An Excellent Restoration Begins with Mastering the Art of Creating Accurate Impressions

Technique and Troubleshooting Guide

Text and Photos Courtesy of James Pavlatos, DDS

EXA'lence™ – Vinyl PolyEther Silicone (VPES™) Impression Material

GC

Guidelines

PERFECT IMPRESSIONS

The process of creating a high quality dental restoration that fits correctly, starts with ensuring that you take the most accurate impression possible. To help ensure that you always take an accurate impression, a number of factors are involved. They are as follows:

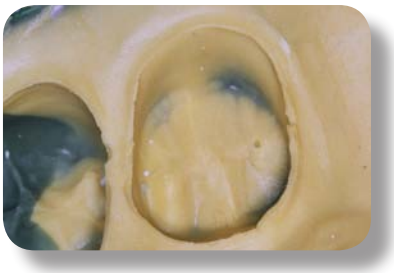
- Material selection
- Tissue and tooth preparation management
- Tray selection
- Retraction cord and retraction technique
- Hemostatis
- Impression techniques
- Bite registration
- Infection control/disinfection

IMPRESSION MATERIAL GUIDELINES

What are the important features to look for when choosing a dental impression material?

- Determine the setting time
  - A) Small span restoration: use a fast set (1-3 teeth)
  - B) Large span restoration: use a regular set (3+ teeth)
- The mix of the material should be uniform and homogeneous
- Tray should be filled with enough impression material, but not underfilled
- Complete coverage with tray adhesive of selected tray
- Impression tray must be rigid
- Margin detail must be without voids or pulls
- Margins must be free of tears (high tear strength)
- The impression material and tray must have a strong bond
- The impression material must not have tooth contact with the tray
- Good hydrophilic properties
- Good recovery from deformation
- High elasticity
- Dimensional stability
- Avoid the use of latex gloves or impregnated retraction cords; they can affect the setting time
- Disinfect the impression before staff and dental laboratory handle it

EXA'lence™ - Extra Light Body



Check Glossary of Terms for all definitions.

IMPRESSION MATERIAL DESIRABLE QUALITIES

- Pleasant odor, taste, aesthetic color
- No toxic or irritant constituent
- Affordable
- Easy to use with minimum equipment
- Setting characteristics that meet clinical requirements
- Satisfactory consistence and texture
- Readily used in wet oral tissue
- Elastic properties with freedom from permanent deformation after strain
- Adequate strength so that it will not break or tear on removal from mouth
- Dimensional stability over temperature and humidity ranges normally met in clinical or laboratory procedures for a period long enough to permit the production of a cast or die
- Compatibility with cast and die materials
- Accuracy in clinical use
- Readily disinfected without loss of accuracy
- No release of gas during the setting of the impression or cast and die materials
- Elastometric
- Syneresis
- Thixotropic

EXA'lence™ is a premium impression material with a brand new chemistry that combines the best of VPS and Polyethers.

Pre-Impression Taking Steps

- Tray Selection (page 5)
- Retraction System Selection (page 7)
- Retraction Chemicals/Hemostasis (page 9)

TRAYS

Consistent Tray Selection for Each Technique is Important

- Custom tray
- Metal – full or quadrant
- Plastic – full or quadrant
- Non-perforated or perforated

Impression Technique
A) Closed tray impressions
B) Open-bite impressions

Closed Bite Impression Trays (Triple Trays)

- Prepared arch and opposing arch are taken together
- Flexible bite tray with gauze
- Without rigid side walls, may cause distortion
- Does not have memory spring back and may distort the impression material
- No cross arch stabilization
- May distort the impression material if teeth contact opposing arch or bite side walls of tray, or back plastic of tray
- No support, not rigid

Open Bite Impression Trays

- Full arch or quadrant
- Rigid trays reduce distortion and rebound effect
- Perforated
- Use adhesives

Stock Plastic Trays

- Full arch or quadrant
- Disposable
- Eliminate cross-contamination
- Can be modified
- Rigid, thick walls to provide lateral support for the tray impression material to prevent distortion when pouring the model

TRAYS

Flexible Plastic Trays

- Critical area for tray stiffness is facial – lingually
- If finger pressure will flex the tray, then putty will flex the tray during seating (expand)
- Will spring back (rebound) to a small facial – lingual width
- Result – a smaller crown
- Select plastic trays that provide sufficient rigidity and lateral support

Metal Trays

- Provide maximum support for impression materials
- Rigid
- Coated steel
- Stainless steel
- Durable and long lasting
- Can be perforated or solid
- Universal
- Can be used with all elastometric materials
- Full tray – cross arch stabilization

Custom Trays

- Full tray – cross arch stabilization
- Much more dimensionally accurate than stock trays
- Uniformly thin impression material throughout
- Material supported by highly rigid tray
- Made of acrylic
- 3 – 4 mm relief around prepared teeth
- Three or more stops in non-critical areas
- Make trays a day or two ahead; Acrylic undergoes polymerization shrinkage for 24 hours

Adhesives

Regardless of the impression tray, use the tray adhesive made for the impression material (use for all trays).

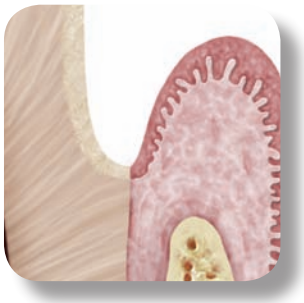
- Without adhesive, the impression shrinks toward the center of the mass
- Results in a smaller impression
- Crown may not seat completely

SELECTING A RETRACTION SYSTEM

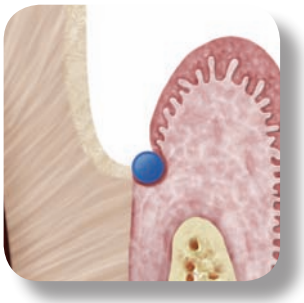
A) Hemostatis
B) Retraction

Hemostasis – Use for Bleeding Tissue Only
- Ferric sulfate
- Aluminum chloride
- Epinephrine
- Electrosurgery

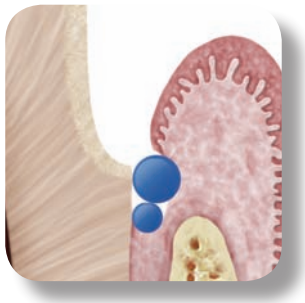
Retraction Cord – Use With Little to No Bleeding
- Epinephrine – use where maximum tissue height is needed (use cord with epinephrine)
- Healthy tissue – 3 mm pocket use one cord
- Deeper pockets use two cords
- Hemorrhage or oozing fluid keep first cord in place for impression after removing the second cord
- Two cord technique needs increase in sulculor depth
- Use cord for tissue displacement only and not for hemostatic control
- The first cord is placed under the preparation margin
- The second cord is larger and placed above the first chord



