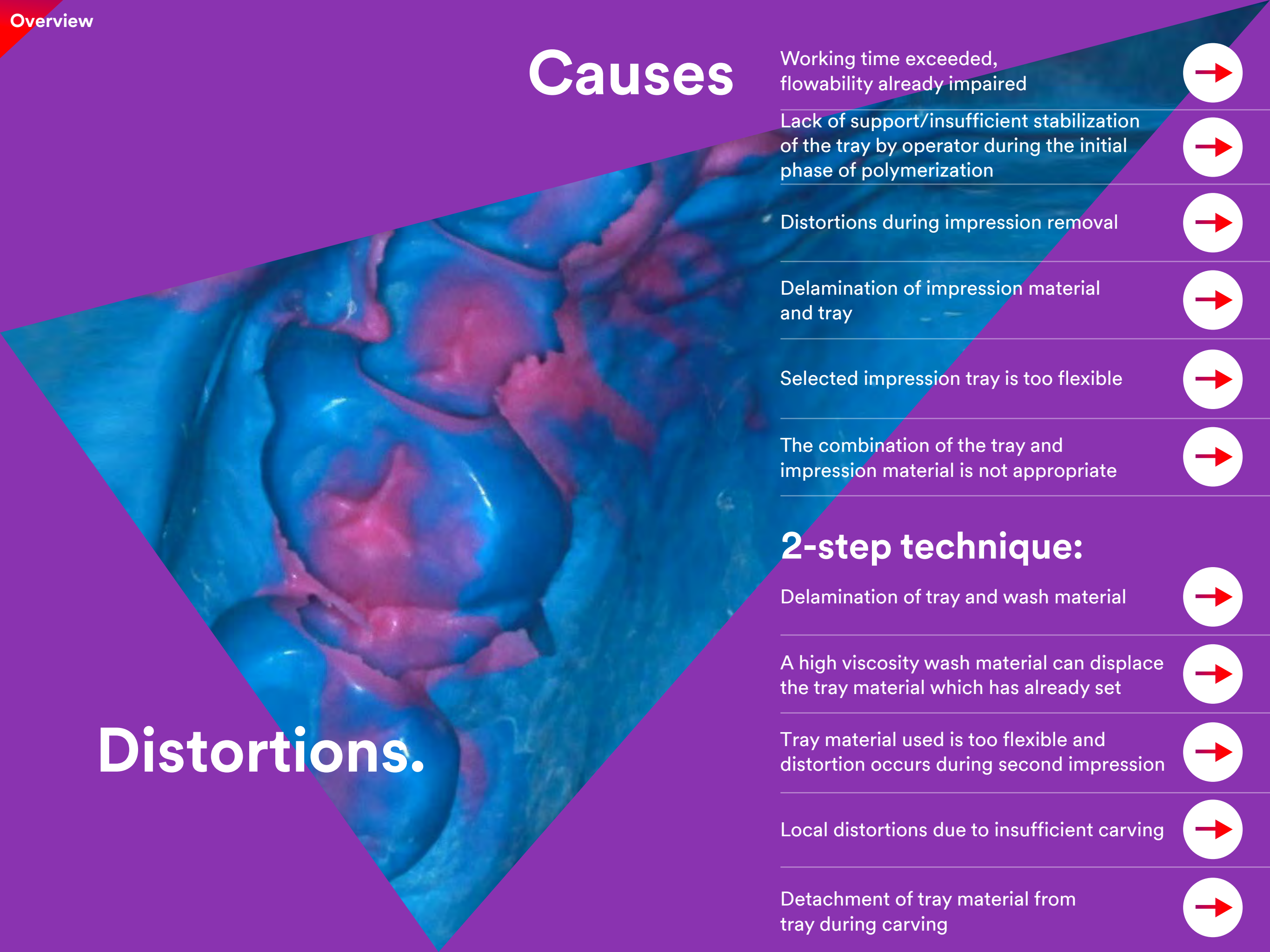
Local distortions due to insufficient carving



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 Oral Care 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.

3M™ 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.

3M™ 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 Oral Care's 3M™ 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*.

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™ 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 **3M™ Impregum™ Polyether Impression Material** and **3M™ 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)

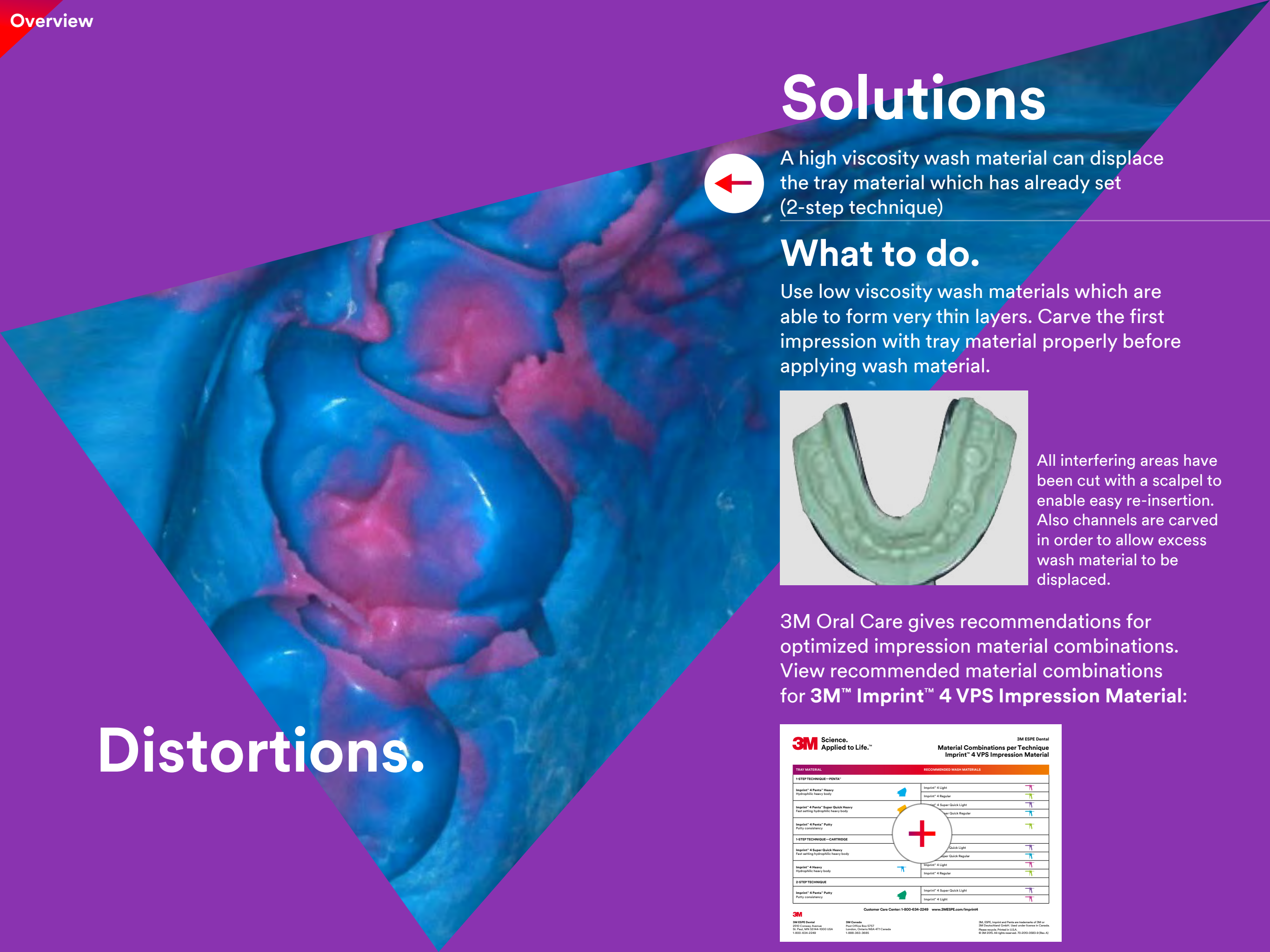
What to do.

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.

Distortions.

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

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Material Combinations per Technique Imprint™ 4 VPS Impression Material

TRAY MATERIAL	RECOMMENDED WASH MATERIALS
1-STEP TECHNIQUE—PENTA™	
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 Light Imprint™ 4 Regular
1-STEP TECHNIQUE—CARTRIDGE	
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
2-STEP TECHNIQUE	
Imprint™ 4 Penta™ Putty Putty consistency	Imprint™ 4 Super Quick Light Imprint™ 4 Light

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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. **3M™ 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.

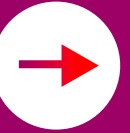
Apply adhesive on bottom and on inner sides of the tray. Use a sharp carving instrument to minimize stress at the interface of tray material and tray. Otherwise, tray material could detach from the tray unnoticed and causes deformation.

Distortions.

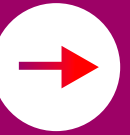
Facial-oral flow defects.

Causes

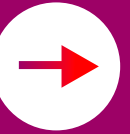
Working time exceeded,
flowability already impaired



Impression tray does not support
the flow of impression material



Insufficient amount of
impression material used



Too fast tray insertion



Tray repositioning after seating



Facial-oral flow defects.

Solutions



Working time exceeded,
flowability already impaired

What to do.

Select material with sufficient working time (i.e. regular set instead of fast set). Make a choice depending on the individual situation and preference of material. Do not exceed working times given in the instructions for use. In case of 3M Oral Care 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.

3M™ 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.

3M™ 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.



Facial-oral flow defects.

Solutions



Impression tray does not support the flow of impression material

What to do.

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

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



Facial-oral flow defects.

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 3M™ Pentamix™ Lite Automatic Mixing Unit

Facial-oral flow defects.

Solutions



Too fast tray insertion

What to do.

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

Facial-oral flow defects.

Solutions



Tray repositioning after seating

What to do.



