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Photos and recommended steps curtesy of  
Dentsply Sirona.

# INTRODUCTION

A “Reference Denture” utilizes the patient’s existing, worn denture as a template for constructing a new prosthesis and eliminates the preliminary impression step. Complete the Clinical Assessment, evaluating the patient and the existing prosthesis, to determine the workflow feasibility for the case. If the criteria is not met, reference the *3D - Printed Denture Workflow Guide* for step-by-step new denture technique instructions.

## WORKFLOW OVERVIEW

1

### APPOINTMENT ONE

- Evaluate the patient and the existing prosthesis
- Border mold using PVS material
- Wash impression using PVS material
- Capture the plane of occlusion, lip support, vertical, and central incisor length
- Record measurement - “width on curve” or distance from distal - distal of canines and the midline
- Capture the bite registration
- Scan the bite registration and impression surfaces

*Laboratory* STEP ONE

Design and print the try-in denture

2

### APPOINTMENT TWO

- Insert and evaluate the printed try-in
- Evaluate the vertical, occlusion, midline, tooth length and record adjustments as needed
- Evaluate the fit – take a wash impression if necessary
- Capture the try-in bite registration
- Scan the bite registration (and the impression if taken)
- Notate criteria for re-printing the try-in denture or printing the final denture:
  - If changes exceed 4mm reprint the try-in with the new adjustments
  - If changes are 4mm or less, print the final denture

*Laboratory* STEP TWO

Design and fabricate the final digital denture

3

### APPOINTMENT THREE

- Insert and evaluate the final denture
- Verify the fit, vertical, occlusion, midline, and tooth length

## CHAIRSIDE MATERIALS



Aquasil® Ultra+  
Smart Wetting®  
Impression Material  
HEAVY Fast Set



Aquasil® Ultra+  
Smart Wetting®  
Impression Material  
LV Fast Set



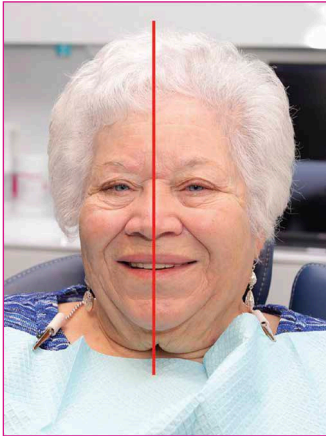
Aquasil® Ultra+  
Smart Wetting®  
Impression Material  
XLV Fast Set



Aquasil Bite  
Vinyl Polysiloxane  
Bite Registration  
Material

**CLINICAL ASSESSMENT**

If the following reference denture criteria is met, including patient and reference denture requirements, complete the steps for impressing and records. Prior to starting the assessments, remove and clean any denture adhesive that may be on the patient or the prosthesis.

**PATIENT ASSESSMENT**

- Midline of the reference denture is true (or several mm close to true) to the midline of the face.
- Incisal length is adequate.
- Occlusion is worn and there is a reduction in the upper lip fullness, but the denture is adequate for reference denture use.

**MAXILLARY DENTURE ASSESSMENT**

- Occlusion is worn but still adequate to obtain an accurate bite registration. (Avoid using an excessively worn prosthesis.)
- Base and teeth are intact - no broken, chipped, or missing teeth.
- Borders are well-extended and not excessively short (>5mm).
- Base covers the tuberosities.
- Base is stable with no extensive rocking.

If reference denture criteria is met, clean the denture in preparation for impressing.

**MANDIBULAR DENTURE ASSESSMENT**

- Occlusion is worn but still adequate to obtain an accurate bite registration. (Avoid using an excessively worn prosthesis.)
- Base and teeth are intact - no broken, chipped, or missing teeth.
- Borders are well-extended and not excessively short (>5mm).
- Base covers the retromolar pads.

If reference denture criteria is met, clean the denture in preparation for impressing.

# 1

## APPOINTMENT ONE *Continued...*

### IMPRESSIONS



#### APPLY TRAY ADHESIVE

Apply a thin layer of tray adhesive to the maxillary/mandibular denture border(s) using a disposable applicator - extend the tray adhesive to the cameo surface(s). The tray adhesive should be in a thin, even layer, free from pooling.

Use a gentle application of compressed air to help evaporate the solvent, as necessary.