Before start of packing



Single cord packing in sulcus



Double cord packing in sulcus

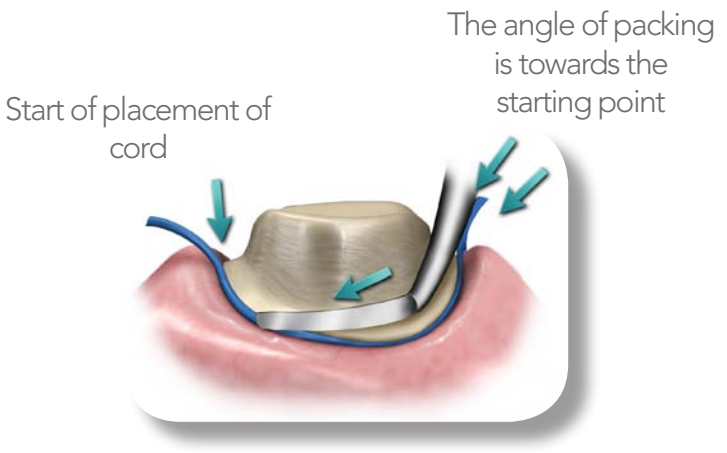
Good access for impression material after packing is essential

SELECTING A RETRACTION SYSTEM

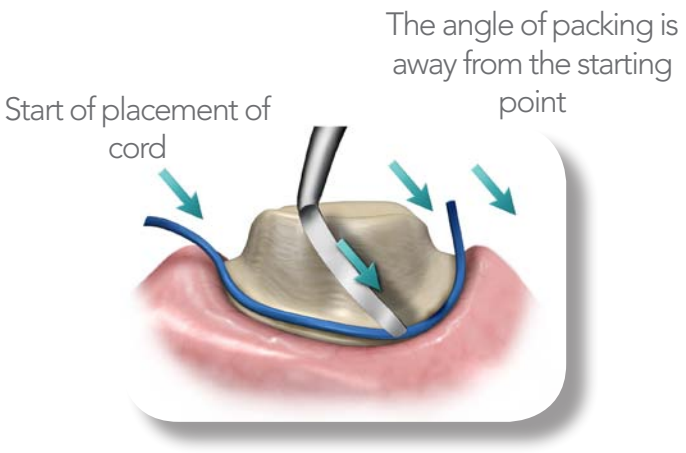
Technique for Packing Retraction Cord

After the teeth are prepared with margins that are subgingival, a retraction cord is placed between the prepared tooth and the gingiva in the sulcus area. This creates a space for the impression material to flow subgingivally and reproduce the margins of the tooth.

- Use the smallest cord possible
- Larger cords
  - Tear gingival tissue
  - Increase hemorrhage
  - Tend to strip the epithelial attachment
- If the cord is pushed past the epithelial attachment as if overpacked, it increases the pocket depth (tear or damage to the tissue)
  - Increase hemorrhage
  - Increase crevicular fluid
  - Damage marginal details in the impression
- Improve tissue retraction and hemostatic qualities of the cord by adding a chemical
- To avoid pulling the cord out of the sulcus, or displacing the cord, always pack toward the starting point; if you pack away from the starting point, you will displace the cord



Cord is not displaced



Cord is displaced

RETRACTION CHEMICALS

- Retraction cords are impregnated with chemicals to improve retraction and hemostatic effects
- Chemicals can degrade the ability of impression materials to record details
- Thoroughly rinse the teeth after packing and before taking the impression

Epinephrine

- Local vasoconstriction of gingival tissue

Advantages

- Kind to gingival tissue
- Excellent tissue displacement
- Excellent hemostasis
- Provides a clean sulcus for impression material
- Minimal tissue loss
- 0.1% most used by dentists
- Place cord with epinephrine for two to three minutes and rinse thoroughly before taking the impression

Disadvantages

- Cardiovascular reactions are possible
- Risk of epinephrine syndrome
- Do not use with lacerated patient tissue
- Should not be used when connective tissue is exposed
- Cannot be used with ferric sulfates for hemostasis because it leaves a tenacious residue
- Can affect accuracy and setting time of impression material if not thoroughly rinsed

Contraindications

- Know history to cardiac disease, hyperthyroidism, epinephrine sensitivity

RETRACTION CHEMICALS

Epinephrine Sensitivity
- Tachycardia
- Increased respiration rate
- Increased blood pressure
- Nervousness
- Headache
- Fright

Astringents
- Aluminum sulfate
- Aluminum chloride
- Ferric sulfate

Astringents are substances which eliminate permeability of epithelium to tissue fluid flow (sulcular fluid)

Aluminum Sulfate (Example: Alum† and Gel-Cord†)
Advantages
- Good tissue displacement
- Good working time

Disadvantages
- Less tissue displacement than epinephrine
- Less hemostasis than epinephrine
- High toxicity to gingival tissue
- Possible slight crestal bone loss can result
- Bad taste
- If not rinsed it can interfere with setting of the impression material

Aluminum Chloride (Example: Hemodent† and Viscostat†)
Advantages
- No systemic effect
- Moderate hemostasis
- Moderate tissue displacement
- Moderate tissue loss

RETRACTION CHEMICALS

Disadvantages
- Bad taste
- Localized tissue damage if excessive amount is used
- Aluminum chloride and epinephrine may be combined without leaving a residue (Racord†)

Ferric Sulfate (Example: Astringent† and Gingi Pak†)

Advantages
- Excellent hemostasis including cut tissue
- Minimal tissue loss
- Moderate displacement
- Compatible with aluminum chloride
- Kind to gingival tissue

Disadvantages
- May discolor tissue
- Unpleasant taste
- Cannot be combined with epinephrine
- If not rinsed, it interferes with material setting time

Electrosurgery
- Provides access for impression material by removal of tissue
- Does not retract gingival tissue
- Used as an adjunct
- Not a substitute for gingival retraction cords
- May cause dentin burn
- May cause periodontal ligament burns
- Periodontal pockets can be a result of poor technique
- Hemorrhage control is excellent

Techniques

EXA'lence™ IMPRESSION MATERIAL

EXA'lence brings together the best of VPS and Polyether in a new premium impression material, Vinyl PolyEther Silicone (VPES™). It combines the wettability and tear strength of VPS with the wettability and flow of Polyether to create an impression material with great wettability, tear strength and flow. Combined with accuracy and surface detail, this material is of superior performance and quality.

EXA'lence provides intrinsic hydrophilicity, predictable flow and exceptional surface tension to create an accurate impression with great detail. Retakes are virtually eliminated and chair time and cost are reduced.

