

# Penetrating Dye for Translucent Color

Skill Level  
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Time  
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Cost  
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## Overview

Color brings life to your models, and there is no simpler way to add color and preserve translucency than using aniline dye with PolyJet™ models. Just apply the penetrating aniline dye to your PolyJet models. In fifteen minutes, and for less than a few dollars, you can finish your models with vibrant, translucent color.

Smooth surfaces and fine resolution eliminate the time and effort of sanding the model. These factors, combined with the speed of the PolyJet process, mean that showpieces are ready the same day that the design is completed – a unique solution made possible by the translucency of the FullCure® material.

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 dyes come in a wide range of colors and cost less than US\$5.00 for a 4oz bottle. Sold as a stain for leather or wood, the dyes are readily available from most leatherworking and woodworking supply stores.

## Process

### 1. Prepare Model

Remove all support material with the Water Jet. 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 NaOH solution. Rinse the 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 optimal results, 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 dyes. 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 the work area, clothing, skin, and eyes. Although alcohol will remove the dye, its penetrating nature makes it difficult to remove stains completely.

## Supplies

1. Alcohol-based aniline dye
2. Isopropyl/denatured alcohol
3. NaOH solution
4. Stiff-bristled brush
5. Spray bottle
6. Paper Towels
7. Gloves



Figure 1: Red leather dye bottle

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### 3. Apply Aniline Dye

Spray or brush the dye onto the model. Apply a light coat of dye to all surfaces (Figure 2). 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 a paper towel, to distribute the dye evenly and remove any 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 the surface with alcohol to remove the dye from the model and repeat the dyeing process.

Allow the dye to dry for 15 minutes. Rinse the model in water and dry.

### 4. Clear Coat (Optional)

Clear coating will give luster to the model and protect the finish.

Spray on a lacquer or polyurethane clear coat. To protect the model finish and/or give additional luster, clear coat paint can be applied.

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

For best results, use of a lacquer based glossy clear coat is recommended.

Simply spray on a light coat of the clear coat and let dry. Your models will be brilliant, vibrant, and ready for use. **Note:** Figure 4 is the finished model.

### Aniline Dye Suppliers

Leather dyes – available in a wide range of colors. Fiebing dyes are available at tack, saddlery and leatherworking retailers.

The Fiebing Company – [www.fiebing.com](http://www.fiebing.com)

A Leather Source – [www.aleathersource.com](http://www.aleathersource.com)

Tandy Leather – [www.tandyleather.com](http://www.tandyleather.com)

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

Woodworkers Supply Inc. – [www.woodworker.com](http://www.woodworker.com)



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



**Figure 3: Aniline dye comes in a wide range of colors and is sold as a stain for leather or wood**



**Figure 4: Finished model with clear coat (optional)**  
The translucent red color of the finished model is perfect for this tail-light lens. Clear coat spray protects the finish and adds luster to your showpiece

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