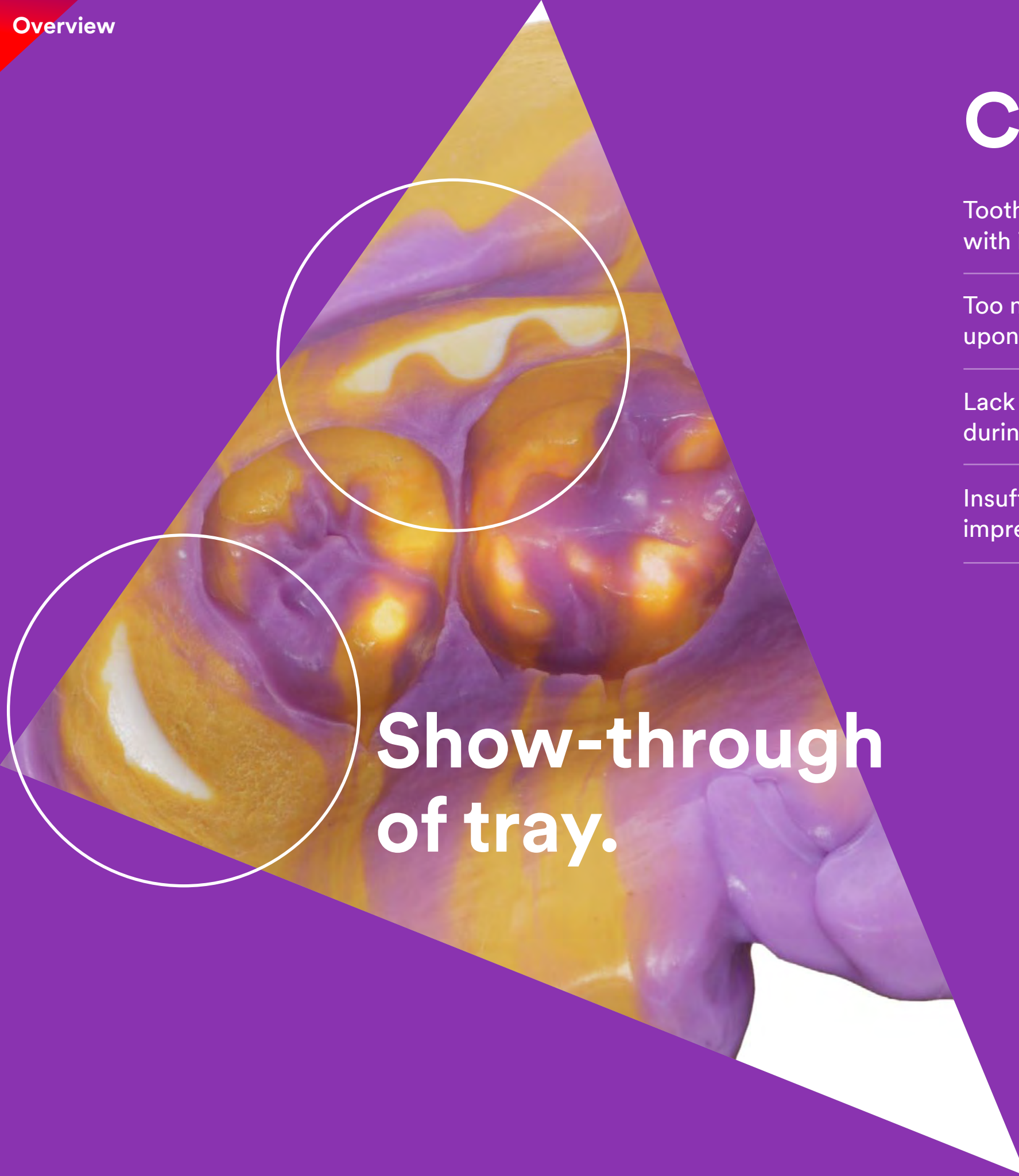
*Stabilize the tray after seating, avoid any movements. When taking an impression of the *upper jaw*, you can easily find support on the chin or cheek bone of the patient.*



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

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

3M Oral Care's 3M™ 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



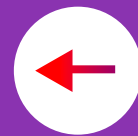
Insufficient amount of
impression material used





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.

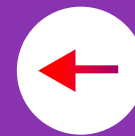
Use **3M™ Impression Trays** that support the flow of the impression material. Their directed flow design minimizes flow defects and distal voids to improve impression accuracy.





**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.



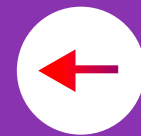
Mandibular impression:
Always line up tray handle to the patient's midline. Hold tray with thumbs and take fingers

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.

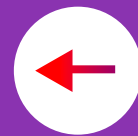
Patients should close their mouth as much as possible without biting down on the tray to avoid deformation of the mandibula and, thus, errors in the impression. Do not try to correct the position of the tray after insertion.

3M Oral Care's 3M™ Imprint™ 4 VPS Impression Material has the fastest intra-oral setting time which means less time for unintended movements.



**Show-through
of tray.**

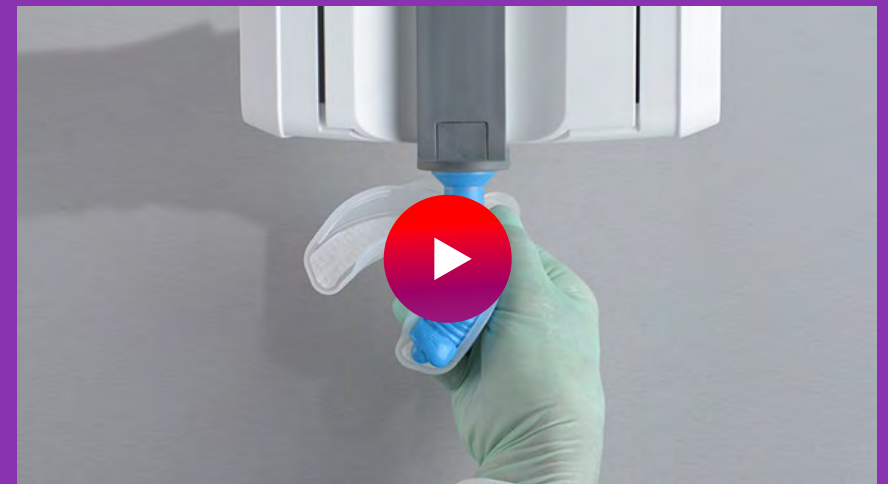
Solutions



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 3M™ 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.



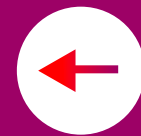
View full technique guide for
3M™ Intra-oral Syringe Green/Purple



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 Oral Care 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.

3M™ 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.

3M™ 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.

Wash material displaced.





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



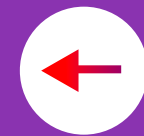
Expired impression material



Impression material not completely set.



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

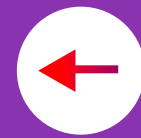
View full technique guide for
3M™ Intra-oral Syringe Green/Purple



Impression material not completely set.



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.



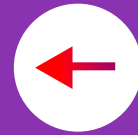
Rinse and dry preparation

View full technique guide for
3M™ Astringent Retraction Paste



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.

A close-up photograph of a green VPS impression material in a mold. A white circle highlights a specific area on the material's surface. The material appears slightly irregular or not fully set in that area.

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.



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.

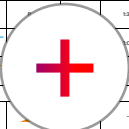
View working and setting times of **3M™ Imprint™ 4 VPS Impression Materials** and **3M™ Impregum™ Polyether Impression Materials**:




















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Portfolio Overview
Imprint™ 4 VPS Impression Material

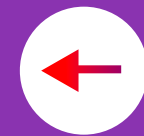
PRODUCT	DISPENSING SYSTEM	VISCOSITY	SETTING VERSION	MAXIMUM WORKING TIME (23°C/74°F)	MAXIMUM EXTRA-ORAL SETTING TIME (23°C/74°F)	INTRA-ORAL SETTING TIME (23°C/74°F)	
		LOW 	HIGH 				
TRAY MATERIALS							
Imprint™ 4 Paste® Putty				120	–		2:30
Imprint™ 4 Paste® Heavy				120	–		2:00
Imprint™ 4 Paste® Super Quick Heavy							1:15
WAX MATERIALS							
Imprint™ 4 Light				–	100		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* AT 23°C/74°F MIN:SEC	TOTAL SETTING TIME** MIN:SEC		
TRAY AND MONOPHASE MATERIALS							
Impregum® Fast® Soft Heavy Body			Regular Set	2:30	6:00		
Impregum® Fast® Soft Medium Body			Regular Set	2:45	6:00		
Impregum® Fast® Soft Light Body			Regular Set	2:45	6:00		
Impregum® Fast® Super Quick Heavy Body			Fast Set	1:45	6:00		
Impregum® Fast® Super Quick Medium Body			Fast Set	1:00	4:00		
Impregum® Fast® Super Quick Light Body			Fast Set	1:00	4:00		
WAX MATERIALS							
Impregum® Fast® Light Body			Regular Set	3:15	6:30		
Impregum® Fast® Super Quick Light Body			Regular Set	2:00	5:30		
Impregum® Fast® Super Quick Super Light Body			Fast Set	1:00	4:00		



Solutions



Impression material stored at elevated or too low temperature

What to do.

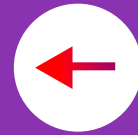
Store impression material at room temperature. Usually, times given in the manufacturers' instructions for use are valid for a storage temperature of 23 °C/74 °F. Working times are reduced due to higher temperatures of the product, while intra-oral setting times might be longer if the temperature of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

Due to its lower temperature sensitivity, **3M™ 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 Oral Care 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.

3M™ 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.

3M™ 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.**

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)

A close-up photograph of a dental tray containing a thick, translucent, light blue impression material. The material is being pressed into the tray, which has a metallic rim. The background is a solid purple color.

**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™ 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.



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 metallic and curved. Inside the tray, there is a thick, translucent, light blue impression material. The material appears to be poorly bonded to the tray, with some areas showing separation and a rough, uneven surface. 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 containing a blue, viscous material. The material is being pulled away from the tray, illustrating a 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.

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

A photograph of a white stone cast of a dental arch. The cast is covered in numerous small, dark, circular pits, which are more densely packed in some areas. A white circular magnifying glass is positioned over a section of the cast, highlighting the texture of these pits. The background is a solid magenta color.

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.

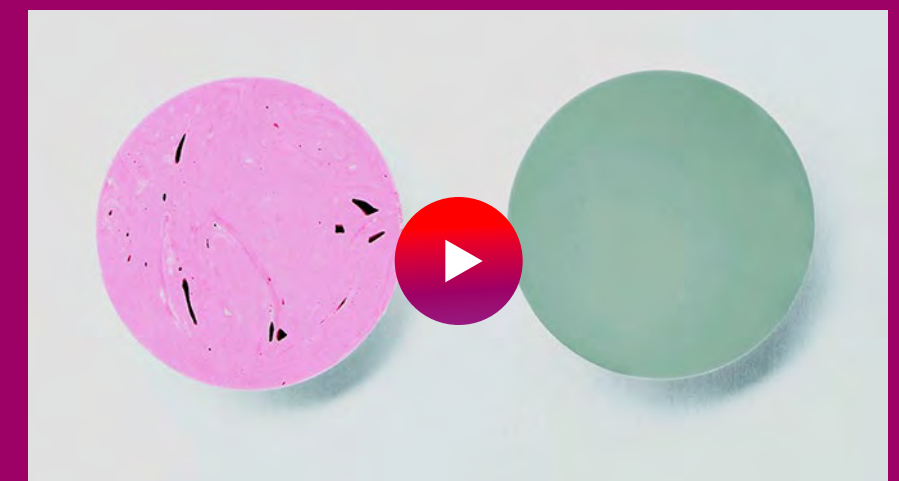
Automatic mixing of impression materials with the **3M™ Pentamix™ Lite** or **3M™ Pentamix™ 3 Mixing Unit** guarantees homogeneous and void-free mixing results.



3M™ Pentamix™ 3
Automatic Mixing Unit



3M™ Pentamix™ Lite
Automatic Mixing Unit



Automatic mixing of impression materials
with 3M™ 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.



**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™ Impression Tray. Due to its integrated self-retentive fleece strip a tray adhesive is not needed.
-  **04. Assure a uniform and homogeneous mix**
of the impression material. Fill the tray sufficiently with the impression material. With all 3M™ Penta™ materials and materials in 3M™ Garant™ cartridges from 3M Oral Care, 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**
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-  **10. Disinfect impression properly**
and according to the manufacturer's instructions for use. Rinse impression with water before and after disinfection and dry before sending it to the lab.