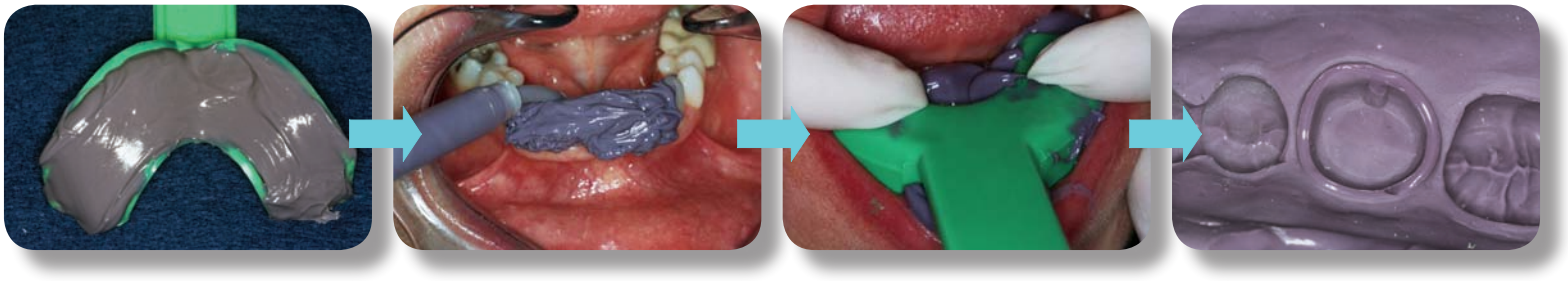
TECHNIQUES

Single Mix Technique

- Monophase impression material is the choice for single-phase impressions
- Multiple units (1-4 units)
- Use custom, quadrant, full arch, double-bite trays
- Rigid while allowing flexibility for easy removal
- Excellent tear resistance
- Light body impression material not required
- Less mix tip waste
- Only one tip required per procedure
- Easily removed from gypsum models after pouring
- May be used for final impression for full denture work

Single Mix Step-by-Step Procedure

- Syringe monophase in and around prepared area of tooth or teeth
- Place same material into the tray to be used for the impression
- Place tray into the mouth, and align parallel to the occlusal plane to ensure vertical seating
- Set tray over the prepared area and hold the tray until impression has thoroughly set
- Remove the impression and disinfect before pouring the gypsum model
- Use a non-perforated tray so that sufficient pressure is provided during impression taking
- Always use a tray adhesive



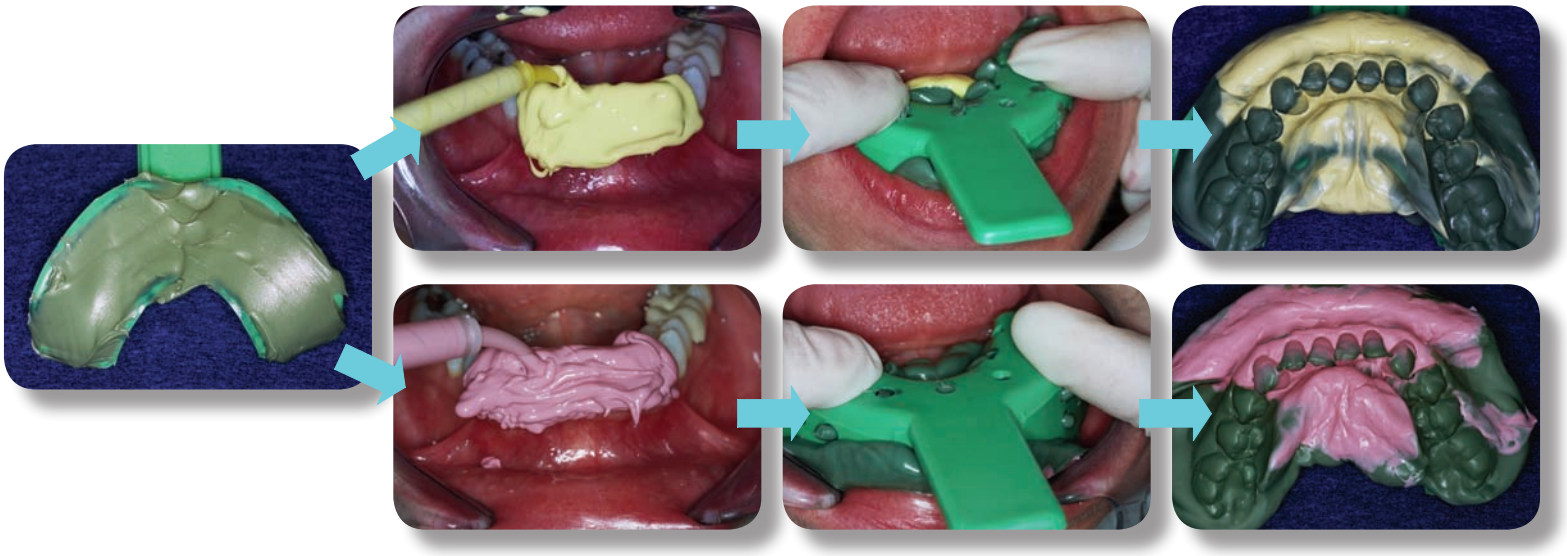
Double Mix Technique

- One step using two materials, a light bodied injection type and a heavy bodied material
- The viscosity of the two materials must be as close as possible to each other
- Faster technique than the two material, two step technique (example: putty wash technique)

Double Mix Step-by-Step Procedure

- Syringe the wash material (injection type) around the prepared teeth
- Load the heavy body material into the tray
- Place the loaded tray into the mouth
- The patient should perform no jaw movement at this time
- Hold the tray firmly until the impression has thoroughly set
- Remove the impression from mouth, rinse and disinfect to manufacturer's recommendations

(see page 17)



Putty Wash Technique

- This is a two step procedure
- Uses two different types of material
- A heavy bodied putty and light bodied injection type

Step 1 – The dentist first makes a pre-impression by inserting the tray with heavy bodied putty into the mouth.

Step 2 – After the material sets, the dentist removes all undercuts and then cuts escape channels for the excess wash material.

