



Nightguard Fabrication

SprintRay NightGuard Flex 2 & Firm 2 — Lab Manufacturing Procedure

Owner	Lab Technician (process owner)
Applies to	Smile Avenue Family Dentistry in-house lab
Start	Case received in Medit Lab with scan QC
End	Nightguard bagged and logged in SEAZONA for outbound delivery
Related	Station Job Aid SOP-LAB-020-JA

1. Purpose

This procedure standardizes in-house manufacturing of SprintRay nightguards / occlusal guards (NightGuard Flex 2 or NightGuard Firm 2) so every case meets the same quality, safety, and traceability standard before leaving the lab.

2. Scope

- In scope:** Medit Lab intake → scan QC → 3Shape Automate design → RayWare / Pro 2 print → ProWash S → NanoCure → finish & polish → lab clean → bag & SEAZONA outbound log.
- Out of scope:** Chairside scanning technique; clinical try-in, seat, and adjust (including warm-water soften try-in); patient delivery; chairside chemical disinfection; RPD / denture workflows (SOP-LAB-030); soft thermoplastic vac-form guards; non-SprintRay printers; legacy NightGuard Firm on the Pro 2 path.

3. Roles

Role	Responsibility
Clinical Assistant / Office	Sends case via Medit Lab; receives bagged nightguard from lab
Lab Technician	Scan QC; import to 3Shape Automate; export STL; approve design; manufacture; finish; bag; SEAZONA log
Trainer / Lead Lab Technician	Competency observation and sign-off
Doctor	Clinical indication, Firm vs Flex Rx, try-in, and remake authorization (outside manufacturing steps)

4. Practice Configuration

#	Item	Smile Avenue setting
1	Printer	Pro 2 only for this path
2	Cure unit	NanoCure — select exact resin profile printed (NightGuard Flex 2 or NightGuard Firm 2)
3	Case intake	Medit Lab
4	Design	3Shape Automate (3Shape Automate designs; Lab Technician imports, exports STL, and approves)
5	Wash	ProWash S — IPA ≥ 91% — standard preprogrammed cycle
6	NightGuard Flex 2 shades	Simply Clear and Ocean Blue — select per prescription
7	NightGuard Firm 2	Per prescription
8	Avoid	Legacy NightGuard Firm on Pro 2 (not IFU-validated for Pro 2 / NanoCure)
9	Lab clean before bag	Soap, toothbrush, and warm water (and/or steamer), then dry. Cleaning — not chemical disinfection.
10	Design approval before print	Lab Technician
11	Case log	SEAZONA
12	Design QC thickness	≥ 1.0 mm (IFU / workflow)

5. Safety

- Treat uncured NightGuard Flex 2 and Firm 2 as sensitizers. Work in a well-ventilated area.
- Wear nitrile gloves, protective eyewear, lab coat or gown, and face protection when handling uncured resin, IPA, or grinding/polishing.
- Do not place incompletely cured resin in the mouth. Do not bag an under-cured appliance.
- Skin contact: wash with soap and water. Persistent irritation: stop work and follow the SDS.
- Do not substitute non-validated printers, washers, cure units, or resins for this path.
- Cure liquid waste resin fully before disposal. Follow hazardous-waste rules until cured.
- Do not use expired resin.

6. Materials & Equipment

Resins

Resin	Shades / notes	Prefer when
SprintRay NightGuard Flex 2	Simply Clear, Ocean Blue — select per Rx	Soft / flex feel; Pro 2 + NanoCure
SprintRay NightGuard Firm 2	Per Rx	Harder occlusal guard; Pro 2 + NanoCure
Legacy NightGuard Firm	—	Do not use on Smile Avenue Pro 2 / NanoCure path

Also: IPA ≥ 91%.

Contraindications (all NightGuard resins): known allergy to ingredients; intraoral contact with uncured resin; any use outside indications (mouthguards / nightguards).

Equipment stack

Step	System
Intake	Medit Lab
Design	3Shape Automate
Nest / print	RayWare → Pro 2
Wash	ProWash S
Cure	NanoCure — exact NightGuard Flex 2 or Firm 2 profile
Case log	SEAZONA

Design QC targets (review 3Shape Automate design)

Area	Minimum
Appliance thickness	≥ 1.0 mm

Confirm coverage and arch match the prescription; intaglio free of critical voids; correct resin family (Flex 2 vs Firm 2) and Flex 2 shade if applicable.

