Application Note

Overview

The package of digital materials based on VeroClear offers 20 new digital materials, both rigid and rubber-like.

After installing this package, you can produce models with unique material combinations.

- Eight digital materials are available using VeroClear RGD810 and TangoPlus™ FLX930:
  - Two rigid materials with improved toughness, simulating polypropylene.
  - Six rubber-like materials featuring Shore Scale A values from 40 to 95.
- 12 digital materials are available using VeroClear RGD810 and TangoBlackPlus™ FLX980:
  - Six translucent rigid materials with six different shades of gray. Two materials have improved toughness.
  - Six rubber-like materials featuring Shore Scale A values from 40 to 95.

This Application Note describes recommendations for obtaining optimum results when printing parts with digital materials based on VeroClear.

A. Choose Suitable Material Replacement Options
B. Clean Printer Components Before Printing
C. Consider Surface Finish for Clarity
D. Consider Part Thickness for Clarity
E. Polish Printed Parts
F. Glue Printed Parts Carefully

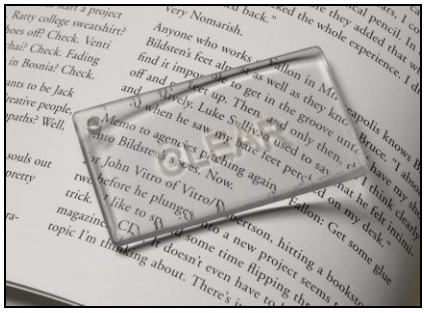

Figure 1: Polished and lacquered part, printed with VeroClear

Figure 2: Material/Resin Replacement wizard options

Recommendations

A. Choose Suitable Material Replacement Options

Traces of previous materials affect the clarity of VeroClear. Before printing with VeroClear, replace one or both of the currently installed cartridges with a VeroClear cartridge. Run the Material/Resin Replacement Wizard and select the flushing option appropriate for your printer.

- When replacing RGD720 , RGD515, or TangoPlus, select:
  - *High Performance* cycle, and run the wizard once.
  - *Short* cycle, and run the wizard four times.
  - *Single* cycle, and run the wizard four times.
- When replacing other Model materials, select:
  - *High Performance* cycle, and run the wizard once. Then, run the wizard again (once), and select the *Economy* cycle.
  - *Short* cycle, and run the wizard five times.
  - *Single* cycle, and run the wizard five times.

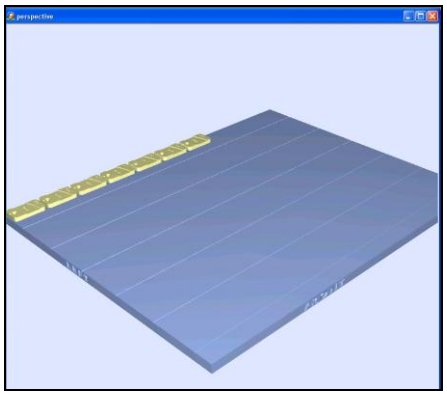

Figure 3: Parts with similar heights

B. Clean Printer Components Before Printing

Before printing with VeroClear, clean the print heads, wiper, and roller waste collector thoroughly. This ensures that traces of previous materials do not appear in parts as lines, spots, etc.

C. Consider Surface Finish for Clarity

The surface finish you choose affects the clarity of parts. Prolonged exposure to UV radiation during printing may produce parts with a yellowish tint. To achieve maximum clarity, use the following guidelines.

Matte surface finish (recommended)—
When printing parts, always prefer a matte surface finish. The support material that covers matte surfaces helps protect the part's layers from excessive UV radiation, thereby improving clarity.

Glossy surface finish—
When printing glossy parts, arrange them so they have *similar heights*. This ensures that the parts are not exposed to unnecessary UV radiation, since parts with similar heights require the same number of print-head and UV-lamp passes. When printing parts with different heights on the same tray, the print block passes over all parts even after the shorter parts have been completed. This causes the shorter parts to absorb more UV radiation than necessary, which reduces their clarity.

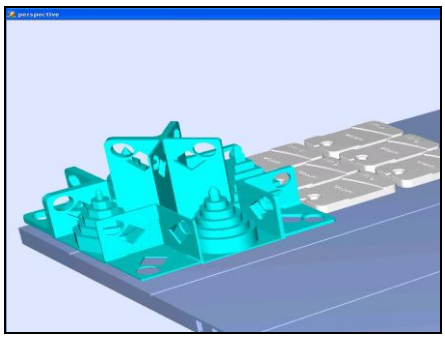

Figure 4: Parts with different heights—glossy finish not recommended

D. Consider Part Thickness for Clarity

Thickness affects clarity (see Figure 5). Thicker parts will have less translucence.

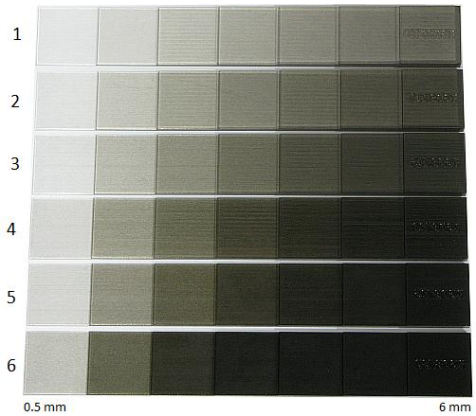

Figure 5: Parts printed with varying thickness, 0.5–6 mm, using the following DMs:

1. RGD8730-DM
2. RGD8725-DM
3. RGD8720-DM
4. RGD8715_DM
5. RGD8710-DM
6. RGD8705-DM

E. Polish Printed Parts

Polishing parts improves their clarity. Applying a coat of clear lacquer gives parts a shine and protects their surfaces. For polishing instructions, refer to the "Guide to Post Process Applications" on creating translucent 3D parts.

F. Glue Printed Parts Carefully

When gluing printed parts, use *clear* glue, and apply only where necessary.

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