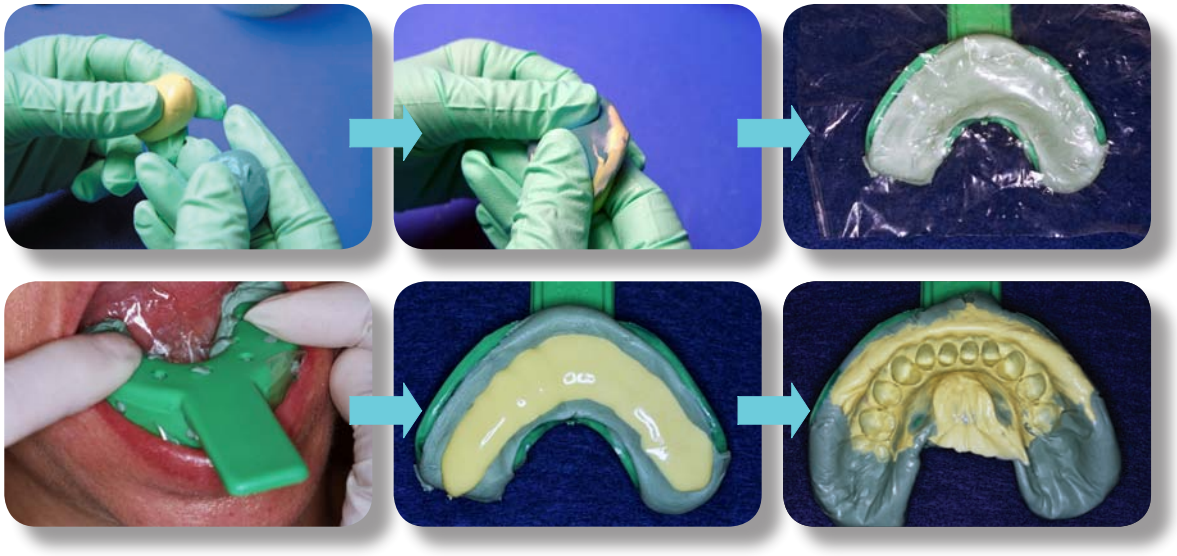
- To prevent the need for cutting, a plastic foil to create extra space may be used or,
- A thin mylar or plastic sheet or,
- Polyethylene impression separation wafers

Putty Wash Step-by-Step Procedure

- Place the putty into selected tray
- Cover the putty with a thin mylar or plastic sheet to act as a spacer
- Place tray in the mouth and seat
- After putty has completely set, remove the impression
- Remove the spacer, rinse and thoroughly dry the impression using air/water syringe
- This impression now becomes a very rigid custom tray
- Syringe the wash material around the prepared area
- Syringe additional wash material into the putty impression
- Reseat the impression into the mouth; do not use excessive pressure and remove when the material has set
- Rinse and disinfect the completed putty wash impression

Putty Wash Procedure Tips

- Failure to remove sufficient excess material from the pre-impression; may not fit when returned back to mouth
- Use thick separation wafers which allow sufficient space
- Go to faster technique (example: double mix)



DISINFECTANTS

Contamination of dental impression with varying amounts of blood and saliva is a routine occurrence in the dental operatory. Therefore, the entire dental staff is routinely exposed to numerous viral and bacterial pathogens that have the potential to cause serious illness, or in some cases, even death.

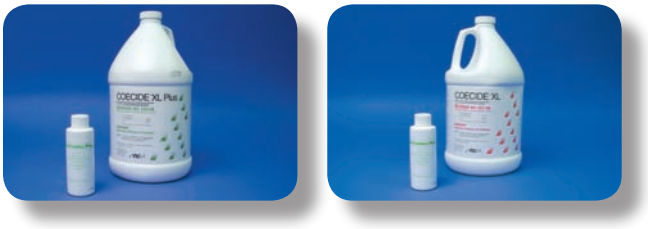
The America Dental Association recommends that all dental impressions are disinfected and rendered harmless before being passed on to other people who will work with them.

There are Five Types of Chemical Disinfectants That Can be Used for This Purpose:

- Chlorine compounds
- Combination synthetic phenolic compounds
- Glutoraldehydes
- Iodophers
- Phenolic/alcohol combinations

Procedure

- Rinse impression under running water to remove any debris or exudate
- Immerse impression in 2.5% of 3.4% glutoraldehyde solution for 20 minutes (example: COECIDE™ XL or COECIDE™ XL Plus)
- Rinse impression under running water to remove disinfectant

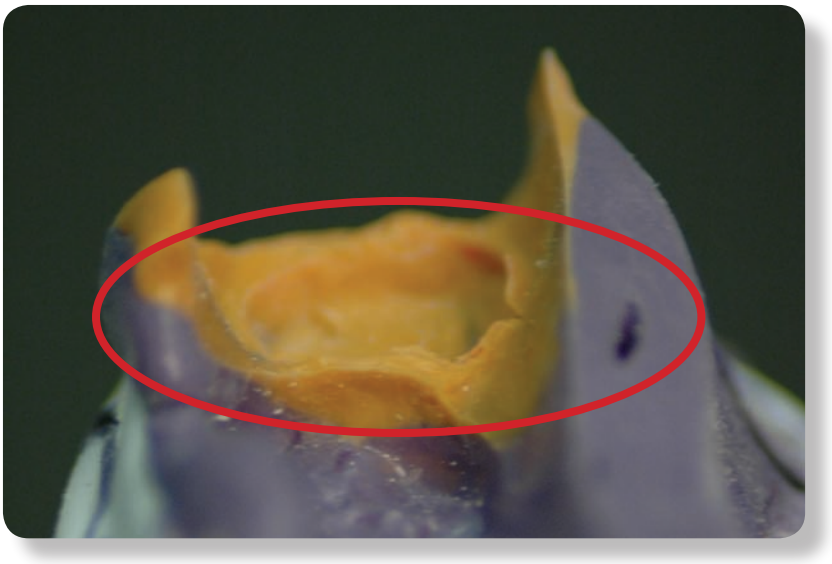


EXA'lence™ is compatible with all disinfection procedures with no distortion.

Troubleshooting Guide

- Tearing at the Margin (page 19)
- Inadequate Bond of Impression Material to Tray (page 20)
- Voids and Bubbles (page 21)
- Tray Tooth Contact (page 22)
- Pulls and Drags (page 23)
- Surface Inhibition or Slow Setting or Non-Set (page 24)
- Dimensional Change/Deformation (page 25)
- Distorted Crowns (page 26)
- Material Setting too Fast (page 27)
- Trough-Like or V-Shaped Void (page 28)
- Material Around Prepared Area Not Setting Completely (page 29)

TEARING AT THE MARGIN



PROBLEM

Clinical appearance of impression: visible tear or tears at the margin of the tooth preparation.

