

Penetrating Dye for Translucent Color



Overview

To add color and preserve the translucency to PolyJet models, apply a penetrating, aniline dye. In fifteen minutes, and for less than a few dollars, you can finish your models with vibrant, translucent color.

Color brings life to your models, and there is no simpler way to add color than using aniline dye with PolyJet models. Smooth surfaces and fine resolution eliminate the time and effort of sanding the model. Combined with the speed of the PolyJet process, showpieces are ready the same day that the design is complete. The unique solution is made possible by the translucency of the FullCure material.

In comparison, applying dye is much easier and faster than painting models. No skill is needed for this one-step process. Additionally, the aniline dye does not add any material to the surface of the parts, so the model's dimensional accuracy is not changed.

Aniline dye comes in a wide range of colors and cost less than U.S. \$5.00 For a four-ounce bottle. Sold as a stain for leather or wood, the dyes are readily available from most leather working and woodworking supply stores.

Process

1. Prepare model

Remove all support material with Water Jet (*Figure 1*). If not completely removed, the support residue may cause the model to have a blotchy appearance. An additional finishing option is to dip the model in Zep Citrus Cleaner for 5 to 15 minutes. Rinse model with water and dry. If desired, complete model preparation by sanding surfaces using either wet or dry sandpaper.

2. Prepare aniline dye (optional)

For convenience, purchase alcohol-based aniline dye. Although available in water-based formulations, the aqueous solution will not penetrate the model surface.

If necessary or desired, you can customize your color with either premixed or powdered aniline dye. Simply combine two or more dyes to create a new color. You can also lighten colors by diluting the dye with alcohol. When diluting, do not exceed a ratio of one part alcohol to three parts dye.

Before Dyeing the model, protect work area, clothing, skin, and eyes. Although alcohol will remove the dye, its penetrating nature makes it difficult to remove stains completely.

Supplies

1. Aniline dye, alcohol-based
2. Isopropyl/denatured alcohol
3. Zep Citrus Cleaner
4. Brush, stiff bristle
5. Spray bottle
6. Paper Towels
7. Gloves



Figure 1: Remove support material
Remove support material thoroughly with the WaterJet station. Optionally, remove any remaining residual material with a cleaner/degreaser (Zep Citrus Cleaner) if necessary



Figure 2: Apply aniline dye
Aniline dye is applied to the model by brushing (shown), or dipping

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3. Apply aniline dye

Spray or brush the dye onto the model. Apply light coat of dye to all surfaces (Figure 3). The dye will penetrate the model in a few seconds and will dry to the touch within 5 to 15 minutes.

Working quickly, brush the surface of the model, or wipe with paper towel, to distribute the dye evenly and remove excess. Puddles of dye will deepen the tint, so even dye distribution is important.

To darken the color or to correct uneven tinting, apply a second coat of aniline dye. If the color is too dark, or is blotchy, wipe surface with alcohol to remove dye from the model and repeat the dyeing step.

Allow the dye to dry for 15 minutes. Rinse the model in water and dry (Figure 4).

4. Clear coat (optional)

Clear coating will give luster to the model and protect the finish. Spray on a lacquer or polyurethane clear coat (Figure 5). To protect the model finish and/or give additional luster and clear coat paint can be applied.

Clear coats come in a variety of finishes including: matte, semi-gloss and glossy.

For best results it is recommended to use a lacquer based glossy clear coat. Simply spray on a light coat of the clear, let dry. Your models will be brilliant, vibrant, and ready for use. **Note:** Figure 5 is the finished model.

5. Clear coat (optional)

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Figure 3: Apply aniline dye
Aniline dye is easily applied to the model by brushing (shown), or dipping



Figure 4: Dry model dyes red with aniline dye



Figure 5: Finished model with clear coat (optional)
The translucent red color of the finished model is perfect for this taillight lens. Clear coat spray protects the finish and adds luster to your showpiece

Aniline dye suppliers

Leather dyes-wide range of colors. Fiebing dyes are available at tack, saddlery and leather working retailers.

The Fiebing Company – www.fiebing.com

A Leather Source – www.alearnersource.com

Tandy Leather – www.tandy.com

Woodworking dyes-wood tone colors. J.E. Moser dyes are available at woodworking supply retailers.

Woodworkers Supply Inc. – www.woodworker.com