Polish kit (SprintRay Master Workflow Guide — Night Guards)

Step	Tools / media
Smooth supports	Lab handpiece; abrasive wheel or carbide bur (low RPM ~10–12k); Scotch-Brite / Fuzzies as needed
Pre-polish	Dental lathe; muslin wheel; pumice (keep wheel damp; pumice flowable)
Polish	Fresh muslin; Tripoli — firm pressure, then light pass
High shine	Fresh muslin; Hatho beige (or equivalent)
Optional high gloss	Cotton buff; Hatho pink (optional)
Cleanup	Steamer and/or soap + toothbrush + warm water; dry

Technique: Keep wheels damp. Do not let wheels dry out — heat can damage the appliance.

7. Process Controls

Gate	Do not proceed if	Proceed when
Intake	Case missing or files unreadable in Medit Lab	Case open with matching ID / Rx
Scan QC	Holes, missing bite, inadequate anatomy	Scans usable for design
Printer	Queued to any printer other than Pro 2	Pro 2 only
Design	Not Lab Technician–approved; thickness < 1.0 mm	QC-A pass
Resin	Expired, wrong family, or legacy Firm on Pro 2	In-date Flex 2 or Firm 2 per Rx; shaken 1 minute
Wash	IPA < 91%	ProWash S standard preprogrammed cycle
Pre-cure	Part wet	Fully dry
Cure	Wrong profile / custom times invented	NanoCure exact Flex 2 or Firm 2 profile complete
Outbound	Failed QC-E; not bagged; not logged	Bagged + SEAZONA outbound ready

8. Procedure

A. Intake & scan QC

- 1 Open the case in **Medit Lab**.
- 2 Verify patient/case ID, arch, and prescription notes (Flex 2 vs Firm 2, Flex 2 shade if applicable, coverage, due date).
- 3 Perform scan QC: required arches captured; bite usable; surrounding tissue adequate; no critical holes or wrong-patient files.

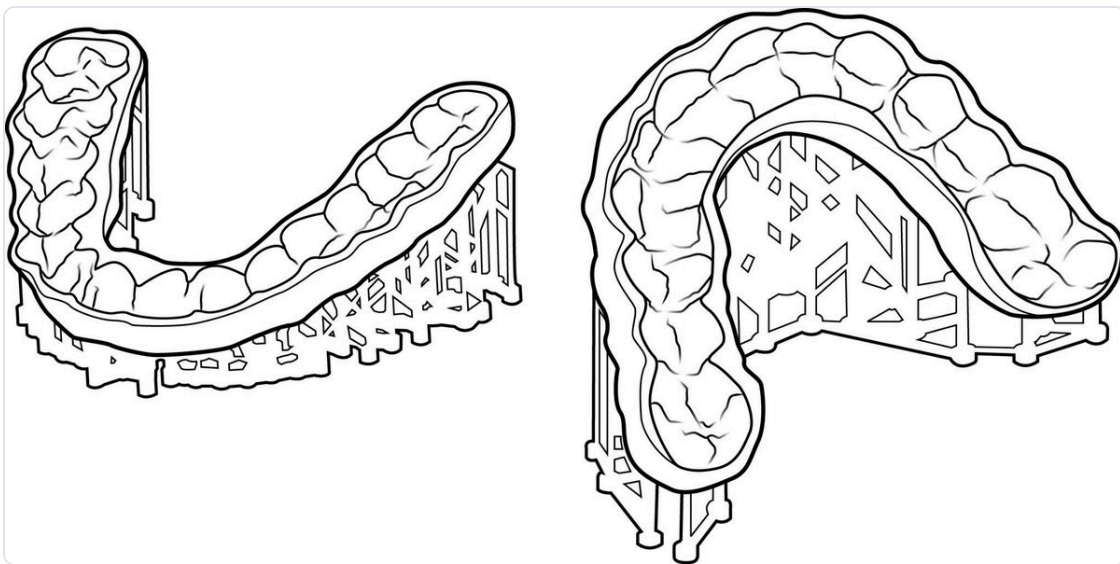
- 4 **QC-SCAN:** Pass → continue. Fail → stop manufacturing; request rescan or clarified Rx from the office. Do not design on failing scans.

