

Impression Technique Guide

Impression Making – Quality Assurance and Troubleshooting

“Getting It Right... The First Time”



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Diagnosis



NO GINGIVITIS

Exudate continually flows from inflamed tissue. Whenever possible, treat inflamed gingival tissue prior to beginning crown and bridge procedures.

BIOLOGIC SPACE REQUIREMENT

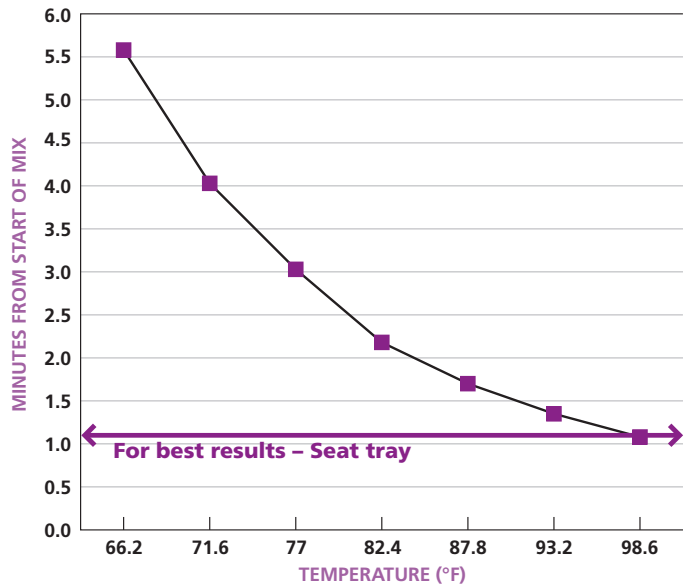
Generally need at least 3mm from the margin of the restoration (Finish Line) to the Alveolar Crest. If current conditions do not allow for this amount space, surgical or orthodontic remedies should be explored.

Material Selection

REGULAR SET MATERIAL

- For one or more preps
 - Seat tray within 1 minute 10 seconds from the beginning of syringing the preparation for best results.
- IMPORTANT NOTE:** Recommendations for seating time are based on the accelerated setting of the wash material as it is affected by mouth temperature.
- Full Mouth and Quadrant Trays

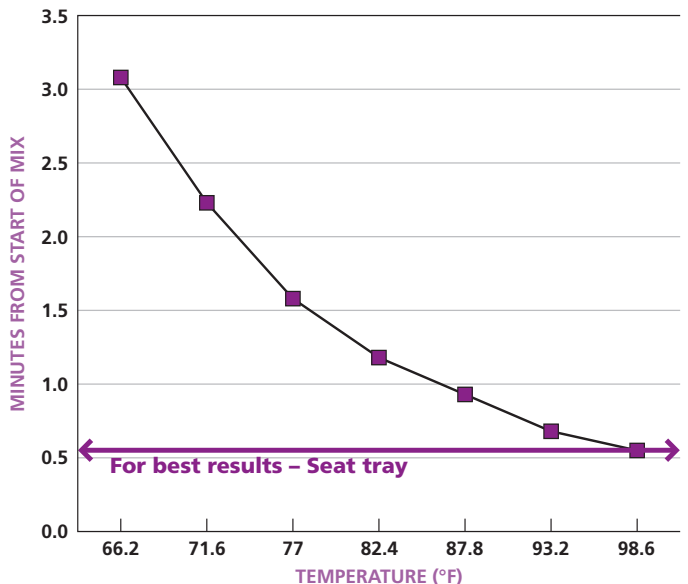
The Effect of Temperature on Work Time – Regular Set*



FAST SET MATERIAL

- For one prep only
 - Seat tray within 35 seconds from the beginning of syringing the preparation for best results.
- IMPORTANT NOTE:** Recommendations for seating time are based on the accelerated setting of the wash material as it is affected by mouth temperature.
- Quadrant Trays only

The Effect of Temperature on Work Time – Fast Set*



*Data on file.

Material Selection



Please read the manufacturer's directions for use.



Store material as directed. Check to make sure expiration dates have not passed. Do not use expired materials.

