

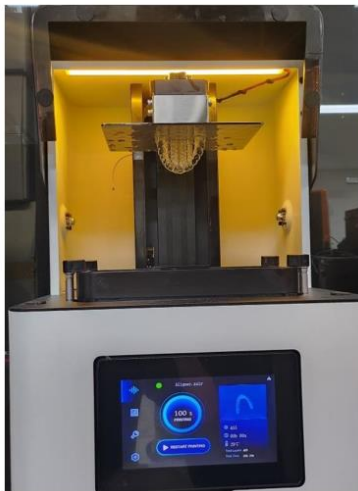
# Post curing workflow

## 1. Removal the aligners from the plate

When the printing is complete, please remove the plate then detach the direct aligners from the plate.

Using a spatula, slowly remove the aligners from the plate.

Please do not hurry or use excessive force on the direct aligners during removal, as it can damage them



## Precautions before Printing operation

Plate: Please check that the build plate is clean.

VAT (Resin Tank): Please make sure that there is no residue attached to the bottom.

If other types of resin or the alcohol used for washing remains on the VAT (Resin Tank), the physical properties of the output will be subpar, or the output may fail.

In the cold environment, there may be errors during the printing process (in winter, the printer must be turned on in advance)

The printer must be installed on a flat surface and horizontally leveled.

If the equipment is impacted during the printing process, there may be output failure or permanent damage to the equipment.

## 2. Direct Aligner Production Post Curing Process

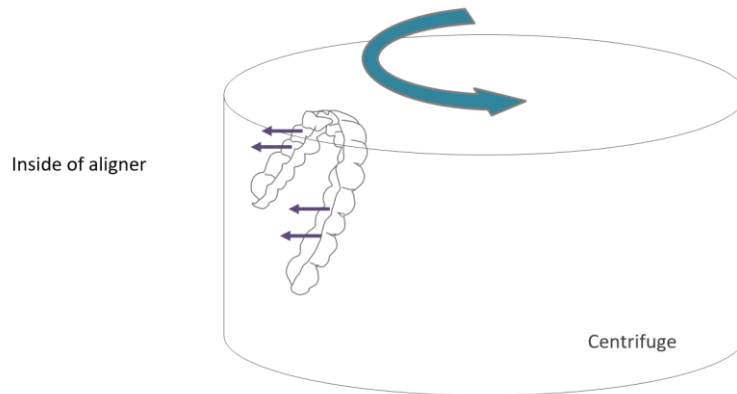
For achieving 100% shape memory, better mechanical strength, post-cure processing is necessary.

### 2.1 Tera Harz Spinner/Centrifuge

Remove the remaining resin from the printouts using a centrifuge for 6 minutes.

Centrifuge for resin's residual removal

When placing the aligner in the basket, make sure the inside of the aligner is facing the wall of the basket.



## Tera Harz Spinner

- 390W x 450D x 430H
- Max. 16 aligner
- 500rpm
- Digital Nob Control
- Resin recyclable drawer
- Inside heating
- Safety stop
- BLDC motor : free voltage

The removal of supports should be done after centrifuge process because after printing the aligners, it doesn't have a 100% shape memory function. So, there is a greater chance of deformation if we remove the supports before the centrifuge. The shape memory aligner has 100% shape memory function only after post-nitrogen curing.

### 2.2 Support Removal

Remove the Support after completion of centrifuge process.

it can be easily removed by hand.

Make sure the hand gloves are clean and no resin attached because wearing the same gloves to take off the supports may attach the excess resin into the aligners and therefore may affect the fitting of aligners.

### 3. Curing (Tera Harz Cure (THC2) Nitrogen Curing Machine)

#### Curing Time and Level

The aligners should be cured for **20 minutes at Level 2** in **presence of nitrogen** and no other curing is recommended or allowed with or without nitrogen.

(Nitrogen curing improves curing quality such as surface lubricity by minimizing the amount of oxygen in the chamber, and improves final match).

It is strongly recommended to cure the aligners in presence of the nitrogen.

When the photocurable resin receives light, a radical reaction proceeds. If radicals are generated in the presence of oxygen, radicals and oxygen react with each other. Oxygen attacks radicals and prevents radical polymerization of the resin monomer. In addition, unreacted monomers are generated and, a structure having a low crosslinking density is formed. Overall, the cured resin with low crosslinking density absorbs moisture in an environment, causing haze, and unreacted material may be eluted.

#### Post-Curing Precautions

##### Tera Harz Cure (THC2) Nitrogen Curing Machine)

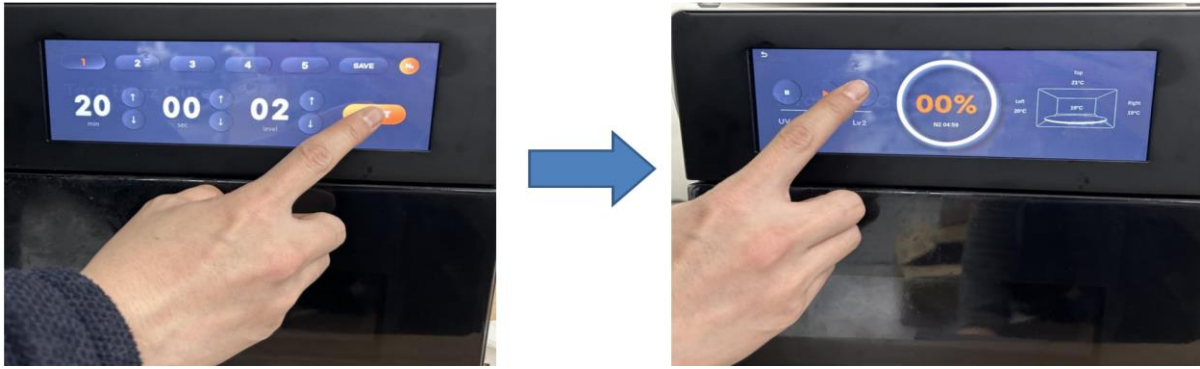
Immediately after curing is complete, the internal temperature of the curing machine is high.

