# Flexible Denture Base (RF-TJ-09) — Post-Processing Instruction

## 1 Scope and Limitations

This document applies exclusively to RF-TJ-09 and describes the process evaluation steps for laboratory post-processing and cementing of denture teeth. Any other resin, formulation, version, cementing material or equipment combination must be handled in accordance with the corresponding valid TDS, SDS, equipment instructions and validated processes.

- This document does not replace the resin TDS, SDS, printer manual, washing equipment manual, post-curing equipment manual or local regulatory requirements.
- If the material description, printing parameters or post-processing settings are revised, the currently valid documents officially released by the company and corresponding to the sales region and product batch shall prevail.

## 2 Process Overview

| Step | Operation | Process check / record |
|---|---|---|
| 1 | Finish printing and safely remove parts | Identify product code, batch, printing equipment and operator |
| 2 | Clean with absolute ethanol or isopropanol per the TDS | No visible uncured resin on the surface; record solvent condition, equipment and validated duration |
| 3 | Remove supports and dry thoroughly | No obvious damage at support contact areas; no washing solution on the surface |
| 4 | Complete the first-stage post-curing and inspect | Record equipment and validated parameters; isolate abnormal parts |
| 5 | Clean the bonding surfaces and perform a dry fit | Bonding surfaces clean and dry; tooth position and fit state conform to the design |
| 6 | Cement per the validated temporary tooth material and remove excess cement and bubbles | No visible excess cement accumulation; no unaddressed bubbles; record material batch |
| 7 | Re-cure per the full set of validated parameters | Record equipment, light source, irradiance, time, temperature, irradiation direction and operator |
| 8 | Trim and polish, clean again, dry and perform final inspection | No cracks, deformation, stickiness, visible residue or bonding interface abnormalities; identify and isolate |

## 3 Preparation Before Operation

- Verify the resin name, model RF-TJ-09, batch, expiry date and storage condition. Store the resin below 25°C in a cool, dry and dark place.
- Verify that the printer, resin vat and printing parameters come from the currently valid documentation for this resin; check the equipment condition and cleanliness.
- Operate in a well-ventilated area. Wear chemical-resistant gloves, goggles and work clothes that comply with the SDS. Avoid contact of liquid resin with skin, eyes, food, beverages and human tissue.
- IPA and ethanol are flammable. The washing equipment must be confirmed by the equipment manufacturer as suitable for the solvent used; do not use open alcohol baths directly in ordinary ultrasonic cleaners not approved for flammable solvents. Keep away from open flames, sparks and hot surfaces.
- Prepare clean washing containers, tweezers or spatulas, support cutters, clean lint-free paper, a validated drying method, post-curing equipment and a process record sheet.

## 4 Cleaning, Support Removal and Drying

**4.1 Part Removal** — After printing, use tools to remove the model from the build platform and avoid touching uncured surfaces with bare hands; support small clips, thin edges and connection areas before handling.

**4.2 Cleaning** — Use absolute ethanol or isopropanol ultrasonic cleaning to completely remove the residue of liquid material.

**4.3 Cleaning Time Reference** — Under ultrasonic cleaning, it is recommended to rough-clean with IPA or ethanol for 1–2 minutes, then fine-clean with fresh solvent for 3 minutes, and fine-clean again with fresh solvent for 3 minutes. Ensure that the final washing solution remains clean and clear after cleaning, and avoid mixing in other materials.

**4.4 Support Removal** — Remove supports before post-curing. Cut each support off one by one with support cutters, avoiding twisting or pulling thin edges and clasp areas; discard the part if cracks, notches or permanent deformation occur.

**4.5 Drying** — Blow-dry and wait for the washing solution to evaporate completely. Before post-curing, confirm that the surface is free of droplets, oil films or wet areas. Maintain ventilation during drying and keep away from ignition sources; do not heat the model directly with high-temperature hot air.

## 5 First-Stage UV Post-Curing

After drying, the flexible denture base model is recommended and referenced to be post-cured as follows

1 — Recommended reference: irradiance 10–50 mW/cm², wavelength band (385–405 nm), 5 minutes, 45–55°C, curing on both the front and back sides. Cure sufficiently; an excessively low dose that reduces the energy is not recommended as it affects curing.

2 — If conditions allow, oxygen-isolated curing is preferable, for example a water-bath curing device. As a reference, 100 mW/cm² for 3 minutes.

# 6 Cementing Teeth and Re-Curing

The flexible denture base is combined with temporary teeth (or other crown/bridge materials). A dedicated dental adhesive material is preferred; if unavailable, the temporary tooth (or other crown/bridge material) may be used as the adhesive, provided that the curing and other usage requirements are met.

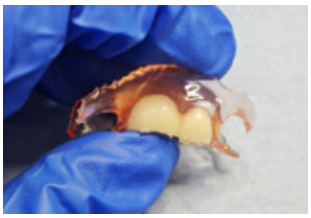
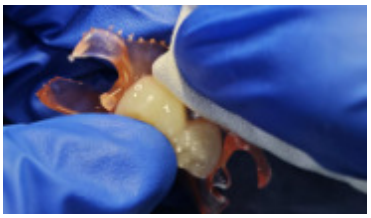
## 6.1 Cleaning and Dry Fit Before Cementation

After the base and teeth have each undergone the first-stage curing, confirm that the supports have been removed and that the bonding surfaces are free of uncured resin, dust, oil, polishing compound/wax, lint or washing solution. Wipe gently with a clean, dry soft brush or lint-free cloth to avoid scratching thin edges and the tooth sockets.

If the adhesive material instructions require surface treatment or a dedicated cleaner, confirm its compatibility with RF-TJ-09 and the tooth material, and dry thoroughly as instructed. Until validated, do not use alcohol, hot water, detergent, etc. as a general cleaner for the bonding surfaces, and do not allow liquid to enter uncured seams.

