HUGE

Impression Procedure Guide

Learn how to identify, prevent, and solve common issues during dental impression procedures.

Key Factors for Perfect Impression Taking

Precise and detailed impressions are the cornerstone of high-quality prosthetic restorations. They ensure better fit, natural aesthetics, and fewer adjustments. To take a good impression, consider the following factors:

Material selection

a. Choose appropriate tray and wash material viscosities and setting type (normal or fast) according to technique and indication.

· *Small span restoration: use a fast set (1-3 teeth)*
· *Large span restoration: use a regular set (3+ teeth)*

b. Ensure the impression material has good hydrophilic properties, high elasticity, dimensional stability, and good recovery from deformation.

Tissue and tooth preparation management

a. Properly manage tissue and tooth preparation to ensure clear margins and reduce contamination.
b. Control bleeding and moisture before impression if necessary.

Tray selection and handling

a. Use proper fitting, rigid, and sturdy impression trays.
b. Use gloves that do not inhibit the setting of the impression material
c. Fill the tray with enough material; avoid underfilling.
d. Apply tray adhesive if necessary and let it dry. Ensure strong bond between tray and material.

Retraction cord and retraction technique

Use proper retraction cord technique to expose margins while avoiding materials that inhibit setting.

Impression techniques

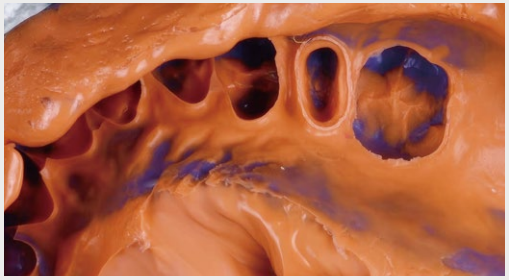
a. Assure a uniform and homogeneous mix of material.
b. Fill the tray sufficiently with impression material.
c. Avoid air bubbles during intraoral syringing of the wash material by immersing the tip into the material.
d. Avoid tooth contact with the tray during impression taking.
e. Strictly follow the working and setting time of the impression material.
f. Apply controlled pressure when seating the tray to avoid contact with teeth or tissue.
g. During intraoral setting, prevent any tray movement to avoid distortion.
h.Check that margins are fully captured, free of defects, with proper blending and bonding between the tray and wash materials.

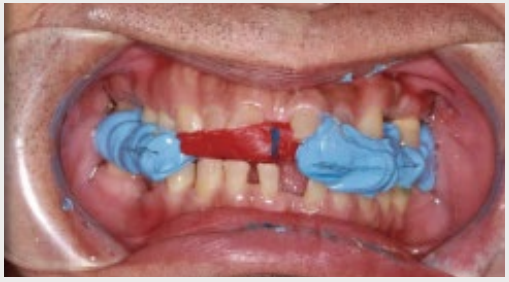
Infection control/disinfection

a. Disinfect the impression according to the recommended protocol.
b. Rinse the impression with water after disinfection and dry it before sending it to the laboratory.

Bite registration

a. Maintain stable and correct jaw position during registration.
b. Avoid excessive material thickness to prevent occlusal errors.
c. Ensure the bite record is free of distortion and deformation.
d. Trim excess material and check the bite registration for accuracy.