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Customer Care Center: 1-800-634-2249 [3M.com/GreatImpressions](https://www.3M.com/GreatImpressions)



3M Oral Care
2510 Conway Avenue
St. Paul, MN 55144-1000 USA
1-800-634-2249

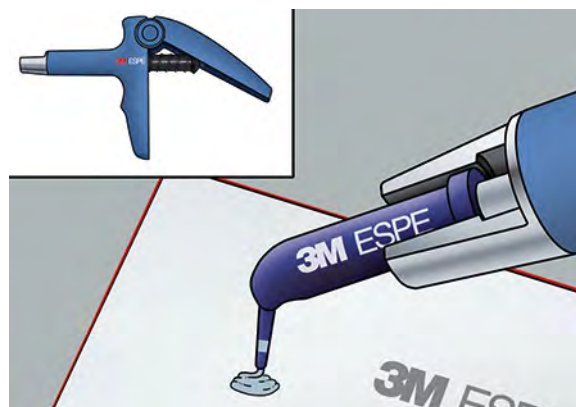
3M Canada
Post Office Box 5757
London, Ontario N6A 4T1 Canada
1-888-363-3685

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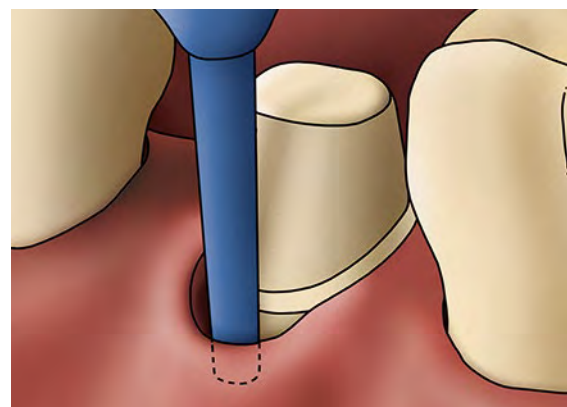
Appendix



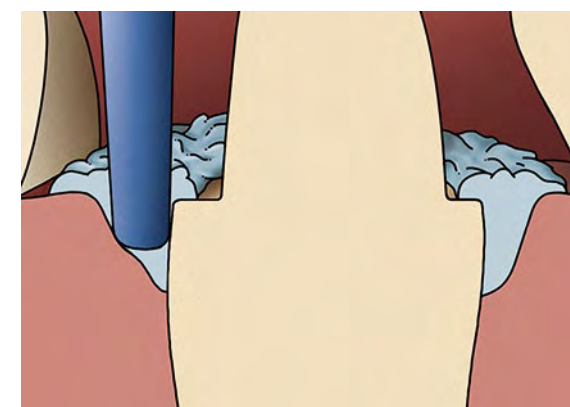
3M™ Astringent Retraction Paste



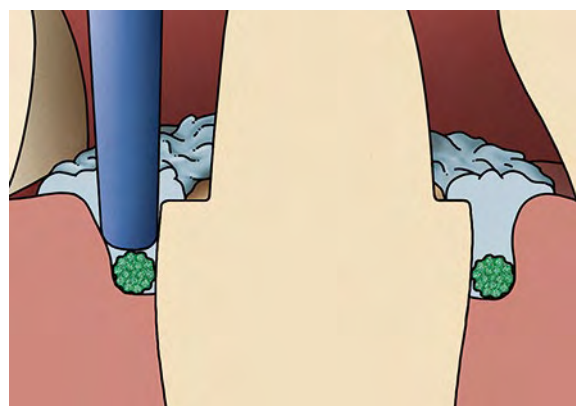
Remove a retraction capsule from the blister and insert into dispenser (fits into most composite dispensers). Extrude a small amount of paste and discard.



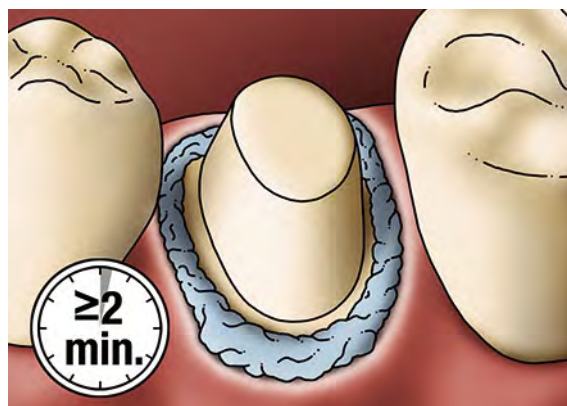
Insert retraction capsule tip into the sulcus.



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.



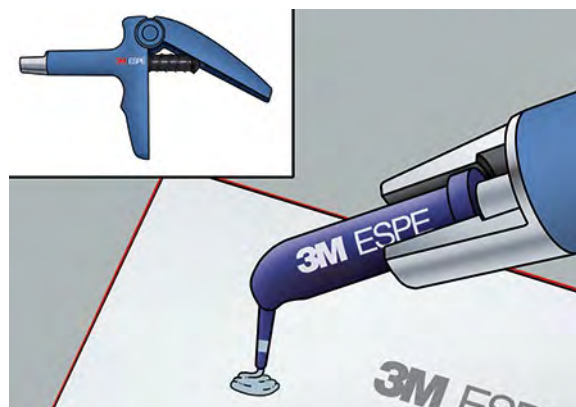
Leave astringent retraction paste on for a minimum of 2 minutes.



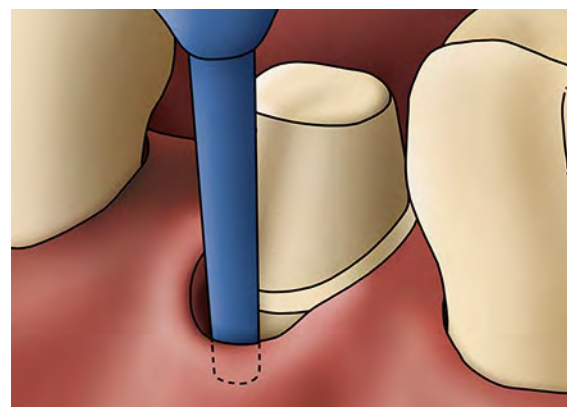
Completely remove astringent retraction paste with air-water spray and suction.



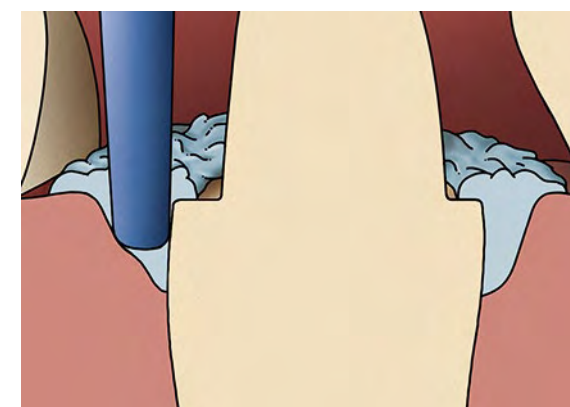
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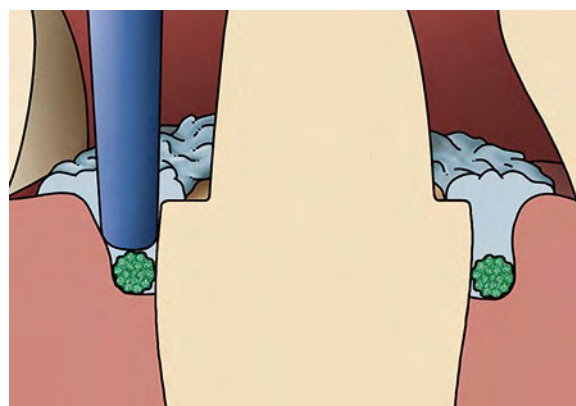
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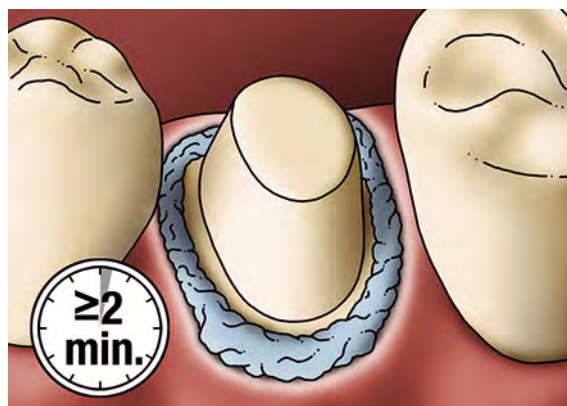
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3M ESPE Dental

Material Combinations per Technique
Imprint™ 4 VPS Impression Material

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

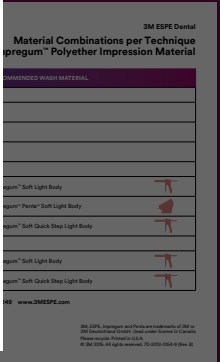
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3M ESPE Dental

Material Combinations per Technique
Impregum™ Polyether Impression Material

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

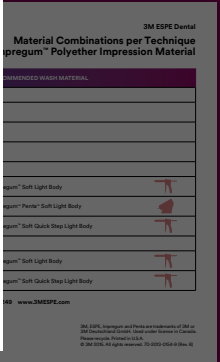
Customer Care Center: 1-800-634-2249 www.3MESPE.com



3M ESPE Dental
2510 Conway Avenue
St. Paul, MN 55144-1000 USA
1-800-634-2249

3M Canada
Post Office Box 5757
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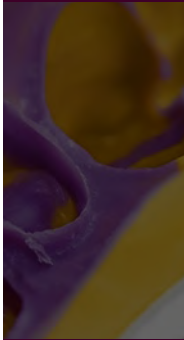




3M Science.
Applied to Life.™

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

PRODUCT	DISPENSING SYSTEM	VISCOSITY	SETTING VERSION	MAXIMUM WORKING TIME (23°C/73°F)	MAXIMUM INTRA-ORAL SYRINGING TIME (37°C/98°F)	INTRA-ORAL SETTING TIME (37°C/98°F)
		LOW  HIGH				
TRAY MATERIALS						
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
WASH MATERIALS						
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



Imprint™ 4
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Imprint™ 4 Penta™ Super Quick Heavy Imprint™ 4 Super Quick Heavy		Heavy Body	Fast Set	1:15	–	1:15
WASH MATERIALS						
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

Imprint™ 4 Penta™ Super Quick Heavy Imprint™ 4 Super Quick Heavy		Heavy Body	Fast Set	1:15	–	1:15
WASH MATERIALS						
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 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			
TRAY AND MONOPHASE MATERIALS					
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
WASH MATERIALS					
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.

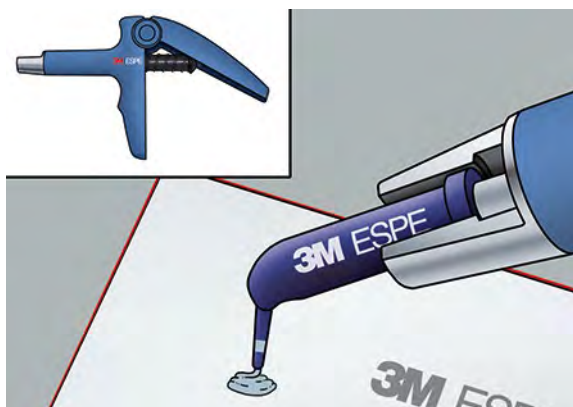
**includes working time.