CHOICE OF TRAY VISCOSITY – DUAL PHASE, ONE-STEP

- Quadrant/Anterior Sextant Closed Bite (First Bite®)
Aquasil Ultra Heavy Body or Rigid
- Quadrant Open Bite/Anterior Sextant (Rim Lock®)
Aquasil Ultra Heavy Body or Monophase
- Full Mouth Stock or Custom Tray (Rim Lock®)
Aquasil Ultra Monophase or Heavy Body

CHOICE OF TRAY VISCOSITY – TWO STEP

Use Aquasil Putty

- The hydrophilicity/wettability of Aquasil Ultra Heavy, Rigid or Monophase may prevent good bonding between the set and unset material.

CHOICE OF WASH VISCOSITY

Aquasil Ultra XLV

- Ideal for equigingival or supragingival margin
Since gingival retraction is often not used for these preparations the additional flow of XLV may be desirable
- Subgingival Restorations
- Inlays/Onlays
- Preference for “runnier” material

Aquasil Ultra LV

- Equigingival, supragingival or Subgingival Restorations
- For maxillary preparations to help resist the forces of gravity
- Preference for “thicker” material

Aquasil Ultra Monophase

- Monophase Technique

Tray Selection

CHOICE OF TRAY

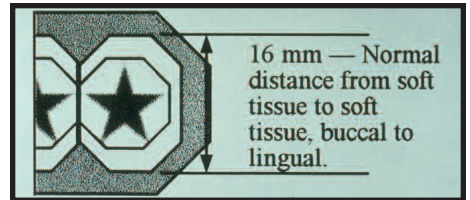
For simple impression (1-2 prepared teeth) in the same quadrant, the clinician may use a closed bite tray, a rigid stock, or custom tray.

For more extensive cases involving a bridge, more than two units in the same arch, or when there is a terminal preparation without an adjacent tooth in occlusion, always use a full arch stock or custom tray.

Tray Configuration

CHOICE OF TRAY

- Any selected tray should have thick enough walls and enough curvature to provide lateral support for the tray impression material, to prevent distortion when pouring the model
- If your tray does not have a wall use a tray material with a low strain value such as Aquasil Ultra Rigid Body (quad only)
- Trays also require enough overall rigidity to prevent distortion and rebound
- Tray should be of adequate configuration to clear teeth and anatomic structures to prevent distortion
- Always apply tray adhesive to supplement the tray's retentive properties



Patient Education



PRACTICE INSERTION

- Seat the tray without adhesive or impression material and instruct patient how to close into centric occlusion.
- Be particularly vigilant when recording a bite record unilaterally as the patient may go into lateral excursion on that side.
- Instruct patients that once the tray is seated they should refrain from any movements that could shift the position of the tray, thereby distorting the impression material at a critical phase during its set.

Glove & Hemostatic Agent Selection



We have found that both aluminum chloride and ferric sulfate containing hemostatic agents do not interfere with the set of vinylpolysiloxane (VPS) materials.

It is the handling of the hemostatic agent and cord with sulfur-contaminated gloves that causes the impression material setting process to slow down or be inhibited.

Hypoallergenic gloves tend to be best.

A well rinsed preparation prior to syringing is ideal.

Tissue and Preparation Management

PREPARATIONS

- Excess moisture should be air dried but do not desiccate. Leave the preparation moist (ideal for Aquasil Ultra) but avoid pooled liquid.

TISSUE MANAGEMENT

- The most predictable type of tissue management results from healthy gingiva that has not been traumatized.
- Gingival retraction techniques are largely a matter of preference. Regardless of the specific technique selected, it is advisable to create a lateral space of $> 0.5\text{mm}$ (ideal is 1mm since this is more visible to the naked eye) and an apical extension beyond the finish line of $> 0.5\text{mm}$ (ideal is 1mm since this is more visible to the naked eye).
- Care should be taken when a heavy/rigid tray material is used to avoid locking an impression in undercuts. If undercuts exist (especially between teeth) block them out with soft wax.
- If hemostasis can not be achieved it may be preferable to provide the patient with a well fitting temporary restoration, home care instructions, and postpone impression making until soft tissue inflammation has subsided.