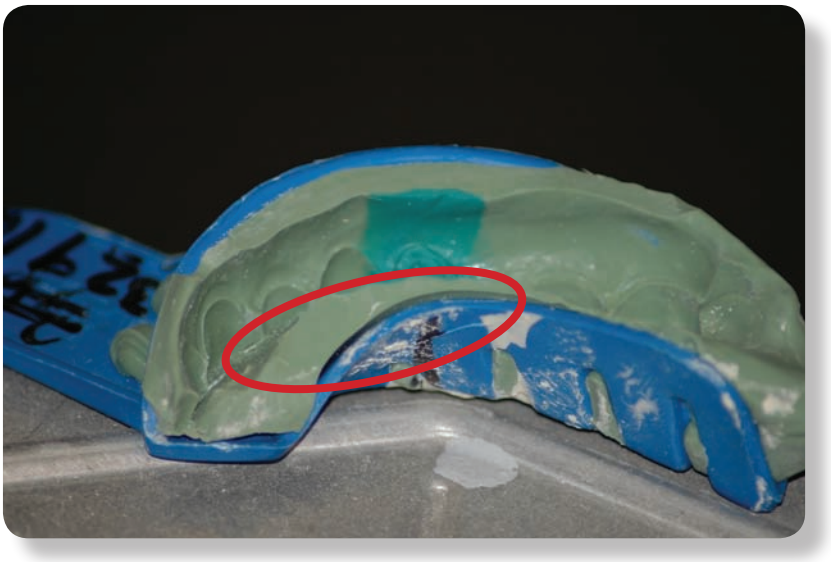
RESULT

Open margins of short crowns.

CAUSE	SOLUTION
Out-of-date, expired impression material.	Use fresh impression material.
Material has poor tear strength.	Use a material that has superior tear strength.
Insufficient retraction of the sulcus.	Proper retraction of the sulcular area to at least 0.5mm. Consider a two-cord retraction technique.
Undercuts that were insufficiently blocked out.	Block out all severe undercuts with soft wax.
Inadequate mix.	Use proper mixing tips. Bleed the tip before placement of material. Use a timer to ensure proper setting time.
Excessive bleeding/contamination around the prep.	Minimize bleeding or delay procedure until tissue has healed.
Impression removed before material has set.	Time procedure from start of mix and keep tray positioned in the mouth for the correct time.

EXA'lence™: Excellent tear strength – no retakes.

INADEQUATE BOND OF MATERIAL TO TRAY



PROBLEM

Impression material pulling away from the tray, causing distortion.

RESULT

Crowns will not seat completely and will be tight.

CAUSE	SOLUTION
No tray adhesive used or poorly applied. Incompatible tray adhesive used.	Use manufacturer recommended tray adhesive.
Inadequate drying time for the tray adhesive.	Follow manufacturer instructions for placement and allow five minutes.
Improper use of tray (thin plastic trays can cause deflection and upon removal a rebound effect may take place).	Use either a custom tray or one that is rigid. Use a full tray for bilateral articulation.
Not enough material in tray.	Fill tray with enough solution.
Outdated impression material.	Check expiration date.

EXA'lence™: Predictable flow.

VOIDS AND BUBBLES

PROBLEM

Clinical appearance: voids, bubbles or holes at margins of preparation. Small breaks in the continuity of an impression.

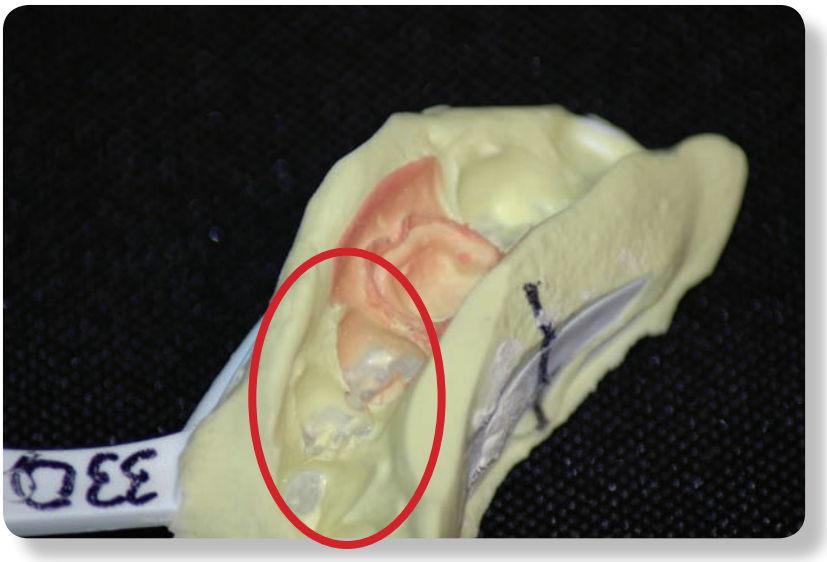
RESULT

Short crowns and/or open margins.

CAUSE	SOLUTION
Improper syringe technique.	Always keep the material in front of and ahead of the syringe tip. Do not lift or pick up the tip while pushing the material around the margin. Only push the material forward.
Blood/saliva/impression cord contaminants.	Rinse area thoroughly to eliminate sulfur based contaminants from glove and hemostatic agents.
Inadequate retention of tissue in the sulcus adjacent to the prep.	Better moisture control is needed. Rinse and dry properly. Use appropriate retraction technique and hemostatic agent to stop bleeding. A two cord retraction technique may be needed to gain more access and control the bleeding.
Tray incorrectly seated.	Insert the impression tray in a straight downward direction to prevent contact with teeth.
Latex gloves.	Use non-latex gloves to avoid contamination (example: vinyl gloves).
Using insufficient material to cover preparation area.	Use enough material to ensure that it flows completely around the prepared area.

EXA'lence™: Exceptional surface tension.

TRAY-TOOTH CONTACT



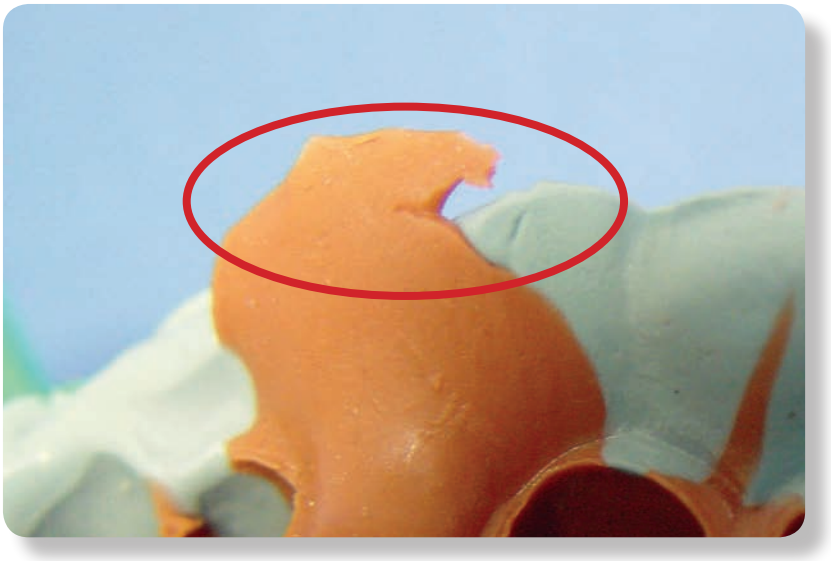
PROBLEM
Impression tray exposed.

