

***Graphy***

# **Post Processing Manual**

**TC-80DP**  
**(Crown & Bridge)**  
**2021-08 Ver.**

# 1. What is TC-80DP?

Tera Harz TC-80DP is new 3D printing material (Photopolymer Resin) which can print out crown & bridge prosthetics directly from 3D printer without model.

TC-80DP is the material with KFDA Class II, CE Class II A, FDA 510K approved.

Tera Harz TC-80DP is new and innovative photopolymer resin with the best technology and performance. This new material has high strength and concentration because of special high molecular structure. It drastically reduces working hours and production cost. This 3D printing new material enables an operator to produce various prosthetics in their preferred thickness and designs.

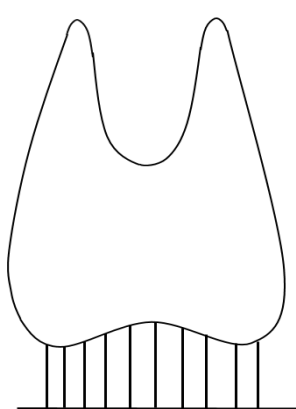


## 2. Precautions before and after printing

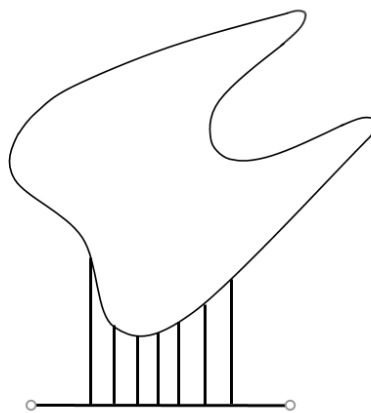
- Make sure to shake well the product in the original packaging before use.
- Be sure to wear protective glasses and protective gloves when handling resins and printed parts.
- Check if there is any impurity left on the plate or vat.
- Printing may not succeed in too hot or cold temperature.
- Place your printer on the flat surface and confirm that it's horizontally aligned.
- Physical impact on printer may lead to printing failure or permanent damage to the machine.
- If lack of resin during printing, you can pause to refill resin.
- If resin is exposed to sunlight or fluorescent light, it may be hardened or you cannot have desired material property.
- If different types of resin or alcohol used during cleaning remains in a vat, it can weaken the material property of printed object or lead to printing failure. After printing, always clean the vat to remove any impurity.

### 3. Printing method of prosthetics (0°C vs 45°C)

As below, way to print out prosthetics is divided into two; horizontal and vertical line.



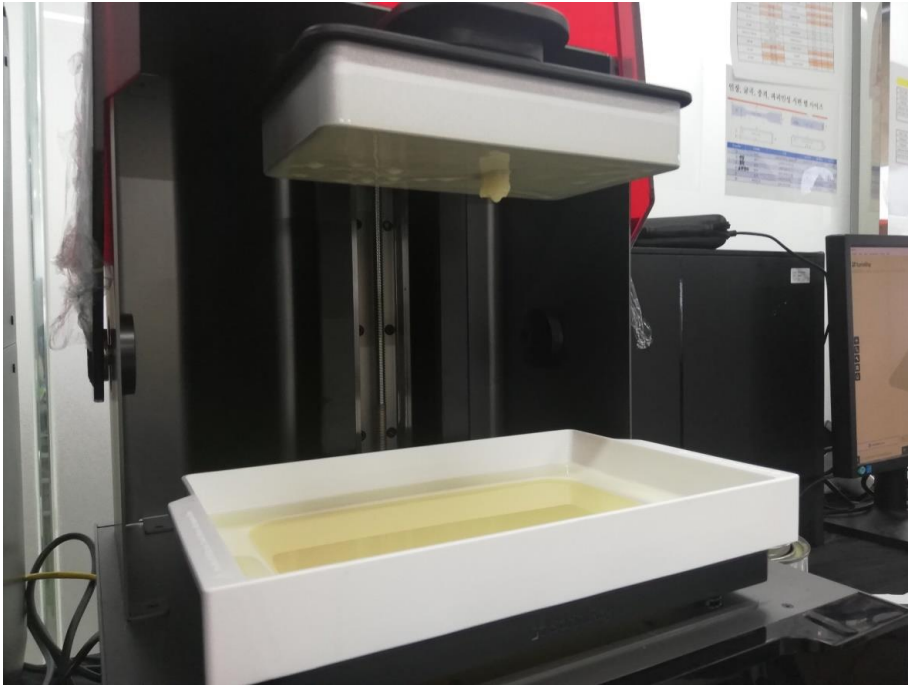
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0°C printing method of No. 1 has high success rate, but handling occlusal surface is a lot of work. On the other hand, 45°C printing method of No. 2 has low success rate, but handling occlusal surface is quite easy.