B. Design (3Shape Automate)

- 5 Import accepted scans into **3Shape Automate**.
- 6 **3Shape Automate designs** the nightguard per prescription (arch, coverage, thickness, Flex 2 vs Firm 2).
- 7 Export print-ready **STL**.
- 8 Lab Technician **approves** the design for print.
- QC-A:** Coverage matches Rx; thickness ≥ 1.0 mm; intaglio free of critical voids; correct resin family / shade; STL labeled.
- If QC-A fails — return to **3Shape Automate** for redesign; do not nest. Do not redesign casually in-house unless the practice directs otherwise.

C. Nest (RayWare)

- 9 Import approved STL into RayWare.
- 10 Select job type **Occlusal Guard** and printer **Pro 2**.
- 11 Select the exact material: NightGuard Flex 2 (Simply Clear or Ocean Blue) or NightGuard Firm 2 per Rx.
- 12 Confirm **100 μ m**; orientation: intaglio facing **away** from the platform; **~25°**; anterior closer to the platform; default supports.



Nest orientation — intaglio away from platform, ~25° with supports

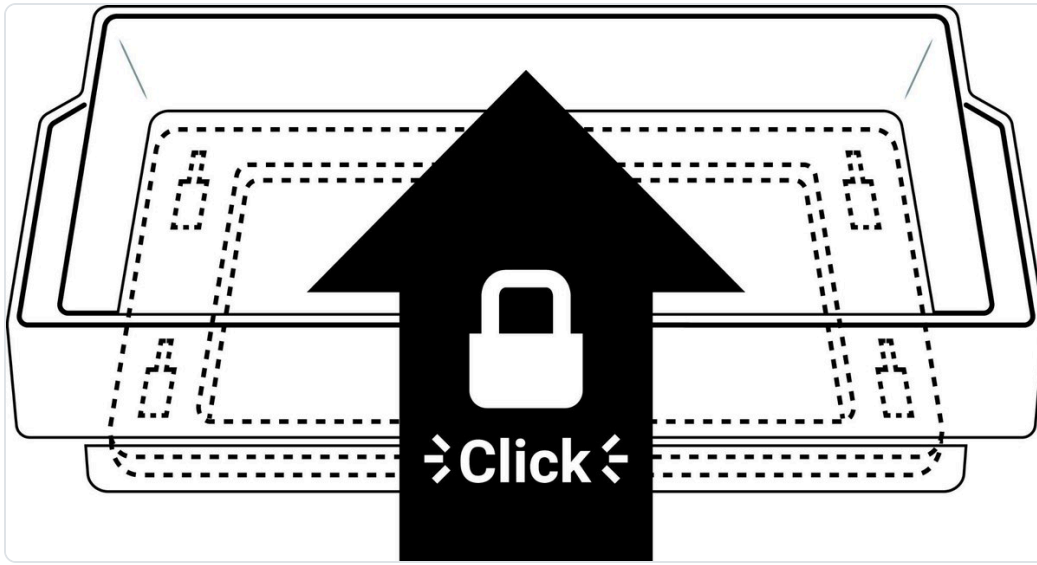
Source: SprintRay Master Workflow Guide — Night Guards (eff. 2/22/2024)

- 13 Send to the Pro 2 queue. Do not aim this path at any printer other than Pro 2.

D. Print

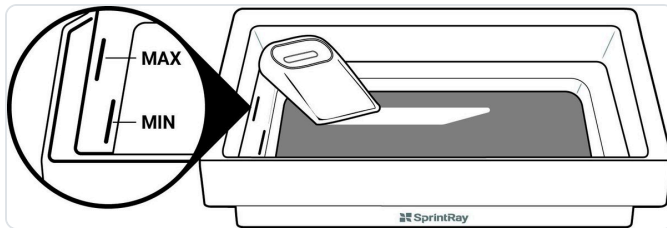
- 14 Confirm resin is not expired and matches the approved design (Flex 2 shade or Firm 2).

- 15 Shake the resin bottle thoroughly for **1 minute**. Pour to at least the minimum fill line. Record lot in SEAZONA. Stir/filter tank resin if already poured.