Washing/Syringing of the Preparation

- If time permits, use a syringe as it is ideal for access to the sulcus and tactile feedback.
- Begin syringing the preparation. At the same time the assistant should be loading the tray.
- Seat the tray as soon as you are finished syringing the preparation to ensure no folds, pulls, drags and good co-lamination.
- Continue syringing around the preparation while pushing the material forward and keeping the tip buried in the material.
- When approaching interproximal areas it may be necessary to express material thru the interproximal and continue injecting into the sulcus on the opposite side of the proximal area.
- When coverage of the marginal area is completed, proceed coronally and circumferentially using the same principle of keeping the tip buried and pushing the material forward.
- Remove the tip from the material after prep and each adjacent occlusal/incisal surface is entirely covered with wash material.
- Some clinicians have found benefit from placing a layer of wash on the tray material prior to seating.

Seating and Removal of the Tray

- Retract cheek bilaterally when seating, even for a triple tray impression, since a patient may favor the retracted side when closing and not close into centric occlusion.
- Position the tray before seating. The tray should be aligned parallel to the occlusal plane to ensure vertical seating.
- Use a slow continuous vertical seating motion.
- For a closed bite have patient close into centric occlusion.
- The patient should perform no jaw movement until the impression is ready to be removed.
- After mouth removal time relieve pressure peripherally and remove tray by grasping handle and quickly snapping from sealed position.

Disinfection

Aquasil Ultra is compatible with most EPA registered surface disinfectants. Follow the Aquasil Ultra and surface disinfectant manufacturer's Directions for Use.

Troubleshooting Information

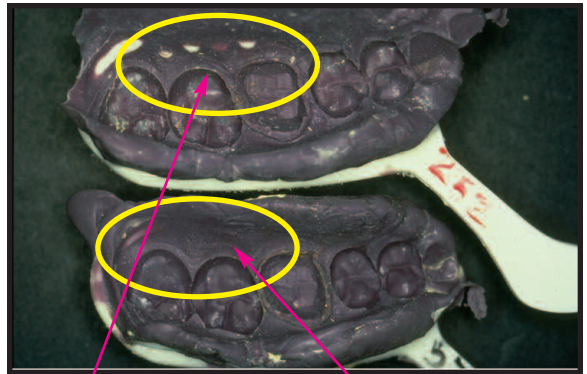


Incorrect

Need to have more contact on adjacent teeth

Correct

Occluding contacts evident



Incorrect

Correct

INADEQUATE OCCLUSION WITH CLOSED-BITE IMPRESSION

Take closed bite impression and hold it to a light.

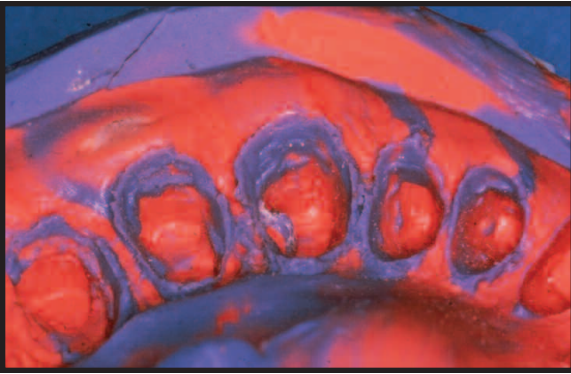
TISSUE CONTACT WITH TRAY

Problem:

- Size and shape of tray is not correct
- Tray is not seated correctly
- Not enough tray or wash material used

Solution:

- Fill tray 2/3 full. Use more wash material around preparation and adjacent teeth.
- Use custom tray or 2-step putty/wash in a stock tray.
- Check tray size and retake impression.
- Seat tray evenly.
- Avoid tooth contact with tray while seating.