RESULT
Crown or inlay may have marginal distortion or slight rock.

CAUSE	SOLUTION
The impression tray contacts the tooth preparations (incorrect tray size or shape).	Use a tray of the proper size. Select a larger, deeper or custom tray. Avoid contact of teeth with tray during impression procedure.
Insufficient impression material in the tray.	Fill the tray with enough impression material.
Not properly seating the tray.	Seat the tray without rocking or excessive movement.
The dentition is not aligned with the tray when seating.	Make sure the tray is adequate enough to allow 2 mm of impression material between the tray walls and the teeth.
Improper technique.	Immobilize the tray. Hold tray without using excessive force. Syringe completely around prep and adjacent teeth.

EXA'lence™: Intrinsically hydrophilic. Superior flow – pre-set hydrophilic nature allows for high flow into the sulcus (thixotropic properties).

PULLS AND DRAGS



PROBLEM

Trough-like or v-shaped void.

RESULT

Failure to have an accurate or complete impression with lack of detail in the dentition.

CAUSE	SOLUTION
Exceeding the working time and poor timing of work and tray material.	Use a material with a longer working time.
Tray seated too late.	Use correct working time specifications recommended by the manufacturer.
Tray movement after seating the impression material.	Do not move the tray after the material is seated.
Not enough impression material used to fill the tray.	In order to create a back flow effect, use enough impression material.
Seating the tray in the mouth with a rapid motion.	Position the tray in the mouth completely, then seat the tray vertically.
Teeth hitting the tray first, then sliding into position.	Teeth should not contact tray at anytime during the impression process.

EXA'lence™: Superior elasticity – elasticity without distortion allows for easy removal.

SURFACE INHIBITION, SLOW SET OR NON-SET

PROBLEM

Shiny or wet appearance with lack of detail in critical areas.

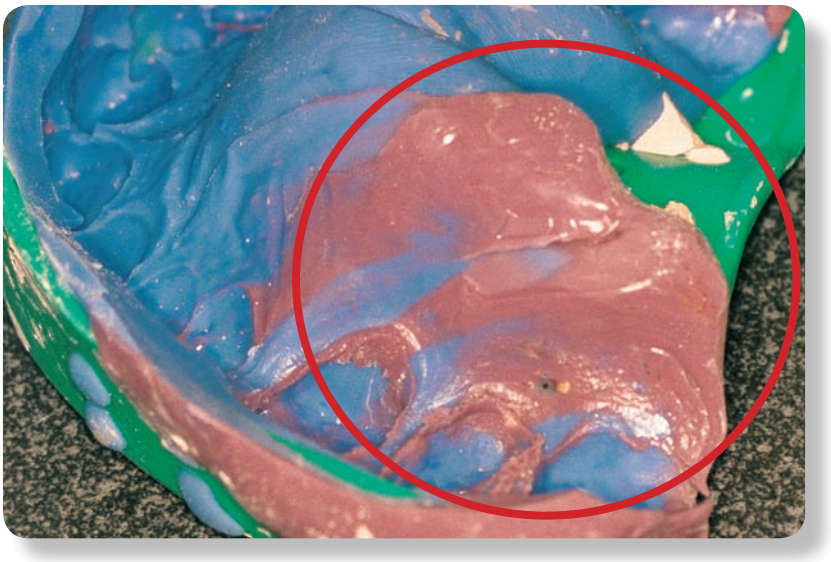
RESULT

Poor fitting prosthetic restorations (Crowns and Bridges).

CAUSE	SOLUTION
Latex glove contamination.	Use latex-free gloves, (example: vinyl gloves).
Materials or residues from custom temporaries.	Rinse thoroughly with diluted hydrogen peroxide or alcohol wipe. Make temporary Crowns after final impression has been made.
Provisional cements.	Rinse thoroughly, with diluted hydrogen peroxide or alcohol wipe.
Expired materials.	Do not use any material that has expired.
Material temperature is too low.	Do not store in refrigerator. Store at 68-72°F. Warm material up to room temperature.

EXA'lence™: Accurate - different setting times available from regular to fast.

DIMENSIONAL CHANGE



PROBLEM

Deformation.

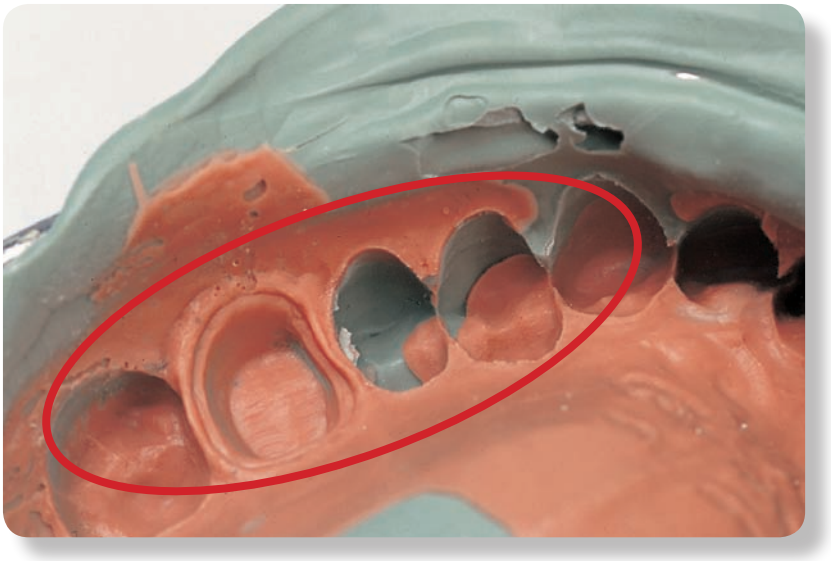
RESULT

Crowns are too short or too tall and will not seat with open contacts.

CAUSE	SOLUTION
Materials not mixed correctly. (tight crowns).	Mix should be complete and set before removal.
Impression material not set and removed too early (tight crowns).	Use passive pressure to hold tray in position until completely set.
Tray moved after material is seated (tight crowns).	Use passive pressure to hold tray in position with no tooth contact on any part of tray.
Poor bond of impression material to the tray (tight crowns).	Use proper tray adhesive and allow for proper drying time as per manufacturers instructions.
Insufficient tray support may cause short crowns.	Use rigid, stock, or custom trays.
Delamination - failure to properly coordinate the working and setting times of wash and tray materials.	Stay within the recommended working time and allow the full setting time recommended by manufacturer.

EXA'lence™: Accurate - produces exceptional detail.

DISTORTED CROWNS



PROBLEM
Distorted crowns.

RESULT
Tight fitting crowns.

