



Executive Summary

- Perform High Performance resin replacement
- Assure a clean printing block area
- Recommended Printing Configuration – Matte finish, High Speed mode
- Models with same Z height in Gloss finish
- Thin walls are clearer
- Model clarity over time
- Polish and lacquer to achieve the best clarity
- Gluing guidelines

Detailed Tips

The Objet VeroClear FullCure810 material offers both clarity and the mechanical properties of the Objet VeroGray material. To achieve maximum clarity when printing Objet VeroClear, please review these basic printing tips:

Perform High Performance resin replacement

Being a clear material, the clarity of Objet VeroClear printed parts is affected significantly by previous material residues. In order to achieve best clarity of printed parts, High Performance resin replacement is required on both cartridge slots, using Objet VeroClear (Embedded software version 57.1 for Objet Connex systems & 50.3 for Eden systems. If a previous software version is in use, run Short resin replacement for 4 times).

Assure a clean printing block area

To assure that the best clarity of part is generated, it is recommended to make sure that the roller bath and printing heads are clean. Tiny pigmentations, typically unnoticeable with other materials, may become apparent in Objet VeroClear.

Recommended Printing Configuration: Matte finish and High Speed (HS) mode

It is advised to print parts in matte. This is because the clarity of the material is influenced by the amount of UV radiation it absorbs. Thus printing in matte creates a sort of 'sunscreen effect' on the part by having support block the UV light. This coating protects the wall's first layers and minimizes the material's exposure to UV light (thus improving clarity). In High Speed mode, the layer thickness is 30 μ m instead of 16 μ m (High Quality mode). As a result, fewer UV lamp passes are needed to complete the model and, consequently, less overall UV exposure generates better clarity. Therefore the recommended printing configuration is Matte Finish and High Speed Mode.

Print models with the same Z height when using Gloss finish

When printing two parts with different z heights on the same tray, the UV lamp



Image 1: Sample of polished and lacquered Objet VeroClear

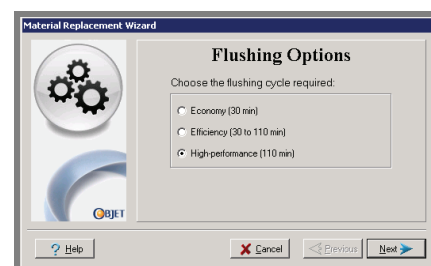


Image 2: High Performance resin replacement.

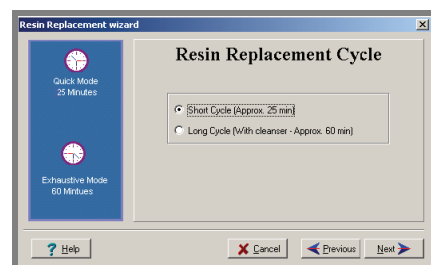


Image 3: Short resin replacement – Run 4 times.

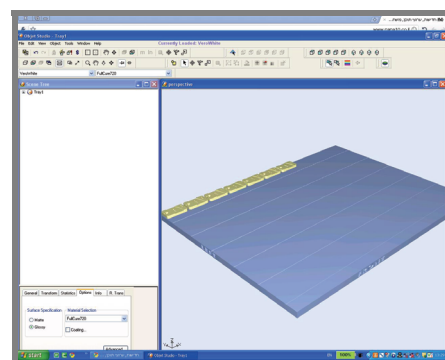


Image 4: In the above scenario printing in Gloss finish is fine as the parts are all of the same height.

will continue to pass over both parts even after the shorter part has been completed. Consequently, the shorter part will be more exposed to additional UV light, thus lowering its clarity.

Thinner walls are clearer

Objet VeroClear material has a tint. Consequently, walls thicker than 15mm will have a slight dark tone. This is significantly less visible in thinner walls.

Model clarity over time

After just a few days from printing completion, Objet VeroClear models actually improve further in clarity. It is important that the user takes this into consideration when planning tests using clarity applications. In order to accelerate the improvement in clarity of a bulky model, the model can be put in a 50° C (122° F) oven for 4 hours.

Polish models to achieve maximum clarity

Polishing and buffing models made from Objet VeroClear improves their brilliancy. A coat of clear lacquer or polyurethane will give models luster and protect their surfaces.

For instructions on how to polish models, please refer to the application note on creating translucent 3D parts:

http://www.objet.com/Misc/_Pages/Application_Notes_Left_Pane/Creating_Clear_or_Translucent_Models/

Gluing Objet VeroClear models

If gluing of Objet VeroClear models is required, use clear glue in order to maintain clarity of the model in the gluing area as much as possible. Minimize gluing surface as much as possible while maintaining the mechanical purposes of the adhesion.

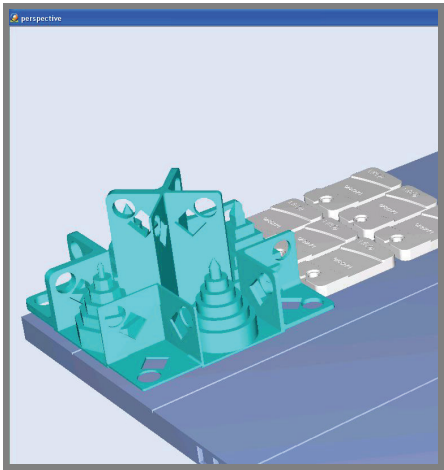


Image 5: Not recommended Gloss finish parts positioning - all parts should be at the same height (Z axis) to minimize excess UV exposure

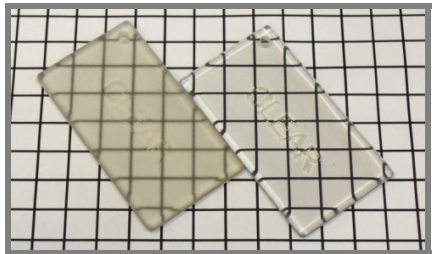


Image 6: Objet VeroClear sample printed in Matte finish, High Speed right off the tray (left) & another sample after polishing and lacquering (right).

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Info@objet.com – www.objet.com

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Objet Geometries Ltd. Headquarters	Objet Geometries Inc. North America	Objet Geometries GmbH, Europe	Objet Geometries AP Asia Pacific	Objet Geometries Shanghai Ltd.	Objet Geometries AP Japan Liason Office	Objet Geometries Shanghai Ltd.
T: +972-8-931-4314 F: +972-8-931-4315	T: +1-877-489-9449 F: +1-866-676-1533	T: +49-7229-7772-0 F: +49-7229-7772-990	T: +852-217-40111 F: +852-217-40555	T: +86-21-5836-2468 F: +86-21-5836-2469	T: +81-3-5389-5290	T: +86-21-5836-2468 F: +86-21-5836-2469