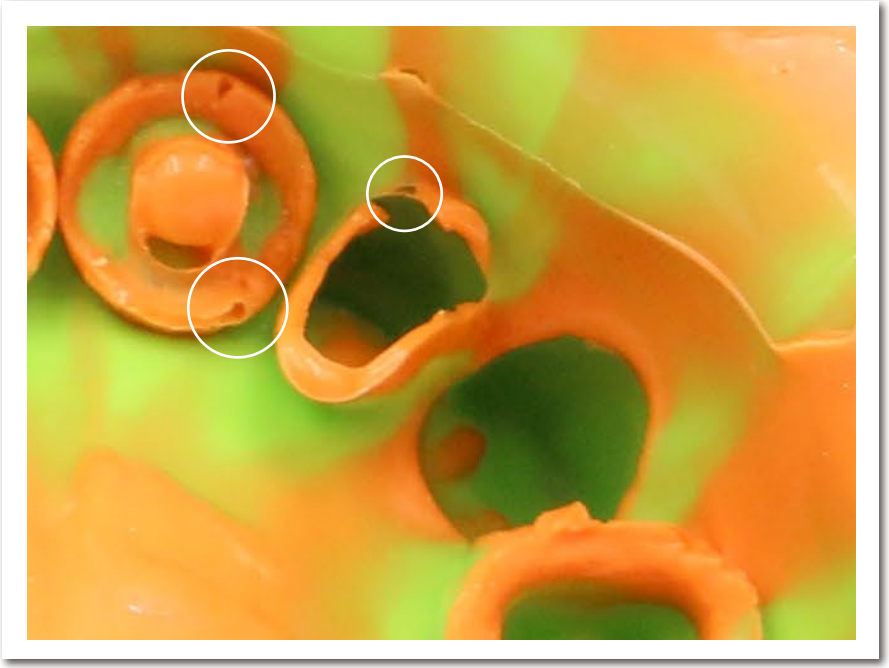


Impressions made with PERFIT Impression Materials
Photos courtesy of BRUNA S.H.TONIN DDS,MSc, Certificate in Prosthodontics, PhD Postdoctoral Researcher, Department of Restorative Dentistry-School of Dentistry of Ribeirão PretoUniversity of São Paulo

What Does a Perfect Impression Look Like?

A precise impression captures every detail — from margins to occlusal surfaces — with no bubbles, tears, or voids. It's the foundation of accurate restorations and patient satisfaction.

Troubleshooting Guide



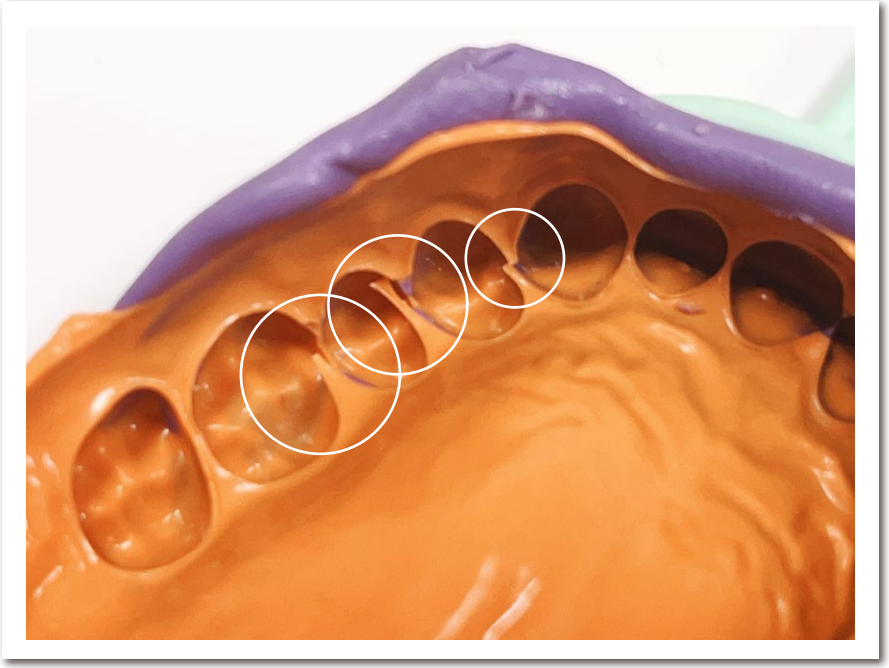
1 Voids on the margin.

Result:

The fit and function of the final restoration may be compromised.
Short crown margins and/or marginal gaps.

Causes	Solutions
Improper syringe technique.	Keep syringe tip immersed in wash material to avoid entrapping air. Wiggle and stir while syringing. Push material forward.
Air bubbles in elastomer syringe or intra-oral syringe.	Keep the flow of material consistent. Do not stop while loading the syringe. Additionally, dispense a small amount of material and discard it before use.
Tray not seated properly.	Insert impression tray properly.
Excess blood or saliva around the preparation.	Ensure blood and saliva are removed before taking the impression. Using the 2-step impression technique can help to clear any remaining blood or saliva from the sulcus.
Inadequate coverage of marginal area with light body impression material.	Use wash material liberally on preparation and abutments.
Working time exceeded.	Follow manufacturer's working time specifications.
Impression material stored at elevated temperature.	Store impression materials according to the manufacturer's instructions. PERFIT impression materials are recommended to be stored at temperatures between 5–25 °C.