**Reason for cleaning:** dust, oil, residual resin, polishing media or liquid films will separate the adhesive from the base/tooth surfaces, affect wetting and intimate contact, and increase the risk of voids or unstable adhesion; undried liquid after cleaning may also affect the spreading and curing of the adhesive material.

First perform a dry fit to confirm the tooth position, orientation, seating depth, occlusal relationship and contact-surface fit. If interference or obvious gaps are found, first identify the cause and trim using a validated method; do not compensate for mismatch by increasing the adhesive thickness.

## 6.2 Applying Cement, Seating and Removing Excess

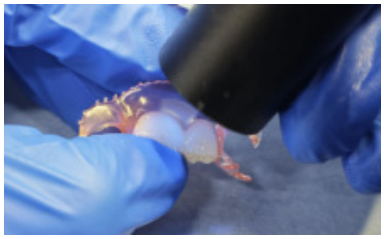
Seat the teeth completely in the designed order and keep the position stable. Remove excess cement promptly with clean lint-free cloth or suitable swabs, using a clean area each time to avoid dragging cement back into the seams; remove bubbles with clean tools. This project currently uses a temporary tooth material, so the wiping direction shall be confirmed according to its instructions and the combined validation.

The focus of pre-curing cleanup is to “remove excess cement and bubbles”, not to rinse the entire assembly with solvent. Unless the adhesive instructions explicitly require it and the method is validated, do not wipe the uncured adhesive layer with IPA, ethanol or water. Excess cement accumulation will form irregular edges, obscure the inspection view, and may cause insufficient local light exposure or residual stickiness; carrying base resin onto the tooth surfaces may also affect the appearance and subsequent inspection.

### 6.3 Re-Curing After Assembly

Keep the tooth position and bonding interface stable. First fix the assembly with a validated positioning/initial-curing method, then complete the re-curing according to the full set of validated parameters for RF-TJ-09, the tooth material, the temporary tooth adhesive material and the curing equipment. Confirm that the seams and all directions reach the specified irradiation conditions; when flipping or adjusting direction is required, follow and record the validated sequence and time. Do not judge curing completion merely by the surface no longer feeling tacky.

**Reason for re-curing:** to enable the adhesive material at the assembly interface to complete polymerization as specified, reducing the risk of residual uncured material, insufficient adhesive strength and subsequent displacement. Component thickness, shielding, light-source wavelength band, irradiance, temperature and material formulation all affect the result, so validation must be performed for the complete assembly.





### 6.4 Cleaning After Curing and Polishing

After re-curing and cooling, check whether the tooth position has moved, whether the seams are continuous, and whether there are gaps/cracks/bubbles, tacky areas or accumulations of cured material. When trimming cured excess edges, use validated tools and light pressure to avoid damaging the bonding interface. Immediately isolate and record abnormal parts; do not use unvalidated cement top-ups or extended irradiation to mask the problem.

After grinding and polishing, thoroughly remove abrasive dust, polishing compound, polishing wax and other surface contaminants using a validated method compatible with the base, teeth and adhesive material, then ultrasonically clean again with isopropanol or alcohol and dry, to remove residual bonding cement and residual polishing compound/wax.

**Reason for re-cleaning after polishing:** polishing powder, wax and abrasive dust can mask cracks, seam defects or residual tacky areas, affect the appearance inspection, and carry processing residue into subsequent stages. After cleaning and drying, perform the final appearance, dimensional and seam inspection.

### 6.5 Inspection of the Cured State

After the sample is fully processed, check whether the surface is tacky, discolored, warped, cracked or has residue. If any abnormality appears, stop subsequent processing and isolate the part.

Also check the overall condition.

| Inspection item | Acceptance criterion | Action on abnormality |
|---|---|---|
| **Appearance** | No cracks, notches, warping, obvious discoloration or support damage | Isolate and record photos, location and the process step where it occurred |
| **Surface cleanliness** | No visible resin, washing solution, polishing compound, wax, powder or tacky areas | Stop release; verify the cleaning, drying and curing processes |
| **Bonding interface and tooth position** | Tooth position unchanged; no visible gaps, cracks, bubbles, excess cement accumulation or tackiness in the seams | Isolate and record; do not release based on unvalidated cement top-ups/delayed curing |
| **Shape** | Consistent with the design file and laboratory evaluation requirements | Measure and record deviations; do not mask deviations by forced heating to reshape |
| **Process records** | Batch, cleaning, cementing, key equipment parameters, inspection and operator are traceable | Incomplete records shall not be used as the basis for validation results or customer parameters |

## 7 Safety, Emergencies and Waste

| Situation | Immediate action |
|---|---|
| **Resin in the eyes** | Immediately hold the eyelids open and rinse continuously with plenty of clean water for at least 20 minutes, and seek medical attention immediately. |
| **Resin on the skin** | Remove contaminated clothing and wash thoroughly with soap and water; do not clean the skin with IPA or other solvents. Seek medical attention if irritation or a rash occurs. |
| **Alcohol spill or fire risk** | Remove ignition sources and follow the site's chemical spill and fire procedures; maintain ventilation and use equipment and containers suitable for flammable liquids. |
| **Waste liquid and contaminated consumables** | Collect and dispose of uncured resin, contaminated wipes, gloves and spent washing solution according to the SDS and local waste regulations; do not pour them down the drain or mix them into household waste. |

- If personnel exposure, abnormal heating, curing equipment malfunction, bonding failure or a suspected quality issue occurs, stop operations and isolate the material and samples; keep the labels, batch, cleaning/cementing/curing parameters, equipment condition and on-site photos, and contact the company's technical support. Do not rework abnormal parts and directly use them for patients.