Impregum™ Penta™ Super Quick Heavy Body		Heavy Body	Fast Set	1:00	-	1:15
WASH MATERIALS						
Impregum™ 4 Light			Regular Set	-	1:00	2:00
Impregum™ 4 Super Quick Light			Fast Set	-	0:35	1:15
Impregum™ 4 Regular			Regular Set	-	1:00	2:00
Impregum™ 4 Super Quick Regular			Fast Set	-	0:35	1:15

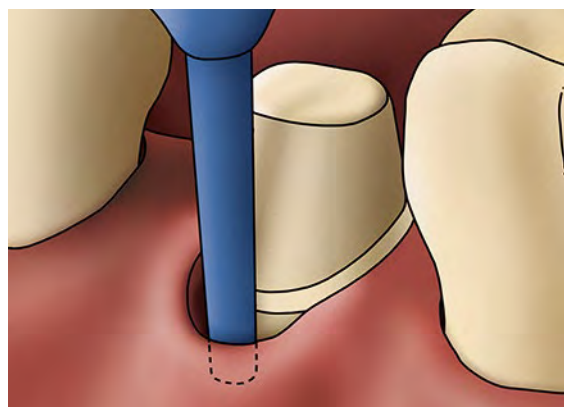
Impregum™ Soft Medium Body (Tray)			Regular Set	1:45	-	6:00
Impregum™ Penta™ Soft Quick Step Heavy Body			Fast Set	1:00	-	4:00
Impregum™ Penta™ Soft Quick Step Medium Body			Fast Set	1:00	-	4:00
Impregum™ Soft Quick Step Medium Body (Tray)			Fast Set	1:00	-	4:00
WASH MATERIALS						
Impregum™ Penta™ 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



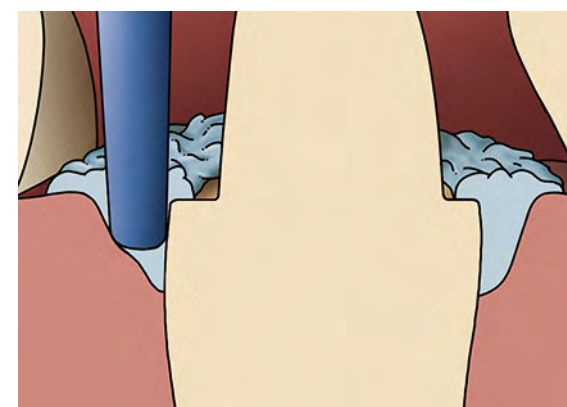
3M™ Astringent Retraction Paste



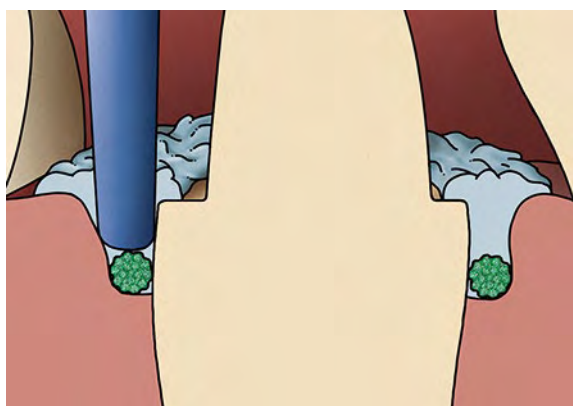
Remove a retraction capsule from the blister and insert into dispenser (fits into most composite dispensers). Extrude a small amount of paste and discard.



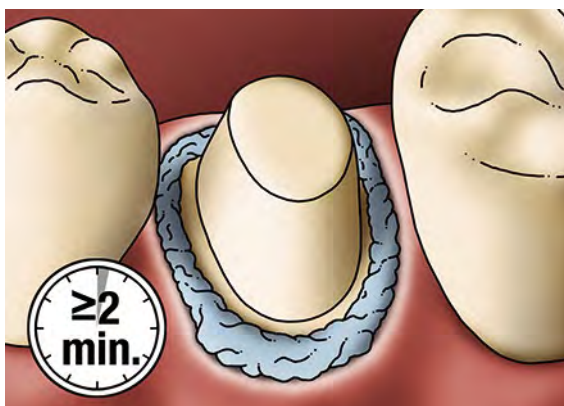
Insert retraction capsule tip into the sulcus.



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.

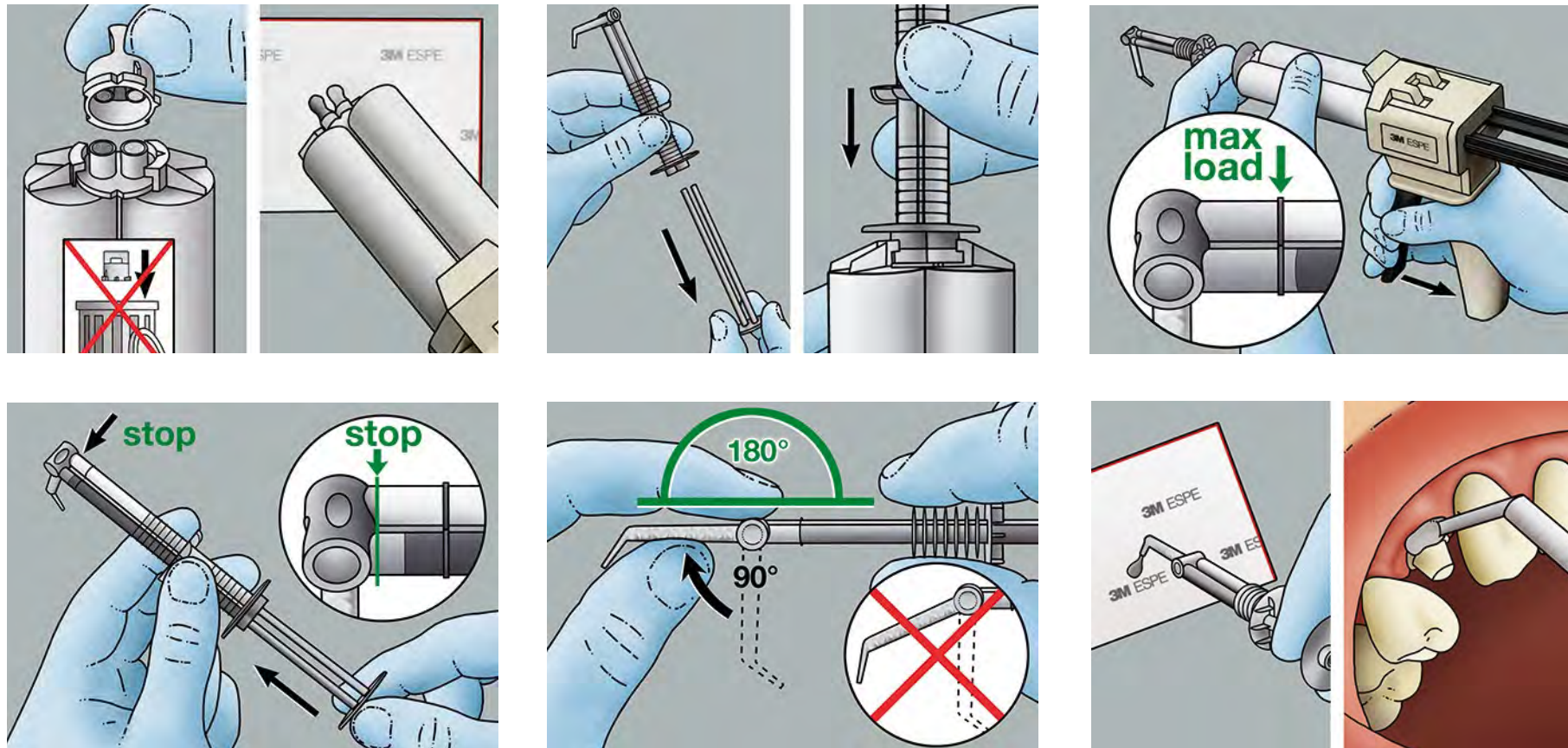


Completely remove astringent retraction paste with air-water spray and suction.

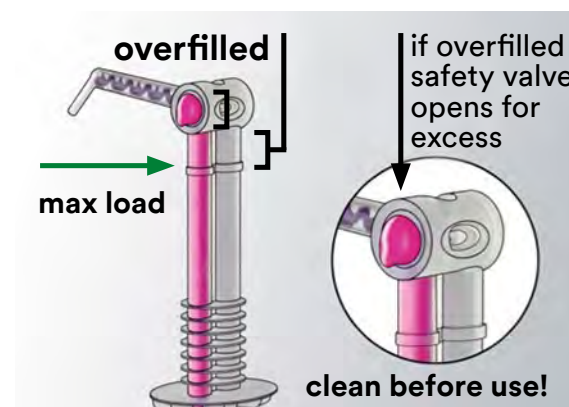
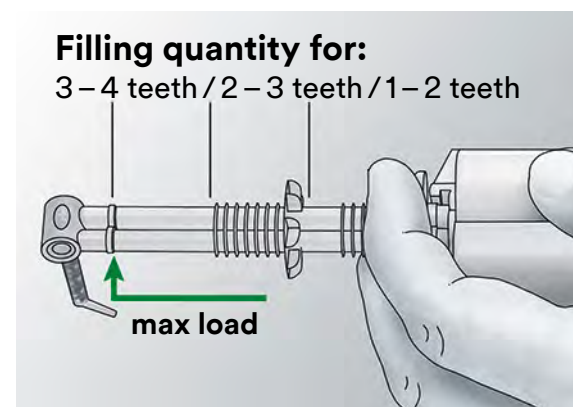
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3M™ Intra-oral Syringe Green/Purple

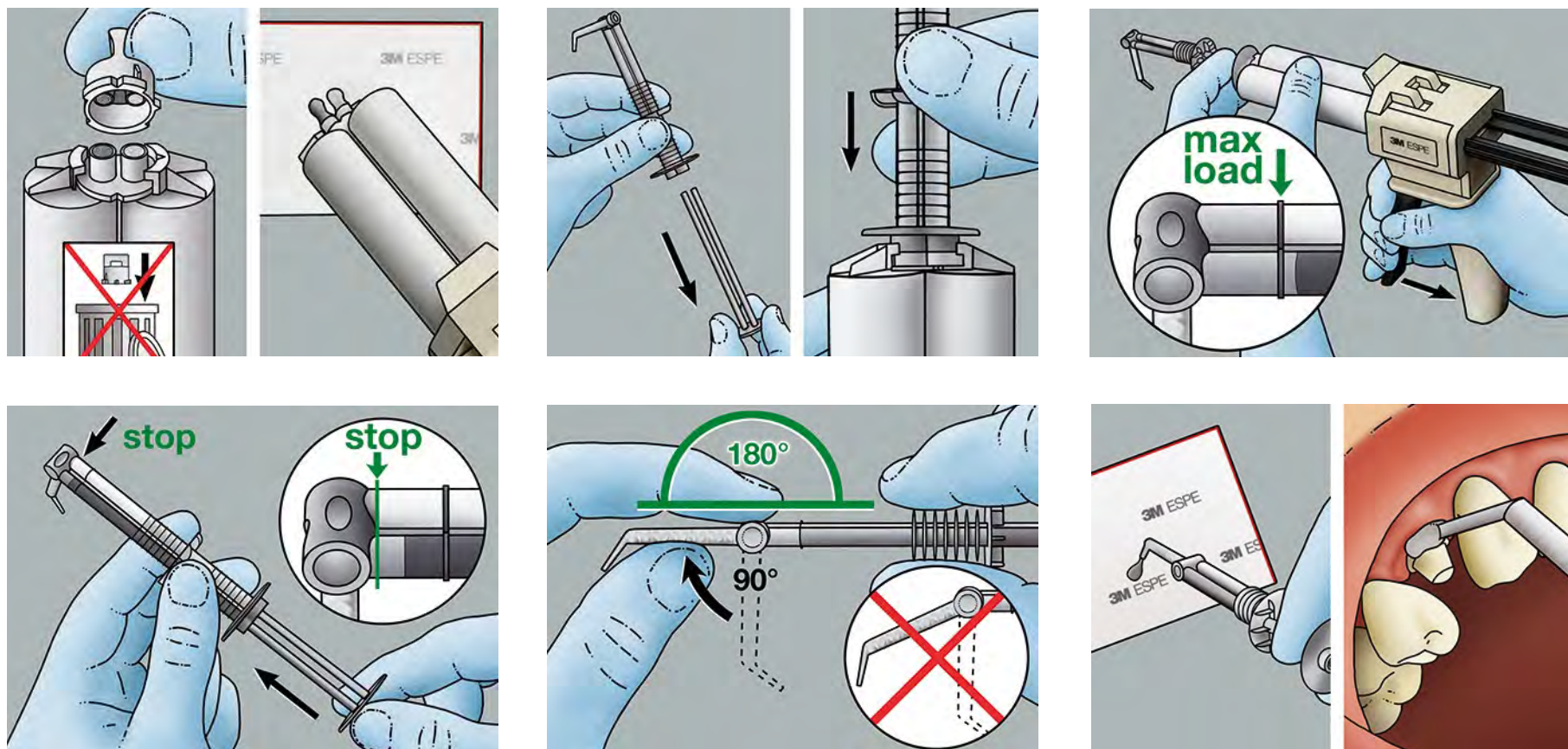


Tips for success.