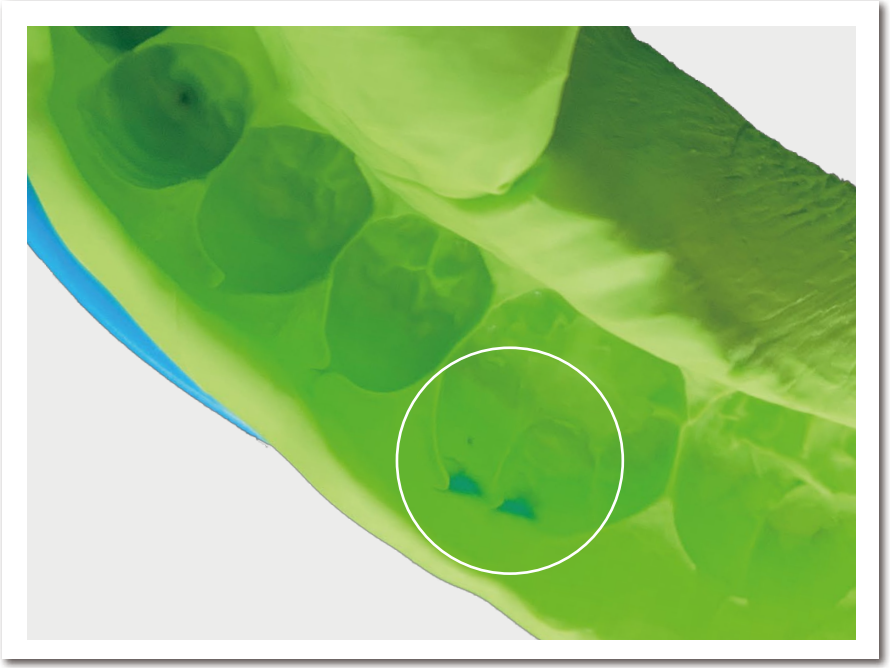
Causes	Solutions
Insufficient retraction.	Proper retraction of the sulcular area to at least 0.5mm. Consider a two-cord retraction Technique.
Bleeding or contamination around the preparation.	Control bleeding before impression. Rinse thoroughly, dry the area, or postpone the procedure until tissue heals.
Low tear strength of the material.	Use impression material with sufficient tear resistance.
Inadequate mix.	Use recommended mixing tips. Bleed the tip before placement of material. Mix thoroughly until uniform and streak-free.
Setting inhibition.	For VPS: Avoid contact with sulfur or nitrile components (latex or nitrile gloves). If contamination is suspected, clean the area with diluted hydrogen peroxide.
Impression removed before material has set.	Follow manufacturer's instructions for intra-oral setting time.
Expired impression material.	Do not use expired impression material.



2 Tearing at the margin.

Result:

Visible tears at the margin leading to open or incomplete crown margins.



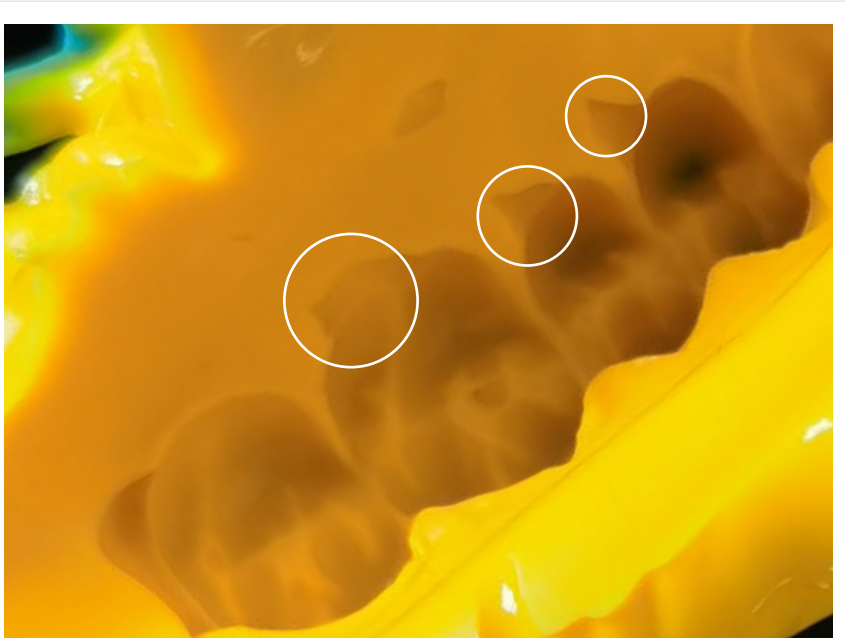
3 Tray-tooth contact.