NOT ENOUGH WASH MATERIAL & TOOTH CONTACT WITH TRAY



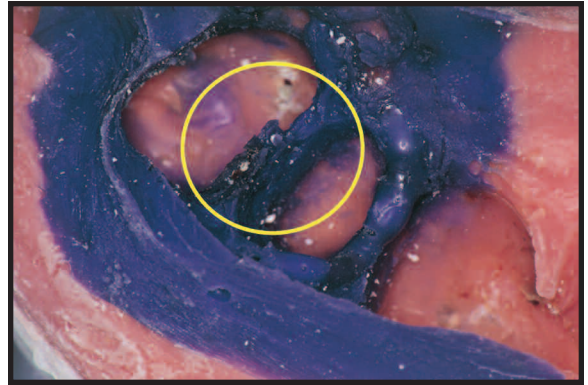
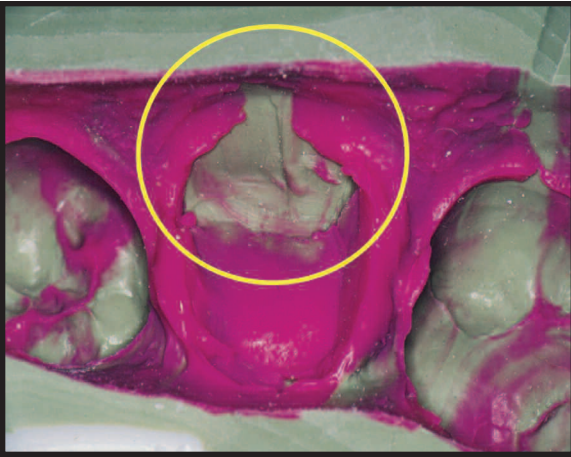
NOT ENOUGH TRAY MATERIAL

Problem:

- Unable to capture all the detail needed.
- Will not be able to support the weight of the die stone when pouring.

Solution:

- Fill tray 2/3 full.
- Use more wash material around preparation and adjacent teeth.
- Use custom tray or 2-step putty/wash in a stock tray.



INADEQUATE MARGINS

Problem:

- Insufficient Tissue Management.
- Insufficient wash material.
- Tip not continually submersed within impression material and sulcus.
- Tearing of the margin.
- Exceeding working time of material.
- May require additional tooth preparation for adequate sulcus width.

Solution:

- Ensure good tissue management. At least 0.5 mm apical and 0.5mm laterally. No gingivitis or "pumping" sulcus. Clean field is critical. Double cord may alleviate.
- Keep syringe tip immersed in material and sulcus and push the material 360 degrees around sulcus.
- Use wash material that has higher tear strength properties.
- Seat Regular Set material within 1 minute 10 seconds and Fast Set material within 35 seconds.

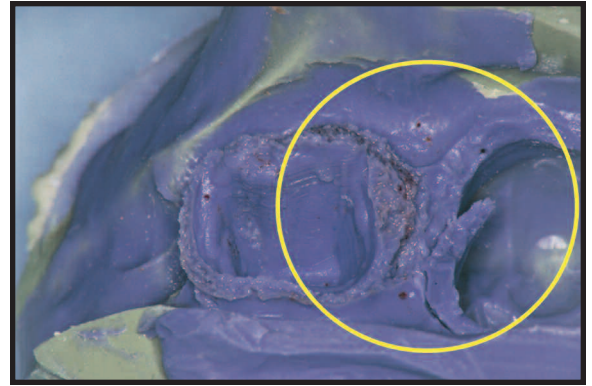
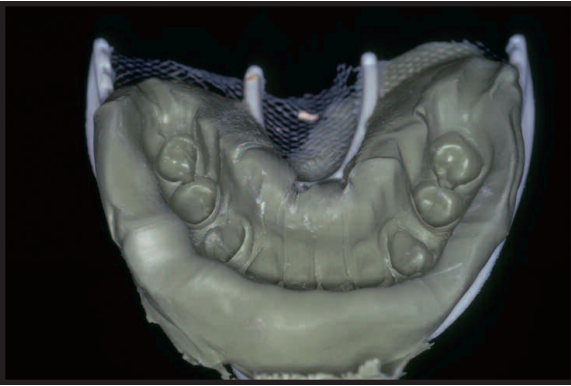
VOIDS & BUBBLES

Problem:

- Improper syringe technique.
- Air incorporated into syringe while loading material into syringe or tray.
- Blood/saliva contamination around preparation.

Solution:

- To prevent "voids", always "push" the material ahead of the syringe tip as the tip is circled around the prep, and do not pick up the tip around the margin. Keep expressing syringe material while withdrawing syringe tip.
- If using a syringe, load from the front rather than the back.
- Ensure no excess/pooling of moisture.
- Rinse retraction cord thoroughly prior to removal to eliminate sulfur based contaminants from hemostatic agent or glove.



PULLS & DRAGS

Problem:

- Timing of wash and tray materials not synchronized.
- Tray seated too late.
- Tray movement during impression material setting reaction.

Solution:

- See section on Material Selection, Patient Education and Seating and Removal of the Tray.