CAUSE	SOLUTION
Impression tray improperly seated or moved before material is set.	Seat tray immediately after syringing/expressing material. Seat without rocking or moving tray. Immobilize tray with light pressure until material has set.
Improper tray selection.	Select a more rigid tray. Improper tray expands then rebounds upon removal.
Material separates from tray upon removal from mouth and does not return to original position (creates a distortion).	Always use a tray adhesive, even on perforated trays. Make sure it has time to dry before filling the tray with impression material.

EXA'lence™: Multiple pours – allows for multiple pours due to the toughness and elasticity of material.

TROUGH-LIKE OR V-SHAPED VOID

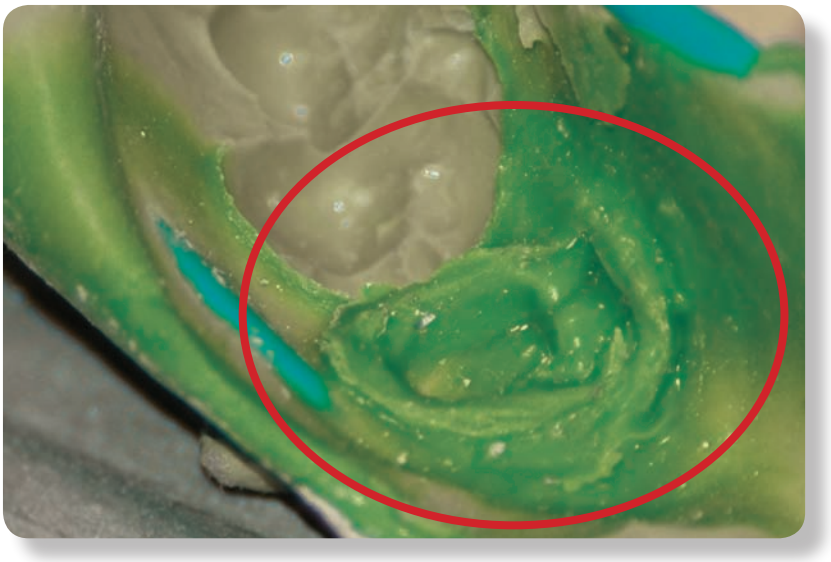
PROBLEM
Material setting too fast.

RESULT
Restoration fits, but occlusion is high.

CAUSE	SOLUTION
Material temperature is too high.	Heat and humidity decrease working time, set time and shelf life.
Interocclusal bite registration is incorrect. Excessive occlusal adjustment.	Use bite registration material to take correct bite and establish interocclusal relationship.
Teeth not in full occlusion (triple tray technique).	Have patient occlude completely without over biting.
Tray rebounds after removal from mouth.	Use more rigid tray.

EXA'lence™: Pleasant mint taste - patient acceptance. Costs less than Polyethers - value. Less remakes - more productive chair time.

MATERIAL SETTING ISSUES



PROBLEM

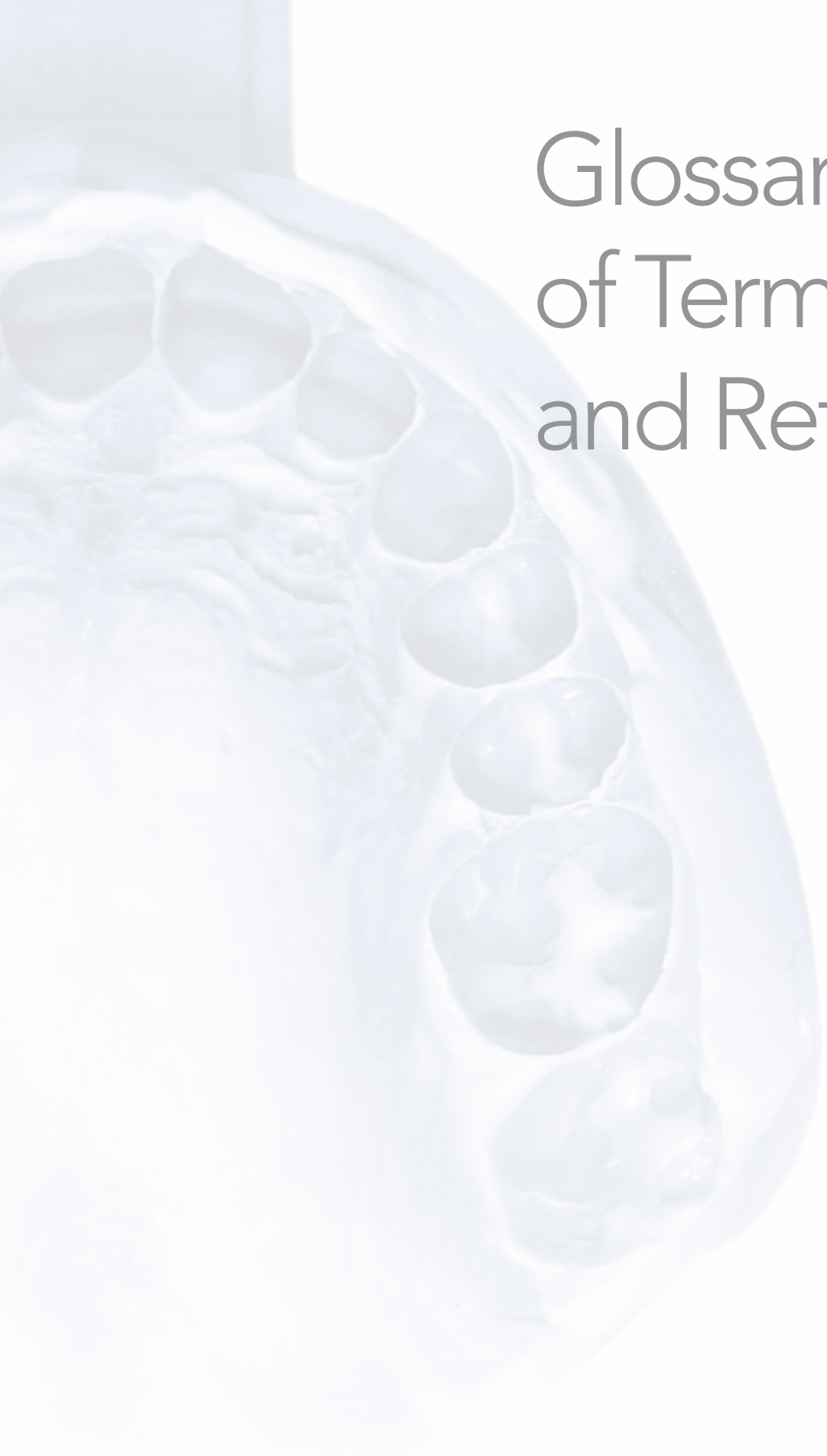
Material around prepared area not setting completely.