Open the curing machine door for approximately 20 to 30 minutes to lower the internal and LED temperature.

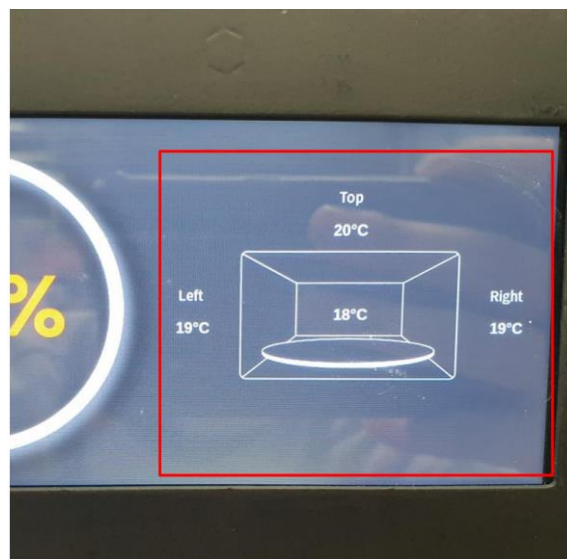


Temperature has a tangible effect on the material and output of an LED light. In general, the cooler the environment, the higher an LED's light output will be. Higher temperatures generally reduce light output and therefore, affects the curing process.

The method of checking the temperature is as follows



Ensure that all marked temperatures are below 23 degrees and proceed with curing



Keep the plate of Tera Harz Cure clean at all time. Need to clean at least once a week by keeping the plate in IPA for overnight for better cleaning.



#### 4. Polishing

After the aligner has been cured, cool it down before polishing.

With a soft denture pad, simply polish the support marks gently and finish it.

After polishing, wash with water.



## 5. Washing & Drying

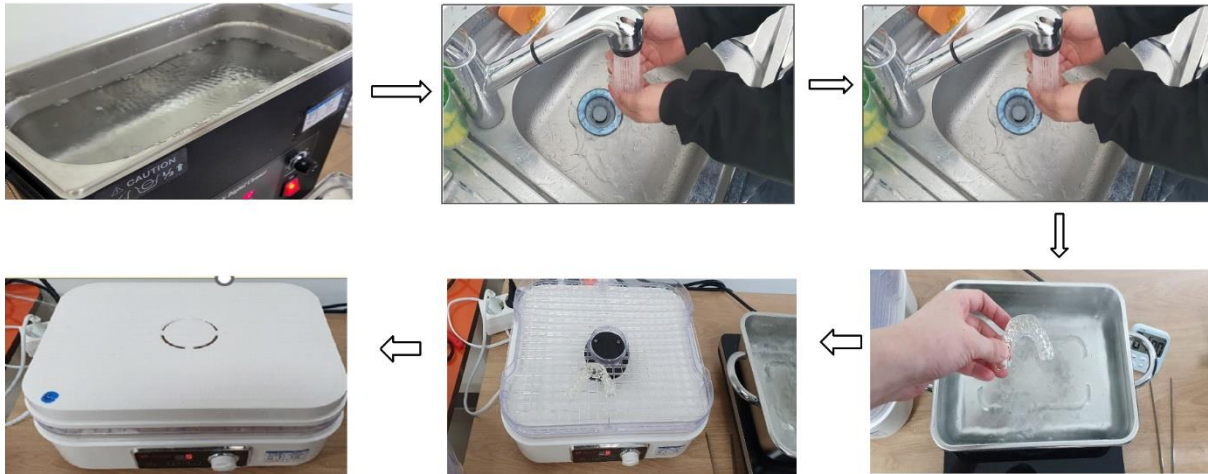
The Direct Aligner is washed twice.

- **The first washing is placing the aligners in hot water (80 °C ~ 85 °C) bath for 1 min with ultrasonic cleaning.**

After the first wash, rinse the aligners with DI or cleaned water.

- **The second wash is placing the aligners in boiling water (100 °C) for 1 min for cleaning and sterilizing.**

After the second wash, rinse the aligners with DI or cleaned water and dry them.



\*The main purpose of the ultrasonication is the cleaning and removing dust particles that may remain on the surface after polishing.

And for water boiling process is for the sterilization of aligners and also to check if the aligner is cured 100% or not. If the aligner turns haziness after the boiling process, it means the aligners are not 100% polymerized and the post-curing workflow has not been followed.

## 6. Handling precautions for Direct Aligner

- After completing the post curing process, rinse the aligner with water and dry it, then store the aligner in an aligner case or in a case that can avoid light.
- Tera Harz TC 85DAC has a function of shape memory. Therefore, it can be restored to the original shape even if it has some deformation.
- Do not excessively bend or twist the Aligner printout.
- Shape Memory effect: After immersing the Aligner in hot water about 60~70°C for about 5~10 seconds, take it out, and it will be restored to the first printed form with the Shape Memory function. The shape memory is performed when the aligner is above the body temperature.