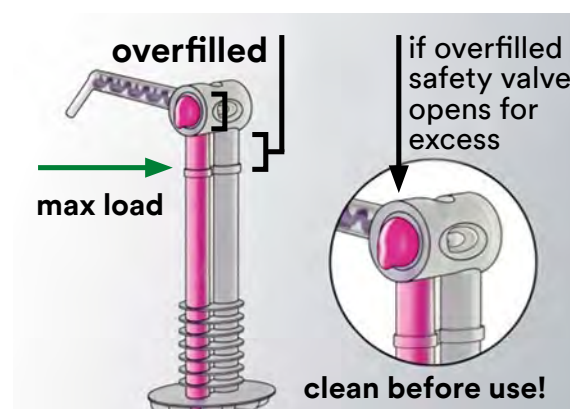
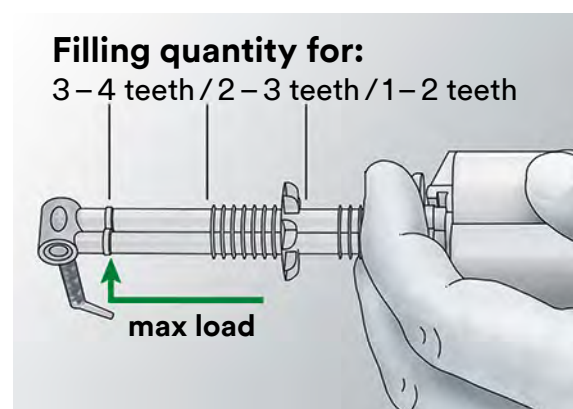




3M™ Intra-oral Syringe Green/Purple

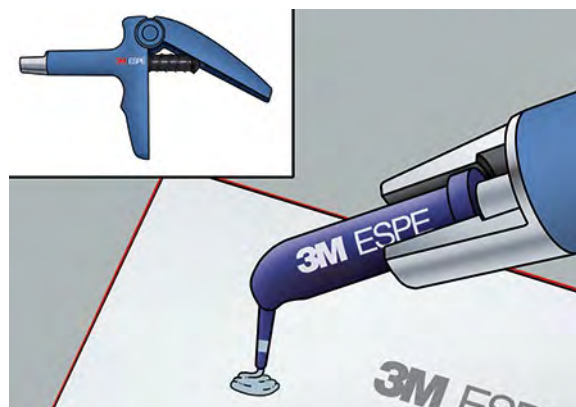


Tips for success.

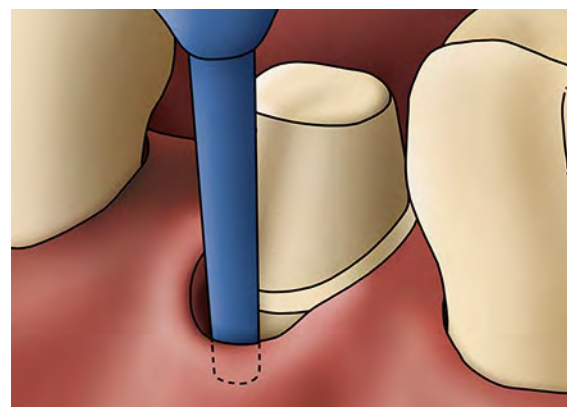




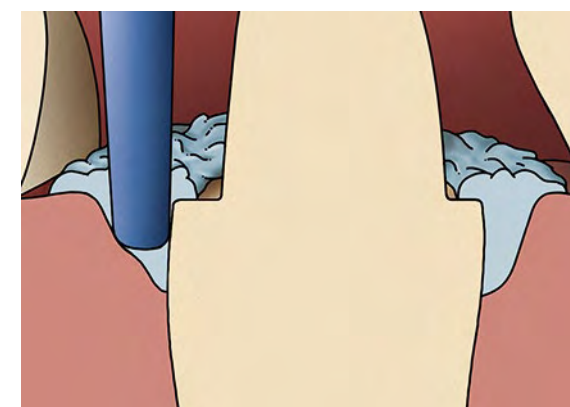
3M™ Astringent Retraction Paste



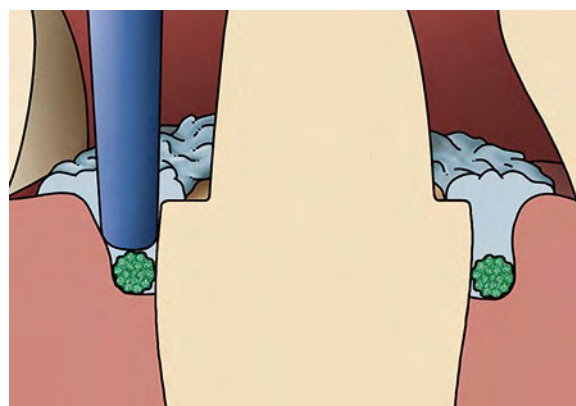
Remove a retraction capsule from the blister and insert into dispenser (fits into most composite dispensers). Extrude a small amount of paste and discard.



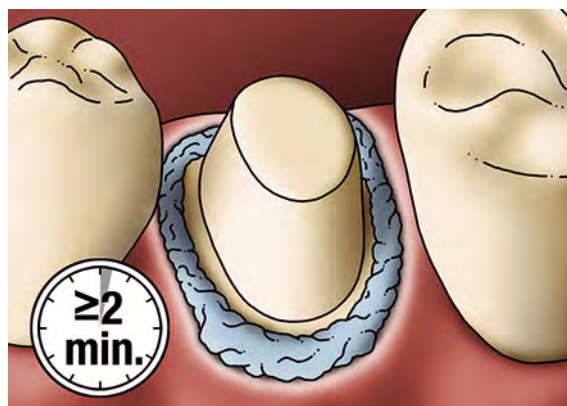
Insert retraction capsule tip into the sulcus.



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.

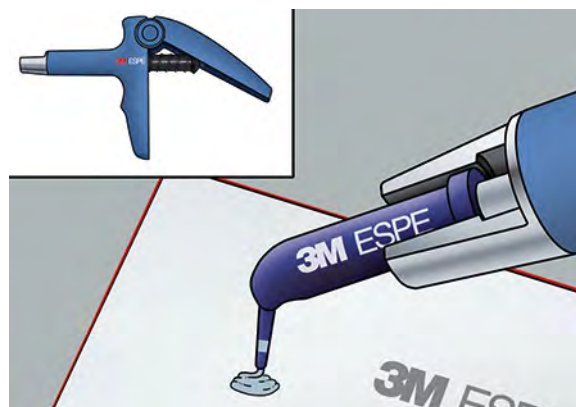


Completely remove astringent retraction paste with air-water spray and suction.

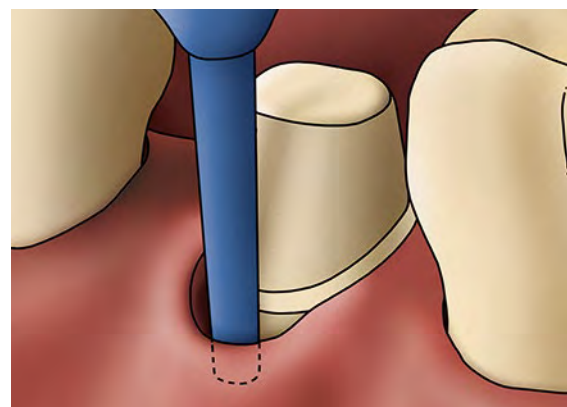




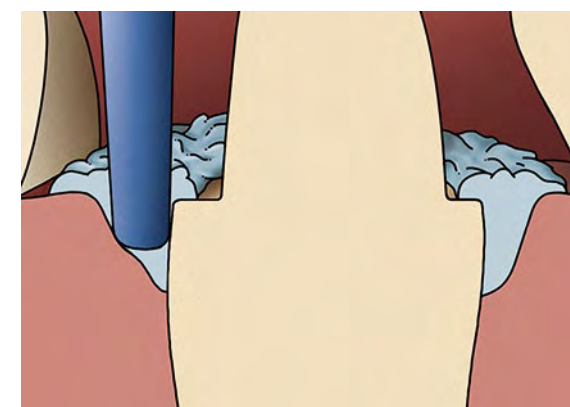
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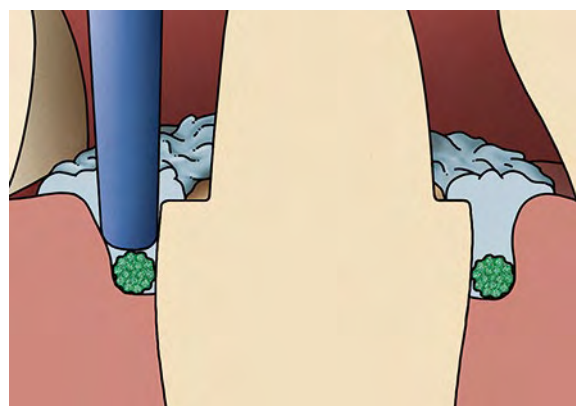
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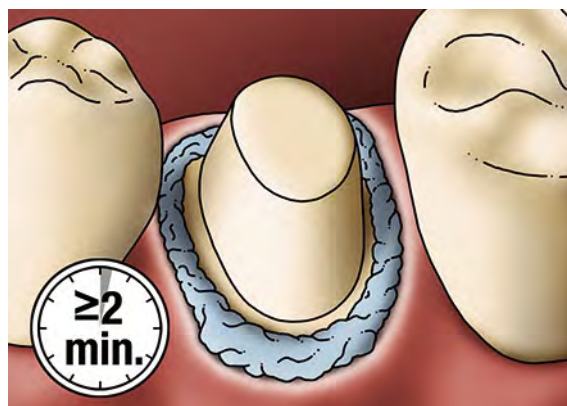
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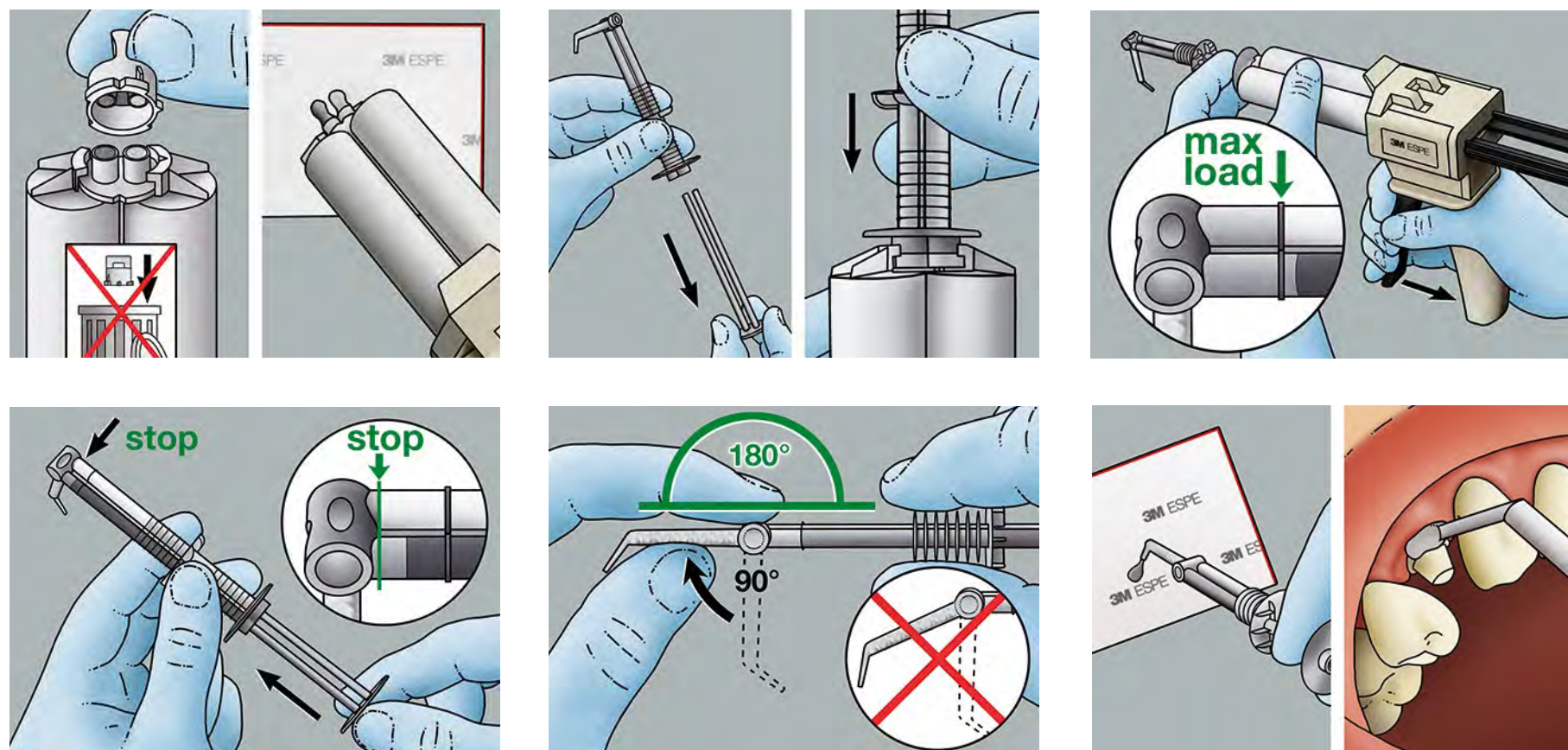
Leave astringent retraction paste on for a minimum of 2 minutes.