## 4. How to wash after printing



1) Detach the printed object from the plate of 3D printer

Once printing is done as above, take off printed object from the plate.



Slowly take off printed object from the plate using the removal tools.

If you try to take off printed object too quickly or strongly, it may cause distortion or damage. So, be careful.



## 2) Ultrasonic cleaning

Put printed object in Isopropyl alcohol (IPA)  $\geq 99\%$  and do ultrasonic cleaning for about 30 seconds to 1 minute. Exceeding cleaning duration may affect dimensional accuracy and performance of printed parts over time.

Never let printed objects touch water or any type of liquid before curing as it is hydrophobic. Clean IPA should be used for cleaning. It is recommended to use a new IPA each time.



Once printed parts are washed, inspect parts for any remaining uncured resin on print surfaces and inside.

Remaining uncured resin can be removed with an IPA-soaked brush or dental spatula.



### 3) Remove support

Remove supports using a tool such as nipper not to damage the surface of artificial teeth. For polishing work, be careful not to cut too deeply.

Rinse the printed part by fully submerged it in IPA. Then use the air compressor gun to finish the cleaning.





While you are removing supports, make sure to put tinfoil over printed objects which are still attached with supports in order to block out light. Otherwise, residual resin inside printed objects is cured quickly under fluorescent light, which takes much time and labor force for post processing. You may also fail in the use of printed object eventually.



Make sure that no light comes through the package by putting finished products into an opaque package.

## 4. How to do Post Processing

### 1) Curing device specification

For post-curing, we highly recommend Cure M device sold by Graphy Inc. to have the optimum result.

**CureM**  
UV Curing System

Post-curing is required in order to obtain the final material properties. After 3D printing in photopolymer resin-based materials is not yet fully cured. Post-curing is necessary to reach full monomer conversion for a various purpose.

U102H(Dental)      U201H(Medium Size)

↑ ↑ ↑  
To maximize material properties

High Power UV intensity and irradiance

More faster Post curing (1-10mins)

Compare to a existing curing machine and a CureM

"The same material makes different outcome depends on what curing machine you used."

Existing curing machine      CureM      Existing curing machine      CureM

Properties	U201H(Medium size)	U102H(Dental)
Light Source	UV LED	UV LED
Curing Time	1 - 30mins	1 - 30mins
Input Voltage	100-240 V, 50/60Hz	100-240 V, 50/60Hz
Output Voltage	24V, 6.5A	24V, 5.4A
Display	3.5" TFT Touch LCD	3.5" TFT Touch LCD
LED Wavelength	395nm / 405nm	395nm / 405nm
LED Power Output	112W	80W
UV Energy density	80,000mJ/cm <sup>2</sup>	120,000mJ/cm <sup>2</sup>
Irradiance of UV	200mW/cm <sup>2</sup>	400mW/cm <sup>2</sup>
LED Operation Temp	5 - 35°C	5 - 35°C
Curing Chamber(Turntable)	180Ø, 200mm(H)	120Ø, 95mm(H)
Outer Dimension	320 × 465 × 467mm(WxDxH)	250 × 386 × 378mm(WxDxH)
Weight	12kg	9kg

## 2) Curing method

High intensity curing machine is necessary to reproduce the material property of Tera Harz TC-80DP. Cure M device provides the largest amount of UV light out of all the curing machines in the market now.



Place prosthetics in a stainless bowl and then in the center of curing machine.



Cure 15~20 minutes at Level 3. After first curing, turn it over and do the second curing for another 15~20 minutes under the same condition.

You may increase curing time to make it brighter if it's still greenish or dark after curing.

- It's extremely hot. be careful of burns when you take it out.
- Curing time recommended above may vary depending on the thickness and shape of prosthetics.