**Apply Aquasil Ultra+ Smart Wetting Impression Material within 30 minutes of tray adhesive application.**

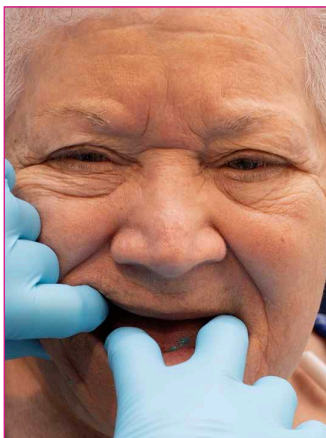
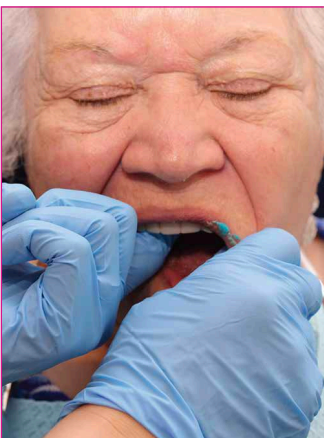


#### BORDER MOLD

Apply a bead of Aquasil Ultra+ Smart Wetting Impression Material HEAVY Fast Set to the maxillary/mandibular denture border(s) covering all borders excluding the posterior. The posterior seal will follow in a subsequent step.

**Aquasil Ultra+ has a bench working time of 60 seconds.**

- Total set time is 2 minutes 30 seconds (2:30).
- Use a timer for time adherence.



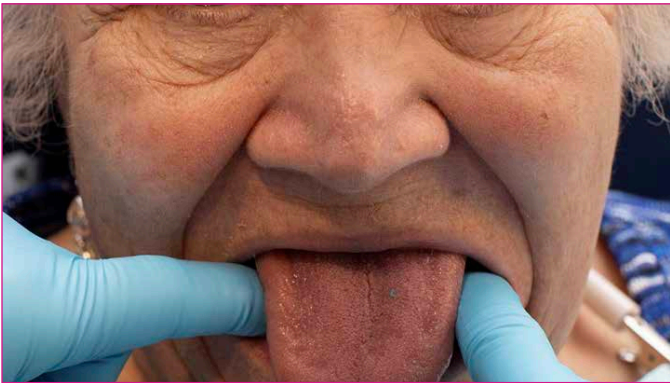
Seat the maxillary/mandibular denture(s).

**Provide patient instruction to complete the following steps:**

- Have the patient pucker their lips and hold for a few moments to capture the motion of the orbicularis oris.



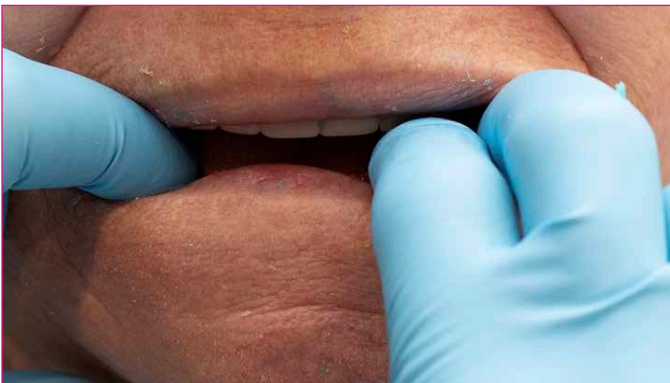
# 1 APPOINTMENT ONE *Continued...*



- 
- Have the patient lick their lips, then move the tongue from side to side.
  - Have the patient stick their tongue straight out.



- 
- Pull down the left and right cheeks to record the border rolls.
  - Pull up the lip to record the anterior border.



- 
- Keep the denture(s) firmly seated on the alveolus until fully set: **2 minutes 30 seconds** from the start of the mix.
  - Remove the denture(s) once fully set.

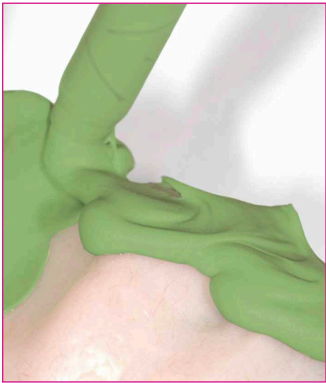


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Completion of the first border molding step is shown. Minor show-through of the base is acceptable when using a reference denture.

1

# APPOINTMENT ONE *Continued...*



## POSTERIOR BORDER MOLD

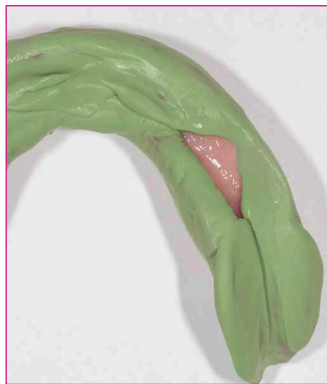
Apply a bead of Aquasil Ultra+ Smart Wetting Impression Material HEAVY Fast Set to the posterior of the maxillary/mandibular denture(s) and re-seat until set to capture the posterior border. Complete posterior seal shown in the image to the right.