Result:

Impression tray exposed.Crown or inlay may have marginal distortion or slight rock.

Causes	Solutions
Tray too small or improperly shaped.	Use a tray of proper size and shape. Consider larger deeper, or custom trays. Avoid tray contact with teeth during impression.
Insufficient impression material in the tray.	Fill the tray with enough impression material.
Tray not properly seated.	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.
Poor patient cooperation (movement or early closure).	Instruct the patient to stay still and keep mouth open until the material sets.

Causes	Solutions
Inappropriate impression tray selected.	Apply facial/oral/distal stops to direct flow of material. Use an impression tray that supports the flow of the material, e.g. trays with side walls or custom tray.
Insufficient amount of impression material used.	Use more material to create a back flow effect.
Tray movement or repositioning after seating.	Do not move tray after seating.
Working time exceeded.	Follow manufacturer' s working time specifications. Or choose material with longer working time.



4 Facial-oral flow defects.

Result:

Failure to capture complete and accurate dentition.

5 Impression material not completely set

Result:

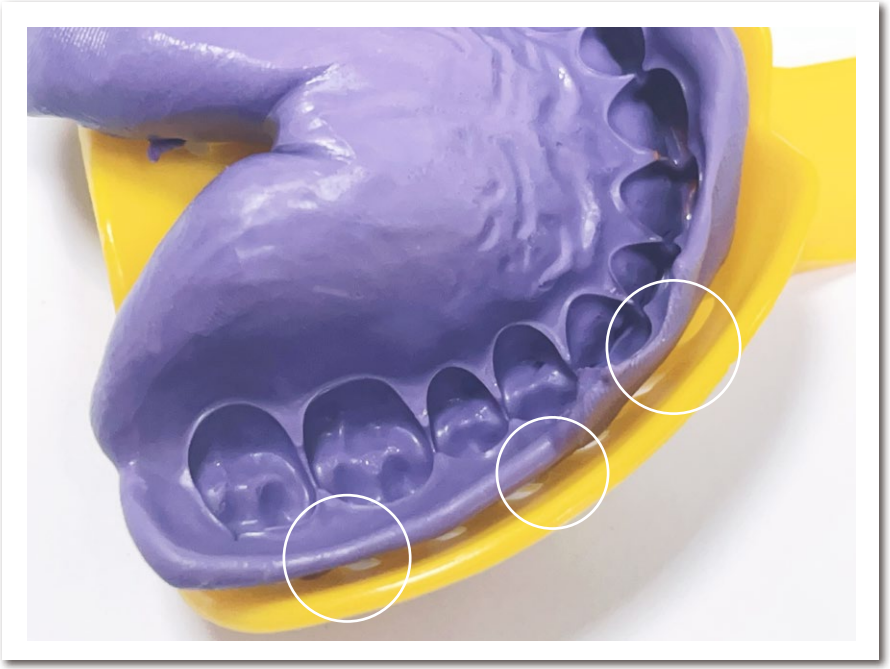
Incomplete surface reproduction on the stone cast, unset parts may stick to cast, leading to poor fit of the final restoration.

*Intraoral sources: medications, existing restorative materials such as amine-containing root canal sealers.
Extraoral sources: 3D-printed model materials.