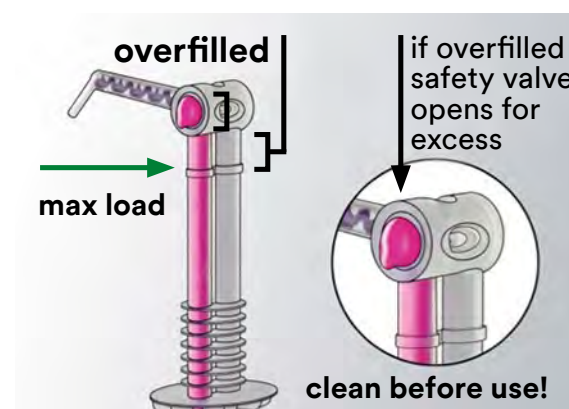
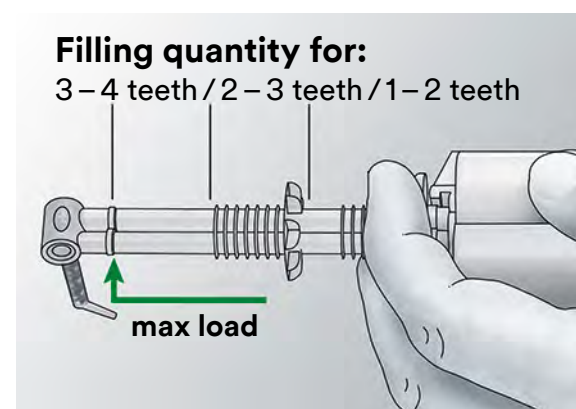
Completely remove astringent retraction paste with air-water spray and suction.



3M™ Intra-oral Syringe Green/Purple



Tips for success.






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3M ESPE Dental

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				
TRAY MATERIALS						
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
WASH MATERIALS						
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 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



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			
TRAY AND MONOPHASE MATERIALS					
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
WASH MATERIALS					
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

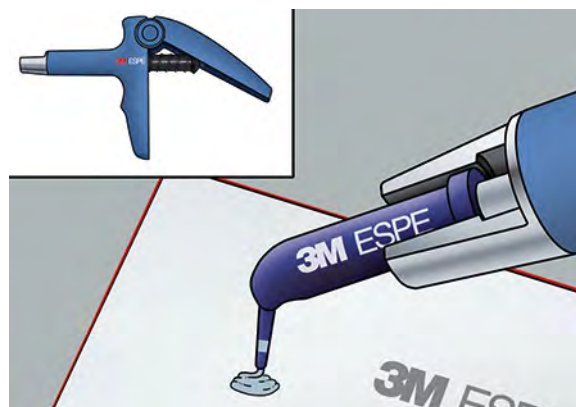
*Working time includes mixing time.

** includes working time.

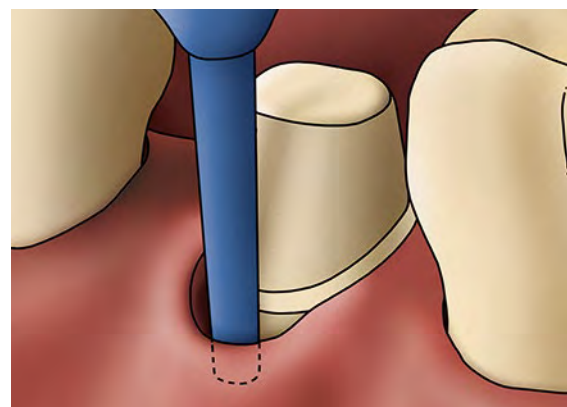
3M ESPE Dental Portfolio Overview Impregum™ Polyether Impression Material		
SETTING VERSION	WORKING TIME* AT 23°C/74°F MIN:SEC	TOTAL SETTING TIME** MIN:SEC
Regular Set	2:30	6:00
Regular Set	2:45	6:00
Regular Set	2:45	6:00
Regular Set	1:45	6:00
Fast Set	1:00	4:00
Fast Set	1:00	4:00
Fast Set	1:00	4:00
Regular Set	3:15	6:30
Regular Set	2:00	5:30
Fast Set	1:00	4:00



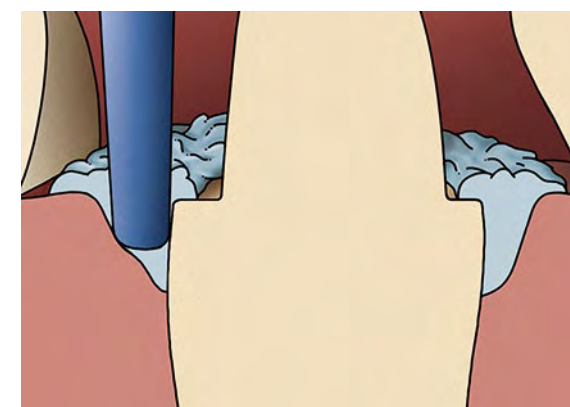
3M™ Astringent Retraction Paste



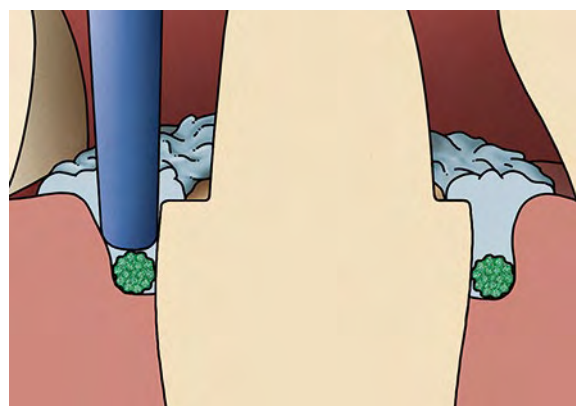
Remove a retraction capsule from the blister and insert into dispenser (fits into most composite dispensers). Extrude a small amount of paste and discard.



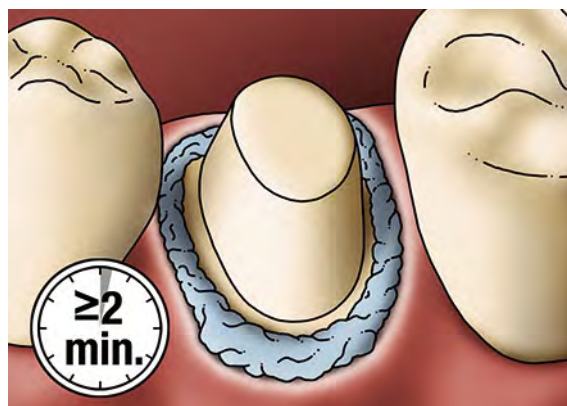
Insert retraction capsule tip into the sulcus.



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



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



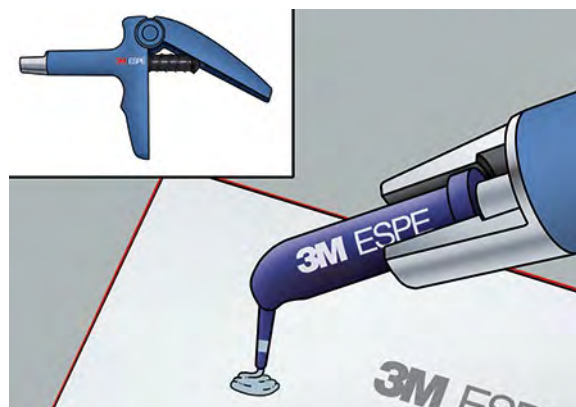
Leave astringent retraction paste on for a minimum of 2 minutes.



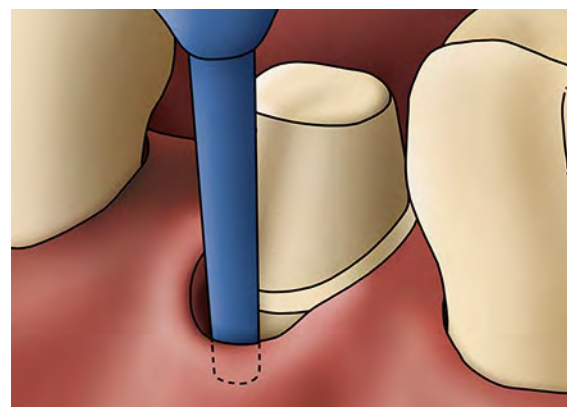
Completely remove astringent retraction paste with air-water spray and suction.