TEARING

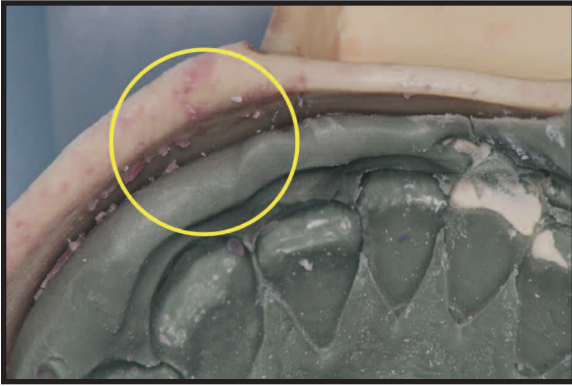
Problem:

- Poor tear strength of impression material.
- Inadequate space created during retraction.
- Premature removal from mouth.
- Inadequate blocking of severe undercuts.

NOTE: Torn margin of a PVS impression will have a shiny appearance.

Solution:

- Use Aquasil Ultra Smart Wetting® Impression Material.
- Ensure > 0.5 mm of lateral retraction circumferentially around finish line. The greater the bulk of impression material the more resistance to tearing.
- Use a timer to ensure the setting reaction from time of mix is complete. An additional safeguard would be to check the set of the peripheral areas of the impression prior to removal.
- Block severe undercuts with easily removable material such as soft wax.



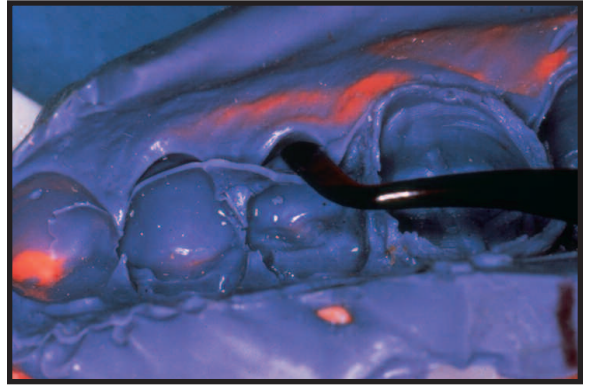
INADEQUATE TRAY ADHESION

Problem:

- Tray adhesive not used or applied properly.
- The impression material can shrink away from the tray causing distortion that results in a reproduction smaller than the tooth.
- The tray is no longer supportive of the impression material and distortion could result upon pouring.

Solution:

- Use tray adhesive recommended by manufacturer.
- Apply one thin even coat of adhesive to tray covering all areas of contact between tray and impression material.
- Allow 5 minutes to dry.



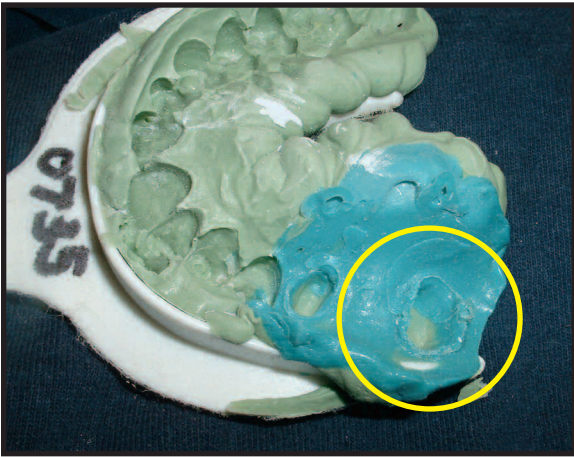
DE-LAMINATION/LACK OF CO-ADAPTATION

Problem:

- Timing of wash and tray materials not synchronized.
- Material not setting.
- Latex contamination.
- Provisional residual from oxygen inhibition layer.
- Blood/saliva/water contamination especially with a two step technique when a spacer is not used.
- Relining of impression with wash material.

Solution:

- Seat Regular Set material within 1 minute 10 seconds and Fast Set material within 35 seconds.
- Use a spacer for Two Step techniques.
- Latex gloves should not touch material.
- Ensure proper isolation.
- Do not use the same impression in a two step technique for the provisional matrix and the final impression.
- Do not reline.



DO NOT RELINE

Relining is not an option as it does not provide proper co-lamination and will distort the impression.