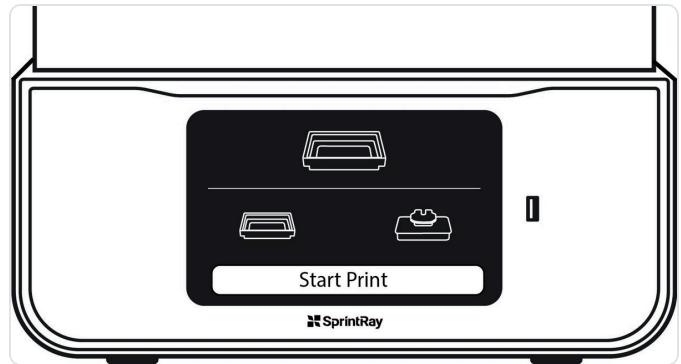
Install resin tank until fully seated (click / lock)

Source: SprintRay Master Workflow Guide — Night Guards (eff. 2/22/2024)



Fill resin tank to MIN-MAX, then stir

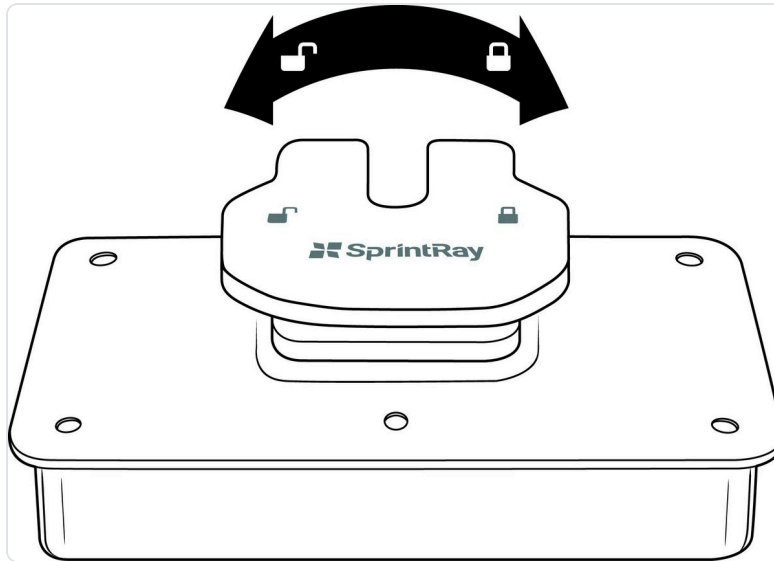
Source: SprintRay Master Workflow Guide — Night Guards (eff. 2/22/2024)



Start print from the Pro 2 queue

Source: SprintRay Master Workflow Guide — Night Guards (eff. 2/22/2024)

- 16 Assign the correct material (and shade if Flex 2) on the touchscreen.
- 17 Confirm the build platform is clean and free of debris or cured resin.



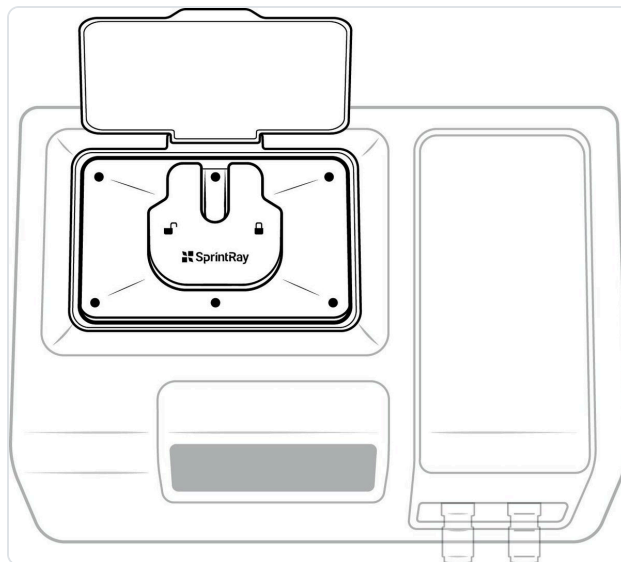
Confirm build platform is clean, locked, and ready

Source: SprintRay Master Workflow Guide — Night Guards (eff. 2/22/2024)

- 18 Start print from the queue. Monitor on the printer or SprintRay Cloud.
- 19 When complete, wait for the safety lid lock to disengage. Remove the platform carefully.
- 20 **QC-B:** Fully formed; no delamination or major voids; inspect before wash. Fail → remake.

E. Wash & dry

- 21 Transfer the build platform to **ProWash S**.