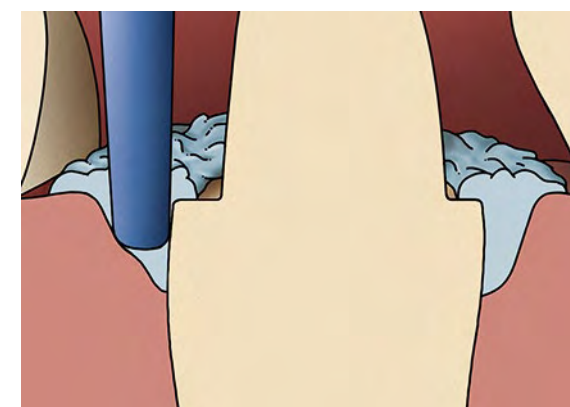
3M™ Astringent Retraction Paste



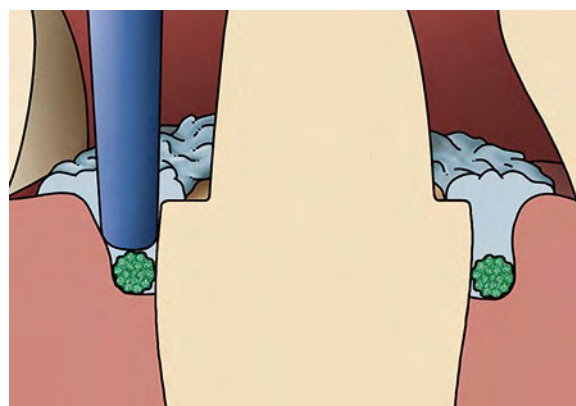
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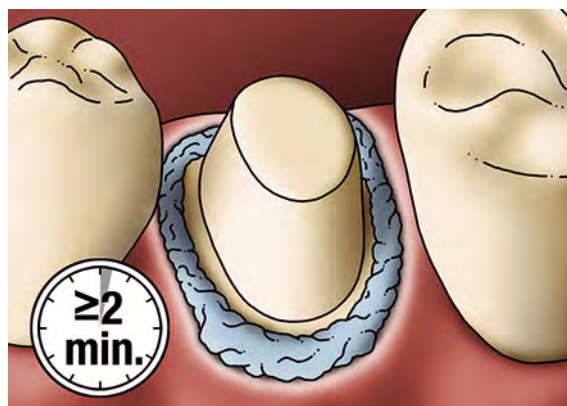
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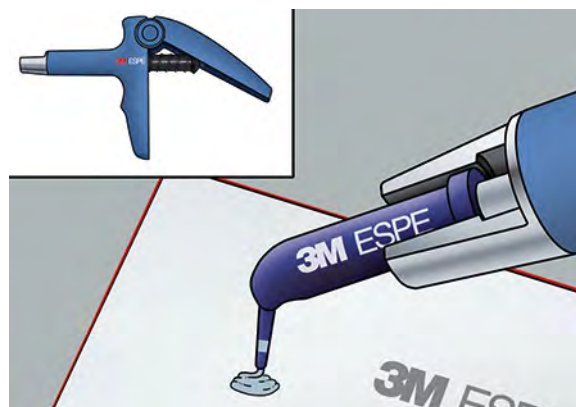
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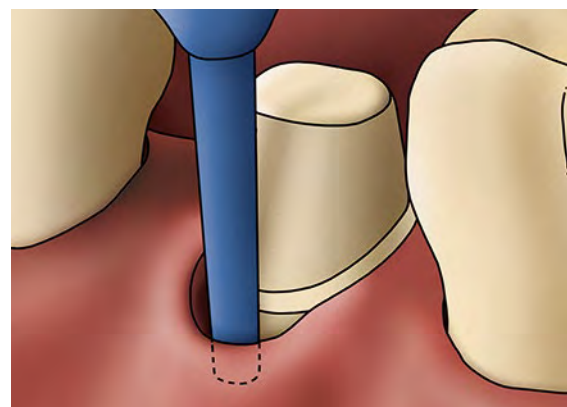
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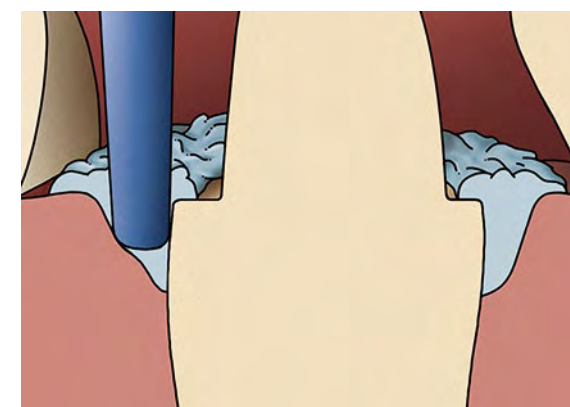
3M™ Astringent Retraction Paste



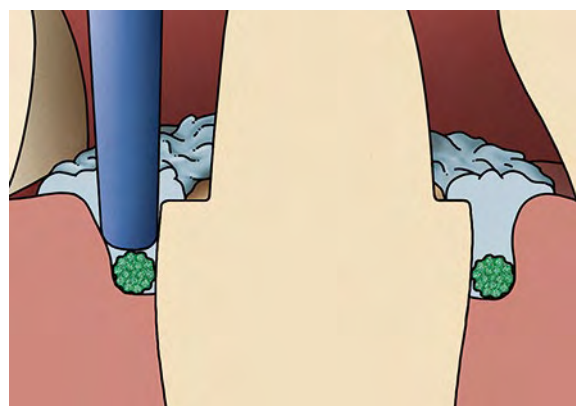
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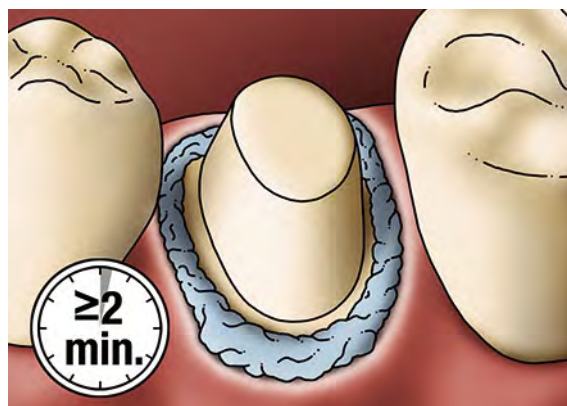
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Optional: procedure with cords. For more gingival deflection, the astringent retraction paste can be used in combination with retraction cords.



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

















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



3M ESPE Dental

Material Combinations per Technique
Imprint™ 4 VPS Impression Material

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

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



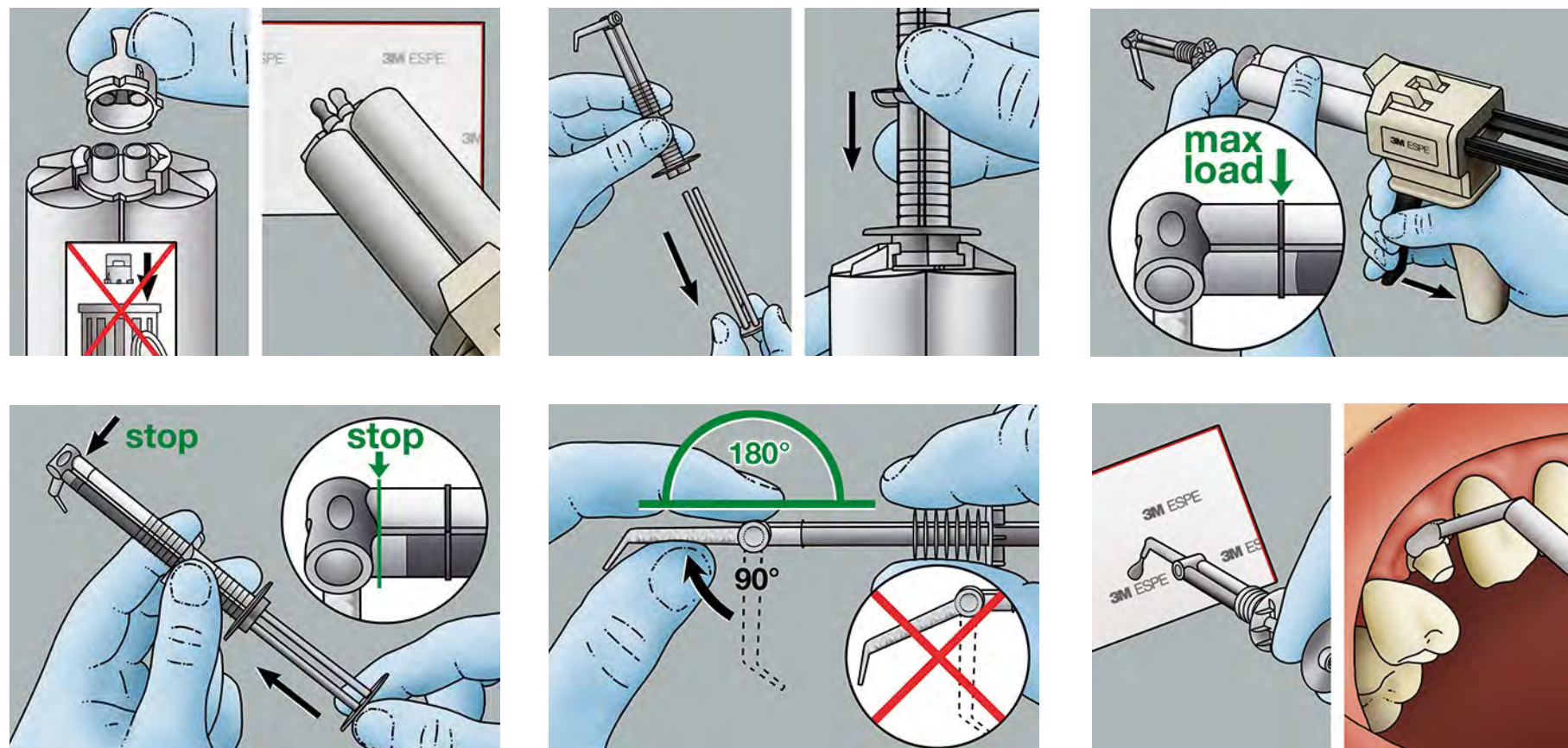
3M ESPE Dental
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St. Paul, MN 55144-1000 USA
1-800-634-2249

3M Canada
Post Office Box 5757
London, Ontario N6A 4T1 Canada
1-888-363-3685

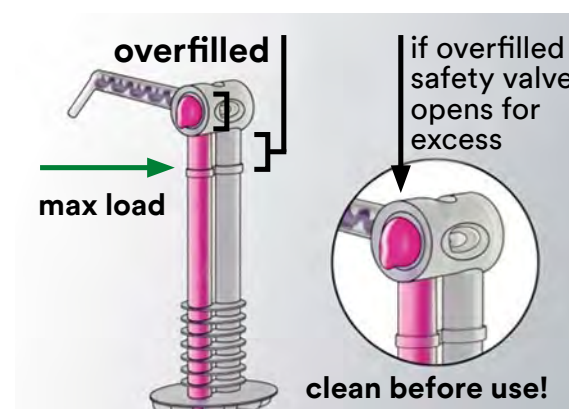
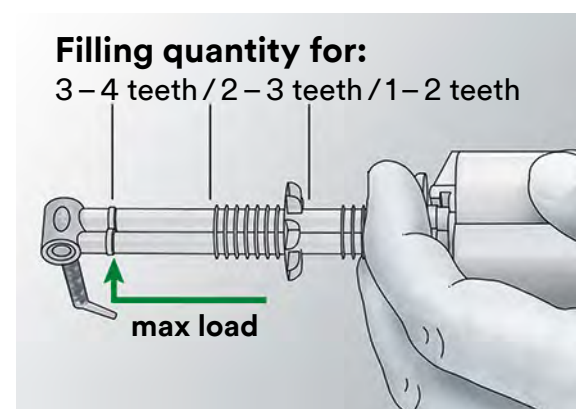
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3M™ Intra-oral Syringe Green/Purple





Tips for success.