**Aquasil Ultra+ has a bench working time of 60 seconds.**

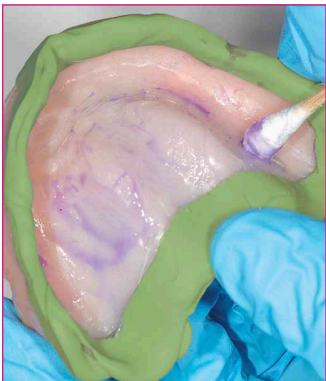
- Total set time is 2 minutes 30 seconds (2:30).
- Use a timer for time adherence.



Trim excess material from the cameo surface(s) maintaining the border roll.



Final border molding shown.



## LOW VISCOSITY IMPRESSION

Apply tray adhesive to the exposed acrylic.

# 1

## APPOINTMENT ONE *Continued...*

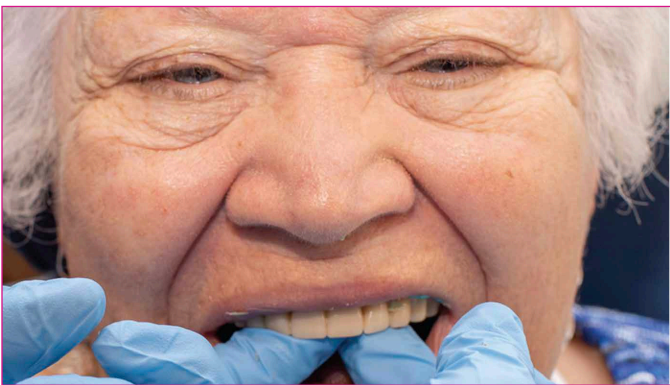


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Apply Aquasil Ultra+ Smart Wetting Impression Material LV Fast Set to the intaglio surface(s) of the maxillary/mandibular denture(s).

**Aquasil Ultra+ has a bench working time of 60 seconds.**

- **Total set time is 2 minutes 30 seconds (2:30).**
- **Use a timer for time adherence. the patient pucker their lips and hold for a few moments to capture the motion of the orbicularis oris.**



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Firmly re-seat the maxillary/mandibular denture(s) and repeat the border molding movements. Maintain denture seating until the material sets.



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A final maxillary and mandibular impression is shown. Note the well-formed borders and complete capture of the anatomical landmarks.

Note: Never modify a patient's existing denture.



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### BITE REGISTRATION PREPARATION

Use a sharp knife to remove excess wash material from the cameo surface(s). Ensure the complete removal of impression material from the tooth surfaces.

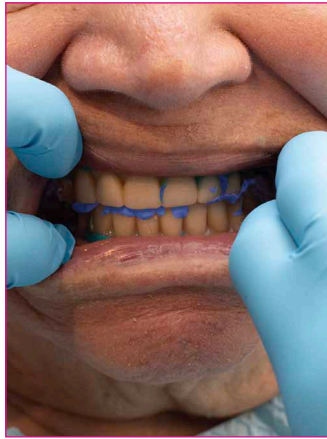
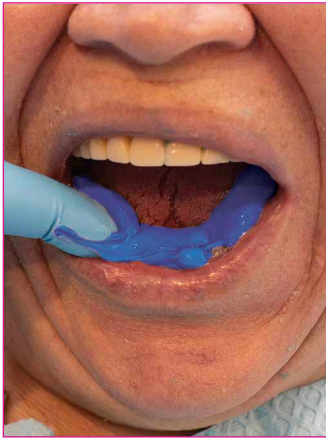
Trim excess material from the cameo surface of the maxillary tuberosity area and the heel area of the mandibular denture. Preparation is critical to ensure adequate scanning of the cameo surface(s).



# 1

## APPOINTMENT ONE *Continued...*

### RECORDS



#### BITE REGISTRATION RECORD

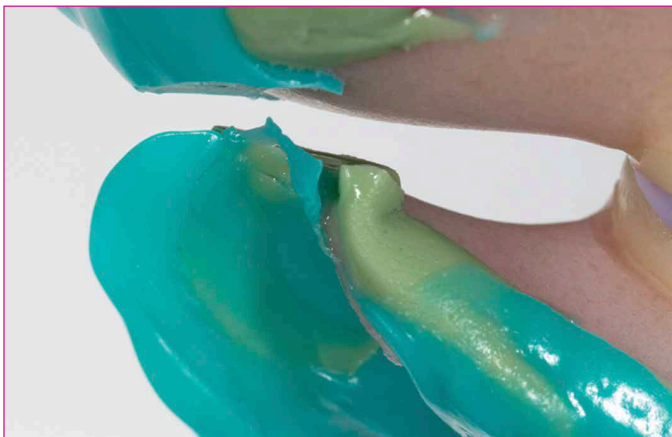
Work with the patient to establish a repeatable centric closure. A patient with a worn, existing occlusion may need several tries before establishing a repeatable closure. Apply Aquasil Bite Vinyl Polysiloxane Bite Registration Material to the occlusal surfaces of the mandibular teeth. Close the patient into the practiced centric closure. Instruct the patient to maintain, or manually maintain jaw relationship without movement until **1 minute** from end of placement. Check material in the mouth (not on the bench) to be sure it is firm, resilient, and non-tacky before removal.