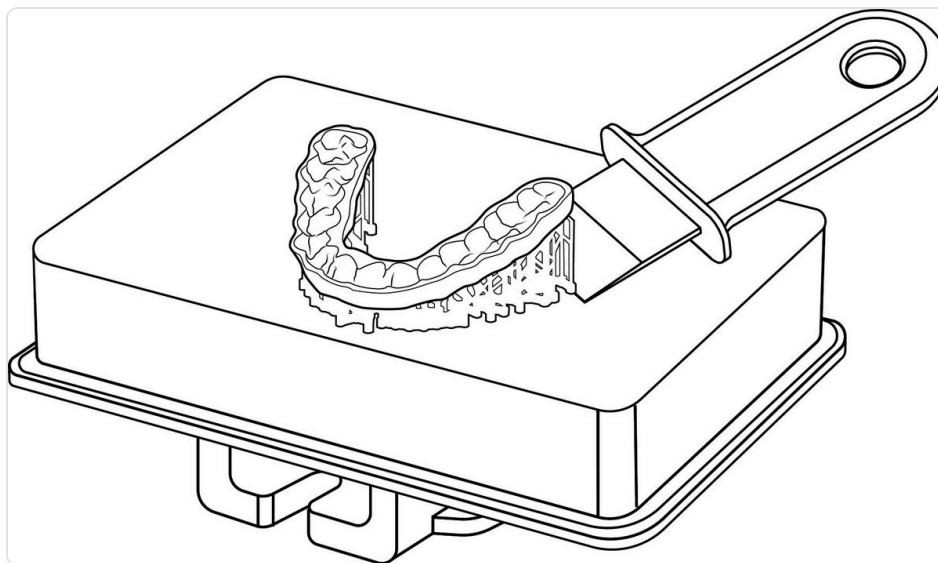
Transfer build platform into SprintRay wash device

Source: SprintRay Master Workflow Guide — Night Guards (eff. 2/22/2024)

- 22 Run the **standard preprogrammed wash cycle** with IPA $\geq$ 91%.

- 23 Remove the nightguard from the platform. Fully dry with compressed air — especially fossae and intaglio. Residual IPA interferes with final cure.

QC-C: Clean and fully dry. Do not cure wet parts.

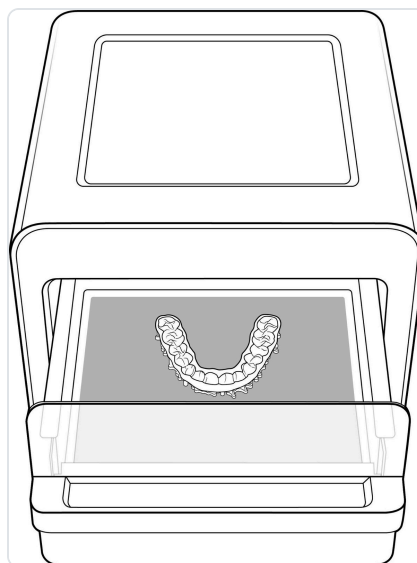


Remove nightguard from build platform after wash

Source: SprintRay Master Workflow Guide — Night Guards (eff. 2/22/2024)

F. Post-cure

- 24 Place the dry nightguard in **NanoCure**.



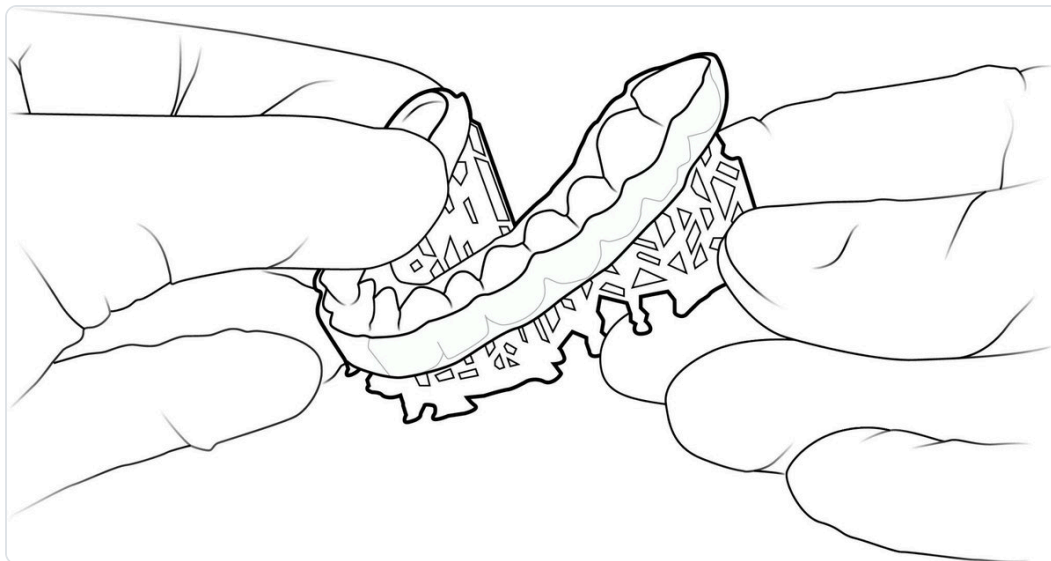
Place nightguard in SprintRay curing device