Causes	Solutions
Inhibition of setting due to contact of latex gloves with tissue, tooth surfaces, retraction materials, or impression materials.	Wear PE or PVC gloves. If contamination is suspected, scrub affected area with diluted hydrogen peroxide, then rinse and dry.
Smear layer from custom temporary, provisional cements (acrylics) or core built-up present.	Fabricate the provisional crown or bridge first, or remove the air-inhibited layer on the surface using an alcohol wipe. Don't use impressions used to fabricate the provisional restoration for subsequent precision impression making.
Inhibition of setting due to contact with other inhibitory compounds during polymerization, originating from intraoral sources or extraoral sources.*	Avoid contact with inhibitory materials and ensure all surfaces are properly cleaned before impression taking.
Inadequate mix.	Use the recommended mixing tip and ensure proper attachment. Bleed before use. For hand-mix materials (e.g. Putty), mix base and catalyst thoroughly to a uniform consistency.
Expired impression material.	Do not use expired impression material.
Material degradation due to expiration or improper storage conditions.	Use only non-expired, qualified products and ensure proper storage conditions before use.

Causes	Solutions
No tray adhesive used.	Use **PERFIT Tray Adhesive*** for all types of impression trays (full arch, quadrant, dual-arch).
Inadequate drying time for the tray adhesive.	Follow manufacturer instructions forplacement and allow 3 minutes
Not enough material in tray.	Fill tray with enough impression materials.
Tray distortion upon removal.	Use stiff and rigid trays. Make sure that trays fit well.
Expired impression material.	Do not use expired impression material.

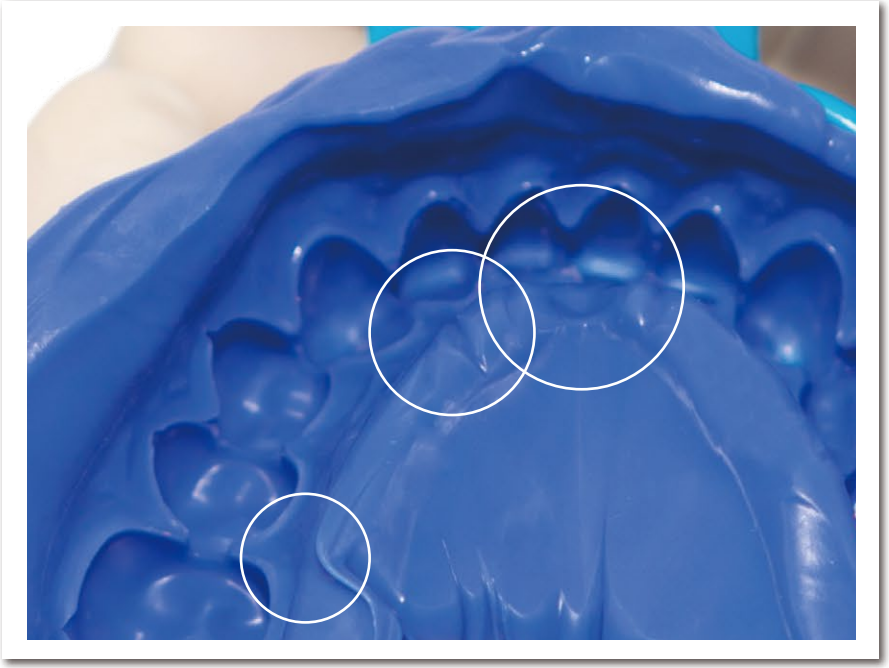
PERFIT Tray Adhesive



6 Poor bond of impression material to the tray

Result:

Impression material pulling away from the tray, causing distortion. This may result in the final restoration being tight, ill-fitting, or requiring excessive adjustment.