Work time	30 seconds minimum from the start of mix at 22°C
Minimum Removal Time (MRT)	1 minute from placement onto occlusal surfaces



#### BITE REGISTRATION VERIFICATION

Check for complete posterior clearance and complete seating of teeth into the record on both sides.



Prior to scanning, trim excess registration material to visualize the interocclusal registration and teeth. Follow proper disinfection protocols and send the impression(s) to the lab.



# Laboratory STEP ONE



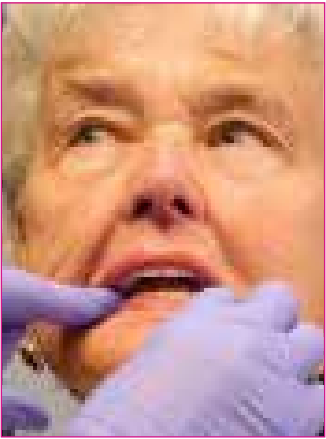
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## THE LAB DESIGNS AND PRINTS THE TRY-IN DENTURE ARCH(ES).

The Lucitone Digital Print Denture System utilizes a printed, monolithic try-in for the clinical evaluation of fit, function and esthetics.

## 2

## APPOINTMENT TWO

*Try-In Evaluation*

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Disinfect the try-in denture arch(es) prior to placement in the patient's mouth. Seat the try-in arch(es) in the patient's mouth. Assess the fit, function and esthetics with the patient.



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#### EVALUATE AND DOCUMENT ADJUSTMENTS

First, use articulating paper to identify any high spots on the posterior teeth.



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Next, evaluate the following:

- Midline
- Incisal-edge position
- High smile line
- Determine if a cant exists

Remove the arch(es) from the patient's mouth. Use a marker or a bur to notate changes directly on the try-in arch(es).

## 2

APPOINTMENT TWO *Continued...*


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Ensure the adjustment areas are clearly marked on the try-in arch(es).




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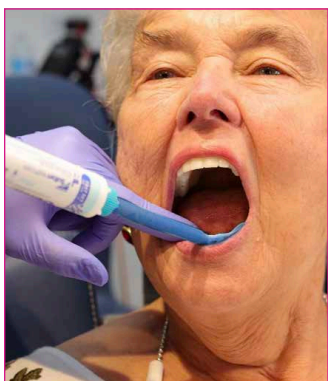
Use a carbide bur to adjust the try-in arch(es) and then clean the arch(es) to remove the debris. Reinsert the try-in arch(es) to check for proper occlusion. Repeat the adjustment steps as necessary to achieve proper occlusion.




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If the fit of the try-in is not secure, use Aquasil Ultra+ Smart Wetting Impression Material XLV Fast Set to complete a wash impression, as shown.

If the fit is secure, move to the bite registration step.




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To record bite adjustments take a new bite registration - see page 8 for step-by-step details.

Follow proper disinfection protocols and send the try-in arch(es) to the Lab for final denture fabrication.

*Laboratory* STEP TWO



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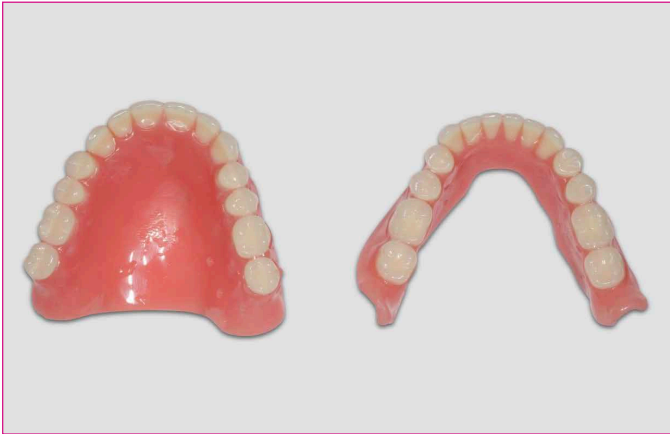
THE LAB DESIGNS, FABRICATES, AND ASSEMBLES THE FINAL DENTURE ARCH(ES).



### 3

## APPOINTMENT FOUR

### *Final Placement & Evaluation*



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Disinfect the denture arch(es) prior to placement in the patient's mouth.



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Seat the denture arch(es) and evaluate the fit, function and esthetics.



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Make spot adjustments to the occlusion, as necessary.  
Reseat the denture arch(es) and verify the adjustments.  
Confirm patient acceptance.