Source: SprintRay Master Workflow Guide — Night Guards (eff. 2/22/2024)

- 25 Select the **exact resin profile** printed (**NightGuard Flex 2** or **NightGuard Firm 2**) and follow on-screen prompts. Do **not** invent custom cure times.

- 26 After full cure, remove supports with flush cutters or appropriate tools. Cut close to the appliance. Small support nubs may remain for finishing.

QC-D: Fully cured (no tack); supports removed without tearing margins. Fail → remake or salvage per remake criteria.



Twist / remove supports after cure

Source: SprintRay Master Workflow Guide — Night Guards (eff. 2/22/2024)

G. Finish, clean, bag (end of procedure)

- 27 Smooth remaining support contact points with an abrasive wheel or carbide bur at low RPM (~10–12k). Scotch-Brite / Fuzzies as needed.



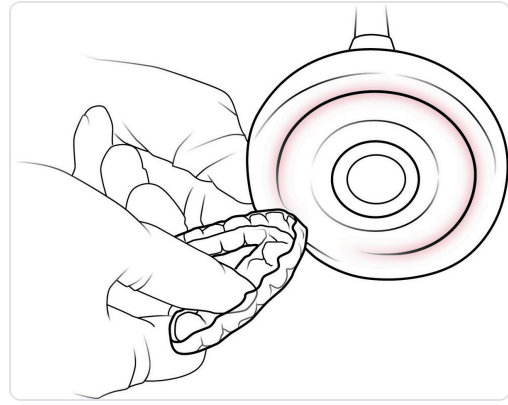
Smooth support nubs with abrasive wheel (low RPM)

Source: SprintRay Master Workflow Guide — Night Guards (eff. 2/22/2024)

- 28 Polish per Master Workflow Night Guards: pre-polish pumice + muslin → Tripoli + muslin → high-shine Hatho beige (or equivalent) + muslin. Keep wheels damp. Optional: Hatho pink + cotton buff for high gloss.



Pre-polish with pumice on dental lathe (muslin wheel, damp)

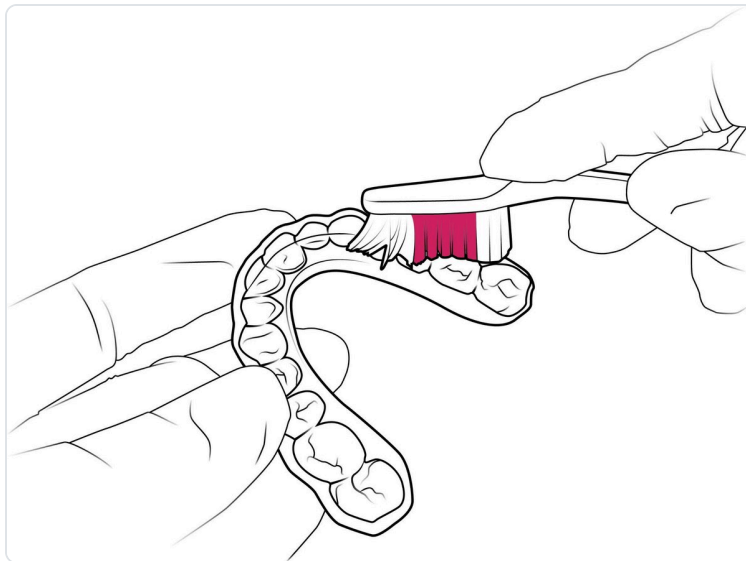


Polish with Tripoli on fresh muslin wheel (firm, then light pass)

Source: SprintRay Master Workflow Guide — Night Guards (eff. 2/22/2024)

Source: SprintRay Master Workflow Guide — Night Guards (eff. 2/22/2024)

- 29** Clean with soap, toothbrush, and warm water (and/or steamer); dry. This is lab cleaning — not chemical disinfection.



