

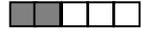
Application Note



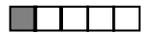
Skill level



Time



Cost



Overview

This application note is a guide for Objet 3D Printing Systems' users on how to enhance the detail, color and creativity of their FullCure™ models by applying special painting techniques.

Creating lifelike characteristics with accentuated, detailed features on printed FullCure™ models requires basic artistic skills and materials. A combination of various painting and dyeing techniques can be used to create the illusion of different material properties. These techniques can be applied to any FullCure™ model or assembly.

The examples detailed in this application note were applied to models created by Legacy Effects for Microsoft's Halo 3 marketing campaign. The photos capture models that were printed in FullCure™ model materials and custom painted to emphasize the look of battle scarred armor, as well as weather-worn leather, flesh and fur.

Post-processing Techniques to Achieve Lifelike Characteristics

1. Cleaning

The foundation for an effective and durable painted model requires thorough post-processing finishing techniques. [Note: Due to the nature of this model and the quality of the printing, no sanding was required.]

- First remove all support material from the model using the WaterJet station
- Soak the model in 2% NaOH water-diluted solution for approximately 30 minutes
- Rinse the model again in the WaterJet station to remove all residues
- Allow the model to dry completely

Clean all surfaces with a lint free cloth and isopropyl alcohol (>90%)

2. Priming

It is recommended to prime the models to aid in pigment adhesion and to even out surface textures. In the case illustrated here, a matte spray auto primer was used as a neutral base background color.

- Spray an even coat of primer on all surfaces of the model
- Allow the primer to dry completely

Materials used:

- Automotive spray primer

3. Color Blocking

Color blocking is a technique that simplifies painting by applying different colored paints in large areas as a foundation for subsequent layering.

- Paint solid colored areas with brushes



1. Printed model with support material ready for post-processing.



1a. Cleaned and dried model with support material removed.



2. Spray paint automotive primer over entire model surface.

Materials used:

- Acrylic paints
- Acrylic and watercolor brushes

4. Layering Colors

Painting each colored section with differing tones and color types creates depth and dimension. In this example, the silver wrist armor was first painted blue and then a coating of silver was lightly brushed on allowing for patches of blue to show through. A third layer of burnt umber was then roughly dry brushed over the silver, giving the area a dirty and worn look.

- Paint different colors in layers to create the desired effect

Materials used:

- Acrylic paints
- Acrylic and watercolor brushes

5. Highlighting Details

The look of a model can be sharpened by adding color contrast and definition. This technique requires the darkening of shadow areas, as well as the highlighting of reflective surfaces.

- Paint top surfaces with lighter, brighter colors and define edges with darker shadow tones
- Rub pigment or gilt cream over elevated areas to create reflections
- *Tip:* Paint fine details with the appropriate sized brushes

Materials used:

- Acrylic paints/ enamel model paint
- Gilt cream
- Acrylic and watercolor brushes

6. Distress and Patina

A worn and weathered appearance can be achieved through some unconventional techniques. In this example, the model was scraped, scratched and gouged with various tools (while being careful not to destroy vital details). Creating a weathered effect can also be achieved by applying a light splattering of paint or fly specking.

- Create random damage or distress marks by scratching the model with various tools
- Blot pigment on the model using a dry brush to create soiled areas
- Add fly specks by dipping a toothbrush into pigment and spraying the paint onto the model by dragging your thumb over the bristles

Materials used:

- Acrylic paints
- Kitchen knife, fork, screw driver
- Toothbrush

7. Finish

It is recommended to seal the painted model to protect the paint surface and achieve the desired sheen. In this example, the arm was sprayed with a clear



2a. Completed primed model.



3. Paint each model segment with basic colors.



4. Apply more complex layers of colors over base colors



5. Define edges and fine details.



5a. Apply metallic highlights and reflections.



5. Carefully scrape and gouge to create wear and distress marks.

matte finish. A thicker gloss finish was brush painted on the fingernails and bloody areas of the armor.

- Spray the model with a clear coat finish
- Paint a gloss finish for “wet looking” details

Materials used:

- Clear coat spray varnish or lacquer
- Brush on varnish (liquid floor polish or nail polish)

4. Materials List

Paints

- Rust-Oleum Auto Primer
- Golden Matte Acrylics
- Liquitex Glossies-Acrylic Enamel
- Citadel Foundation, Reaper Pro Paint (acrylic model paint)
- Model Master Enamel Paint
- Rub ‘n Buff Wax Metallic Finish (metal highlights)

Finishes

- Krylon Acrylic Crystal Clear Spray Finish
- Pledge Liquid Floor Polish (gloss, wet effects)

Tools

- Acrylic brushes (broad, rough textures)
- Watercolor brushes (fine detail, light washes)
- Toothbrush (fly speck, distress details)
- Butter knife, fork, screw driver (scratching, gouging)



6a. Apply paint to toothbrush and spray fly specks.



Detail of distressing and highlights.



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