3M ESPE Dental

Material Combinations per Technique
Imprint™ 4 VPS Impression Material

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

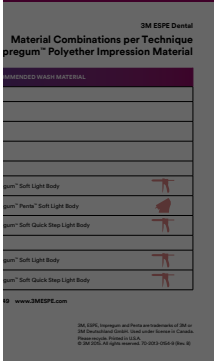
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3M ESPE Dental

Material Combinations per Technique
Impregum™ Polyether Impression Material

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

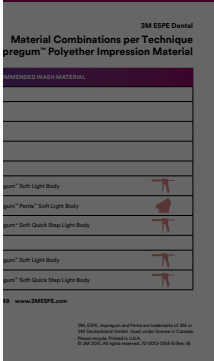
Customer Care Center: 1-800-634-2249 www.3MESPE.com



3M ESPE Dental
2510 Conway Avenue
St. Paul, MN 55144-1000 USA
1-800-634-2249

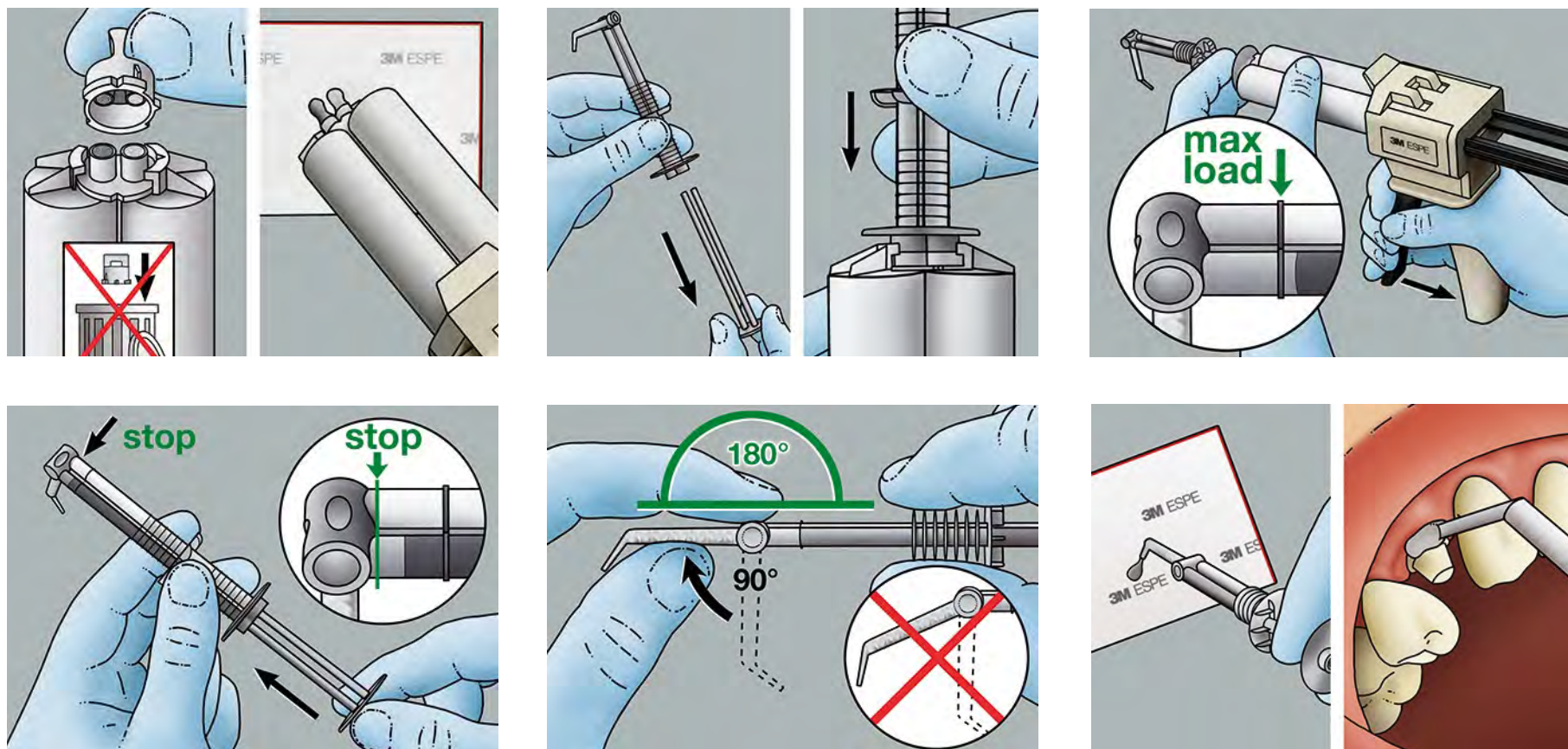
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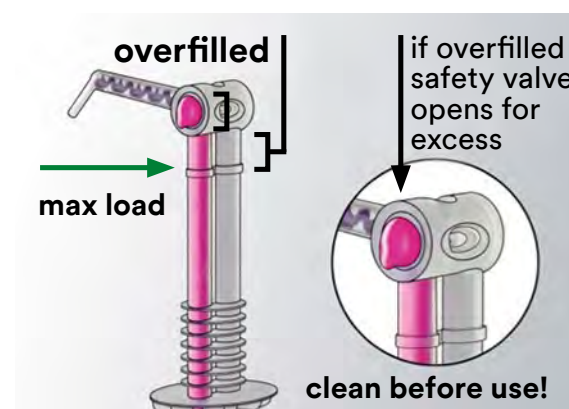
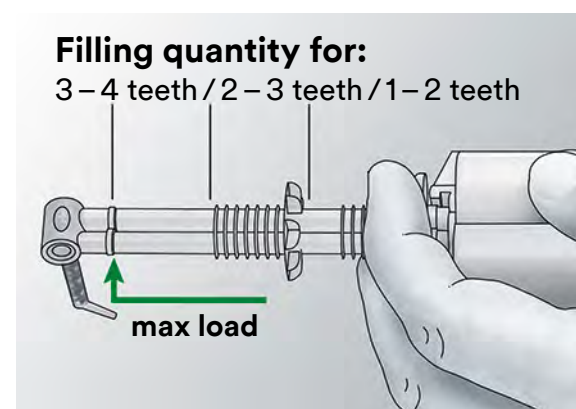




3M™ Intra-oral Syringe Green/Purple

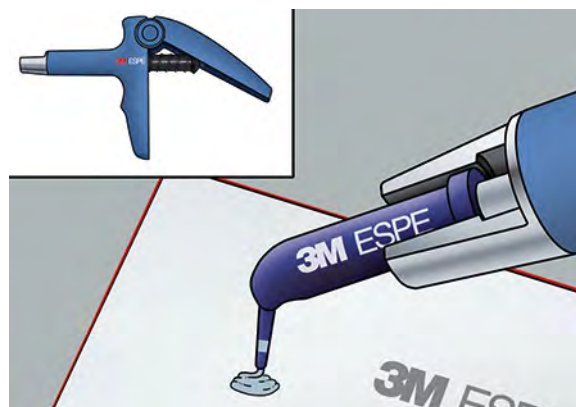


Tips for success.

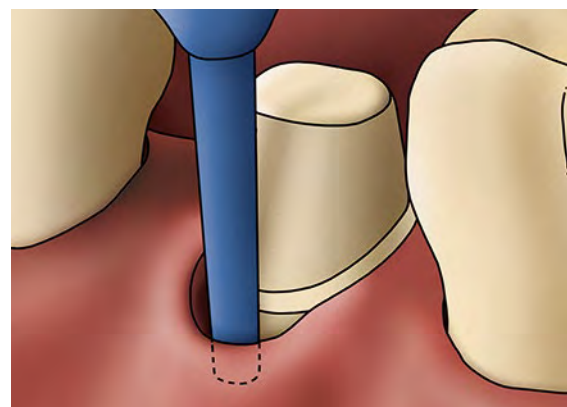




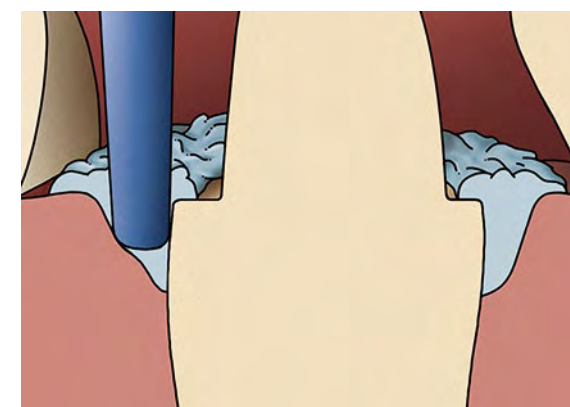
3M™ Astringent Retraction Paste



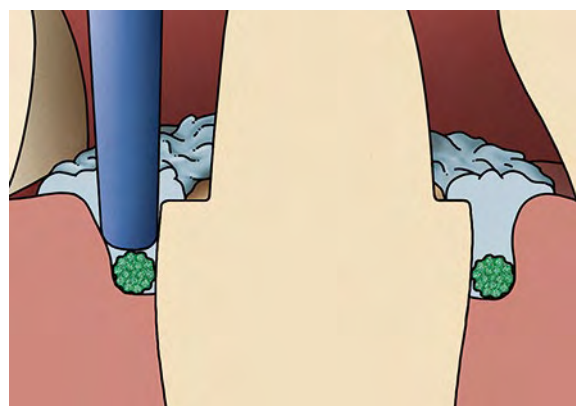
Remove a retraction capsule from the blister and insert into dispenser (fits into most composite dispensers). Extrude a small amount of paste and discard.



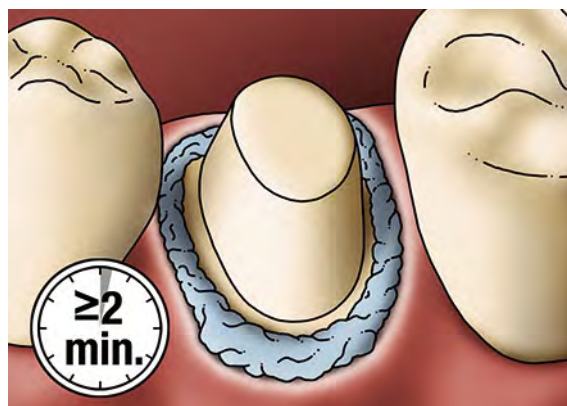
Insert retraction capsule tip into the sulcus.



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



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



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









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



3M 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/73°F)	MAXIMUM INTRA-ORAL SYRINGING TIME (37°C/98°F)	INTRA-ORAL SETTING TIME (37°C/98°F)
		LOW  HIGH				
TRAY MATERIALS						
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
WASH MATERIALS						
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 ESPE Dental
Impregum™ Polyether Impression Material
Portfolio Overview

SETTING VERSION	WORKING TIME* 45 SEC. @ 23°C 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	2:15	6:30
Regular Set	2:00	5:30
Fast Set	1:00	4:00



3M ESPE Dental

Portfolio Overview
Impregum™ Polyether Impression Material

PRODUCT	DISPENSING SYSTEM	VISCOSITY LOW  HIGH	SETTING VERSION	WORKING TIME* AT 23°C/74°F MIN:SEC	TOTAL SETTING TIME** MIN:SEC
TRAY AND MONOPHASE MATERIALS					
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
WASH MATERIALS					
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.

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