Clean with warm soapy water and toothbrush (and/or steamer)

Source: SprintRay Master Workflow Guide — Night Guards (eff. 2/22/2024)

- 30** Label and bag the nightguard for outbound delivery from the in-house lab.
- 31** Complete the SEAZONA case log; mark status bagged / ready for outbound.
QC-E: Finish OK; cleaned; bagged; labeled; SEAZONA complete. Do not release if QC-E fails.

End of SOP-LAB-020. Office receipt, chairside chemical disinfection, warm-water soften try-in, seat/adjust, and patient delivery are handled under clinical protocols — not this manufacturing procedure.

9. Case Log (SEAZONA)

Field	Entry
Date	
Patient / case ID	
Medit Lab reference	
Arch	☐ Max ☐ Mand ☐ Both
Scan QC	☐ Pass ☐ Fail → returned
Designed by (3Shape Automate)	
Design approved by (Lab Technician)	
Resin (Flex 2 / Firm 2) + shade + lot	
Printer	Pro 2 ☐
ProWash S cycle OK	☐ Yes
NanoCure profile	NightGuard Flex 2 ☐ / Firm 2 ☐
Lab Technician initials	
QC-SCAN + A–E pass	☐ Yes
Remake?	☐ No ☐ Yes — reason: _____
Bagged for outbound	☐ Yes — time _____

No SEAZONA bagged status = not released from the lab.

10. Quality Checkpoints

ID	When	Pass	Fail action
QC-SCAN	After Medit Lab intake	Scans usable	Return to office
QC-A	Pre-print	Approved design + ≥ 1.0 mm	Return to 3Shape Automate
QC-B	Post-print	Complete geometry	Remake print
QC-C	Post-wash	Clean + dry	Re-wash/dry
QC-D	Post-cure	Fully cured; supports clean	Remake / salvage
QC-E	Before outbound	Finish + clean + bag + SEAZONA	Hold release

11. Remake Criteria

Finding	Action
Failed scan QC	Do not manufacture — request new scans
Incomplete print / delamination / major voids	Remake print
Printed on non-Pro 2	Remake on Pro 2
Legacy Firm used on Pro 2 path	Stop; remake with Firm 2 (or Flex 2 per Rx) on validated path
Wet / under-cured / wrong cure profile	Hold outbound; correct or remake
Torn margins after supports	Remake
Light support nubs only	Salvage — finish and re-check QC-E
Unsure	Stop and escalate to Doctor / lab lead

12. Competency

A Lab Technician may run this procedure unsupervised after:

Requirement	Sign-off
Read SOP-LAB-020 and Job Aid SOP-LAB-020-JA	Tech _____ Date _____
Demonstrates Medit Lab intake, scan QC, 3Shape Automate import/export/approve, and process controls	Trainer _____ Date _____
Completes 3 observed cases to bagged outbound with SEAZONA log	1. _____ 2. _____ 3. _____
Trainer attests ready	Trainer _____ Date _____
Lab lead authorizes unsupervised production	_____ Date _____

13. Troubleshooting & Escalation

Problem	Action
Bad scans in Medit Lab	QC-SCAN fail → return to office
Print failure	Remake; filter resin; verify material assignment on Pro 2
Soft / tacky after cure	Confirm dry part and exact Flex 2 / Firm 2 NanoCure profile; remake if needed
Tight / loose fit noted after lab QC	Escalate to Doctor; remake from approved design if authorized
Allergy or wrong indication noted	Stop — Doctor; do not manufacture
Legacy Firm requested on Pro 2	Stop; switch to Firm 2 or escalate

Escalate to Doctor / lab lead: unclear Flex vs Firm Rx; allergy; chronic remakes; IFU deviation requests.

Escalate to office (Medit Lab / SEAZONA): failed scan QC; missing prescription.

SprintRay Support: 1-800-914-8004 — missing NanoCure NightGuard Flex 2 / Firm 2 profile; repeated Pro 2 failures.

14. References

- SprintRay NightGuard Flex 2 IFU-023_4 (effective 10/28/2025)
- SprintRay NightGuard Firm 2 IFU-024_4 (effective 06/25/2024)
- SprintRay Master Workflow Guide — Night Guards (effective 2/22/2024)

Smile Avenue Family Dentistry — In-House Laboratory · Internal use only
SOP-LAB-020 Version 1.0 · Effective 09/10/2026 · Supersedes prior draft revisions
Review annually or when SprintRay IFU / equipment changes.