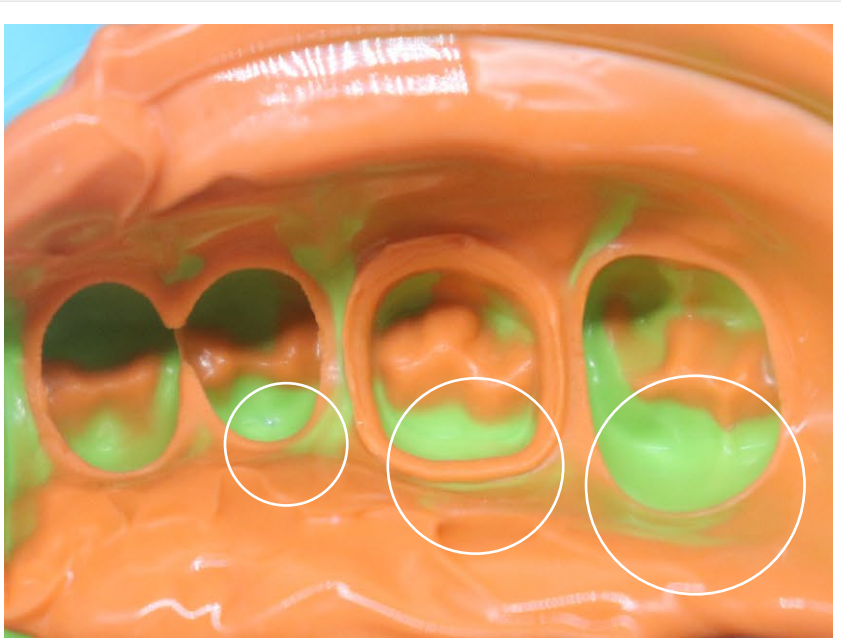
7 Dimensional change.

Result:

Restorations may be too tight/too short and require excessive adjustment.

Causes	Solutions
Impression material not set and removed too early.	Use passive pressure to hold tray in position until completely set.
Tray moved after material is seated.	Use passive pressure to hold tray in position with no tooth contact on any part of tray.
Distortions during impression removal.	Balanced impression tray removal. Avoid unilateral rotation causing high distortion forces.
Lack of support of the tray by operator during the initial phase of polymerization.	Use rigid, stock, or custom trays.
Improper coordination of working and setting times between wash and tray materials, resulting in delamination.	Follow the manufacturer's recommended working and setting times to ensure optimal bonding.
Impression material stored at elevated temperature.	Store impression materials according to the manufacturer's instructions. PERFIT impression materials are recommended to be stored at temperatures between 5-25°C.

Causes	Solutions
High viscosity difference between tray material and wash material.	Avoid high viscosity contrast between tray and wash materials. Combine putty with high viscous wash materials.
Working time of tray material exceeded when tray is seated.	Make sure that the tray is seated within the working time of the tray material.
Insufficient amount of wash material applied.	Use enough wash material, including around the prepared teeth.
Blood and saliva contamination around preparation.	Rinse and dry the prepared area before making the impression. If necessary, control bleeding using retraction cord or hemostatic agents.



8 Wash material displaced from preparation area.

Result:

The fit of the final restoration may be compromised.

9 Preparation margins complete but not sharp.

Result:

Final restorations may not fit properly (too tight, too loose, too short, too long).

Causes	Solutions
Thick blood and saliva contamination around preparation.	Remove blood and saliva before making impression.
Inadequate retraction of sulcus around preparation.	Use good retraction technique and adequate moisture control.
Inhibition of setting due to use of acidic retraction materials / haemostatic agents like aluminum or ferric salts	Thoroughly rinse preparation with water and dry before taking the impression.
Inhibition of setting of VPS impression materials due to contact with sulfur from latex gloves or components in nitrile gloves.	Use gloves free of these components, such as PE or PVC gloves.
Improper storage temperature of the impression material (change setting time and viscosity).	Follow the manufacturer's instructions. PERFIT impression materials are recommended to be stored at 5–25°C.
Working time exceeded.	Follow manufacturer's working time specifications.Or choose material with longer working time.
Insufficient disinfection of the impression surface.	Use recommended water based disinfectants.

Causes	Solutions
Improper syringe technique.	Bleed the tip before placement of material. Keep syringe tip immersed in wash material to avoid entrapping air.
Inadequate surface preparation.	For gypsum models, soak in water for 5 minutes before making the impression. For 3D-printed models, ensure complete curing (at least 4 hours) or apply a separator before use.
Improper handling technique.	Use a pressure polymerizer to assist material curing if available. This can significantly reduce air bubbles.
Impression material stored at elevated temperature.	Store impression material at room temperature.
Expired impression material.	Do not use expired impression material.

10 Voids in transparent silicone impression.

Result:

Voids reduce accuracy and light transmission, affecting the final restoration quality.

Your Partner in Prosthetic Dentistry

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