RESULT

Incomplete marginal accuracy.

CAUSE	SOLUTION
Retraction cords or hemostatic agents containing ferric sulfate or aluminum chloride inhibiting material set.	Thoroughly rinse and evacuate hemostatic agents from the mouth and flush sulcus thoroughly.
Prepared teeth or surrounding tissue touched with latex gloves.	Rinse and dry preparation area prior to taking impression.
Incomplete moisture control or excessive bleeding.	Improve soft tissue management, minimize saliva accumulation and bleeding or delay procedure until tissue has healed.

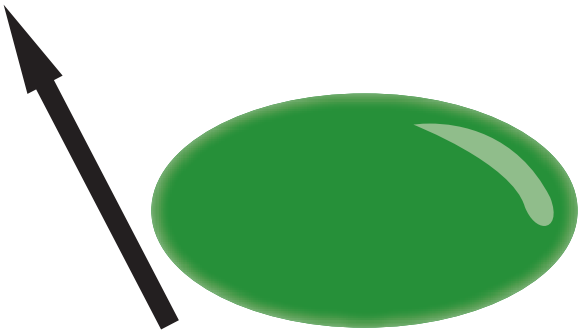
EXA'lence™: Creating predictability in an unpredictable environment.



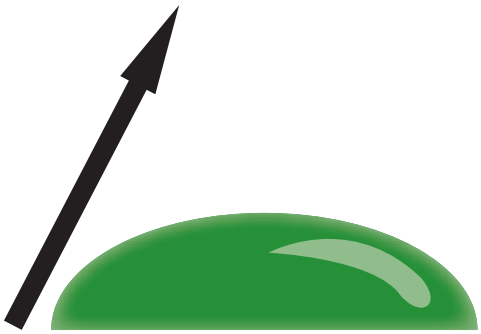
Glossary of Terms and References

GLOSSARY OF TERMS

Contact Angle – The wettability of a surface is usually determined by measuring the contact angle formed between the surface of the wetted solid and a line tangent to the drop of the point of three-phase contact. Small values indicate good wettability. The greater the contact angle, the greater the probability of air entrapment during pouring (see below).



Contact angle > 90°
Hydrophobic



Contact angle < 90°
Hydrophilic

Delamination – The wash material and tray material do not adapt or bond well to one another and separate upon removal of impression from the mouth.

Dimensional Accuracy – The ability of a material to reproduce a passive three-dimensional surface when it is not compressed or stressed.

Dimensional Stability – The ability to maintain accuracy over time, humidity and temperature (example: maximum time until pouring).

Elastometric – The material can be removed from undercuts.

GLOSSARY OF TERMS

Hydrophilicity – Material's affinity for water. The more hydrophilic the material, the smaller the contact angle (example: the droplet flows on the material). When water is the wetting agent, solids with a contact angle of less than 90 degrees are described as hydrophilic and solids with a contact angle greater than 90 degrees are described as hydrophobic. The impression materials will then be classified as readily wettable or hydrophilic and resistant to wetting or hydrophobic.

Imbibition – The absorption of fluid resulting in swelling.

Mixing Time – The elapsed time required making uniformly colored and homogeneous mixture of the components.

Resistance to Deformation – The ability of a material to maintain dimensional accuracy after it has been deformed (example: when removing a material from an undercut).

Setting Time – The transitional time, measured from the beginning of the mix, at which plastic properties that permit molding and impression taking are lost and elastic properties permitting removal of the impression material over undercuts are acquired.

Surface Detail – The ability of an impression material to reproduce details on an object and is necessary to achieve good marginal fit (example: reproduction of detail).

Syneresis – Exudation of the liquid component of a gel.

Thixotropic – The material will not flow easily under low shear force, but under higher shear force it flows easily.

Working Time – The time, measured from the beginning of the mix, when apparent viscosity increases to a level as defined by the procedures of this standard.

REFERENCES

EXA'lence™ Suggested Reading

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3) EXA'lence VPES Impression Material – Dr. Howard Glazer. AGD Impact, April, 2009.
4) Pearls for your Practice – Dr. Joe Blaes. Dental Economics, May, 2009.
5) Technical Profile – EXA'lence in Impression Taking. Inside Dentistry, July-August, 2009.
6) EXA'lence Dental Product Review. Dental Product Shopper, July, 2009.
7) Vinylsiloxanether – A Promising New Category of Impression Material. CRA Newsletter, Volume 2, Issue 7, July, 2009.
8) EXA'lence in Impression – Dr. Howard Glazer. Oral Health and Dental Practice, September, 2009.
9) Clearly Impressive – Dr. Larry A. Lopez. Dental Product Reports, September, 2009.
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11) An Elastometric Impression Material Breakthrough – Richard L. Brown, DDS. Dentistry Today, October, 2009.
12) Outstanding Products of 2009 Buying Guide. CRA Newsletter, Volume 2, Issue 12, December, 2009.
13) Best Pearls of 2009 – Dr. Joe Blaes. Dental Economics, January, 2010.
14) Impression Material Disinfection: Is it Necessary? CRA Newsletter, Volume 3, Issue 2, February, 2010.
15) EXA'lence: The Best of Both Worlds in One Material – Dr. Robert Blitzer. Dental Product Shopper, February, 2010.

Mixing Machine Compatibility

Manufacturer	Mixer	Compatiblility
Renfert for GC	Sympress	Yes
3M ESPE	Pentamix 3	Yes
Kettenbach	PLUG & PRESS Mixer†	NO
Kerr	VOLUME Mixer† (OEM/Kettenbach)	NO
Dentsply	Duomix† (Renfert)	Yes
Heraeus Kulzer	Dynamix† (Renfert)	Yes
Zenith/DMG	MixStar eMotion†	Yes

Viscosity Cross Reference

Viscosity	EXA'lence™ (GC)	EXAMIX™ & EXAFAST™ (GC)	Imprint III† (3M ESPE)	Aquasil† (Caulk)	Impregum† (3M ESPE)	Take 1 Advanced† (Kerr)
Light/Injection	Extra Light Body	Injection		XLV (Xtra Light)		
Light			LB (Light)	LV (Light)	LB (Light)	Light Body
Light/Regular	Light Body (Regular)	Regular	RB (Regular)			Regular
Monophase	Monophase	Monophase	Mono	Monophase	MB (Medium)	Medium
Heavy Body	Heavy Body	Heavy Body	Heavy Body	Heavy Body	HB (Heavy)	Tray
Heavy Body Rigid	Heavy Body Rigid			Heavy Body Rigid		
Putty	Putty	Putty	Putty	Putty		Putty

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Text and Photos Courtesy of James Pavlatos, DDS

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