

Section 9—Polarized Illumination

Digital Imaging Workflow for Treatment Documentation

Conservation Division, Preservation Directorate, Library of Congress

POLARIZED ILLUMINATION

Section 9—Polarized Illumination



Figure 9.01

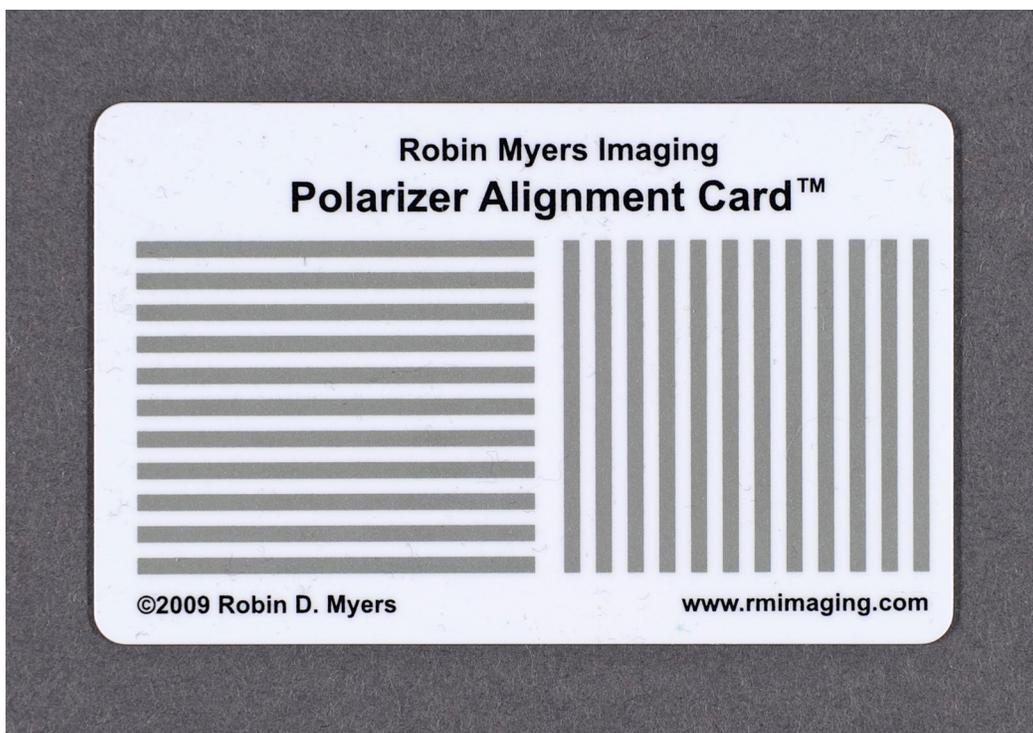


Figure 9.02

Section 9—Polarized Illumination

Capture

Preliminary

Polarized illumination is a form of normal illumination used to reduce or eliminate surface reflections. Because such reflections may provide important information about the texture and condition of an object, this type of photography should be performed with the understanding that it will alter the surface appearance of an object in the captured photograph. Frequently, the colors will also appear saturated and the contrast increased.

Set Up

Setup for polarized illumination is similar to normal illumination. Follow the instructions for normal illumination with the modifications below.

1. Gather the 77 mm Circular Polarizer (fig. 9.01), the Polarizer Alignment Card (fig. 9.02), and if using the 60 mm lens, the 62-77 mm step-up ring, from the studio cabinet.
2. 24-70 mm lens: Very carefully, screw the 77 mm Circular Polarizer onto the end of the lens.
60 mm lens: Very carefully, screw the 62-77 mm step-up ring, followed by the 77 mm Circular Polarizer, onto the end of the lens.
3. Place the Polarizer Alignment Card within the image frame, along with your object and the color target.

Section 9—Polarized Illumination

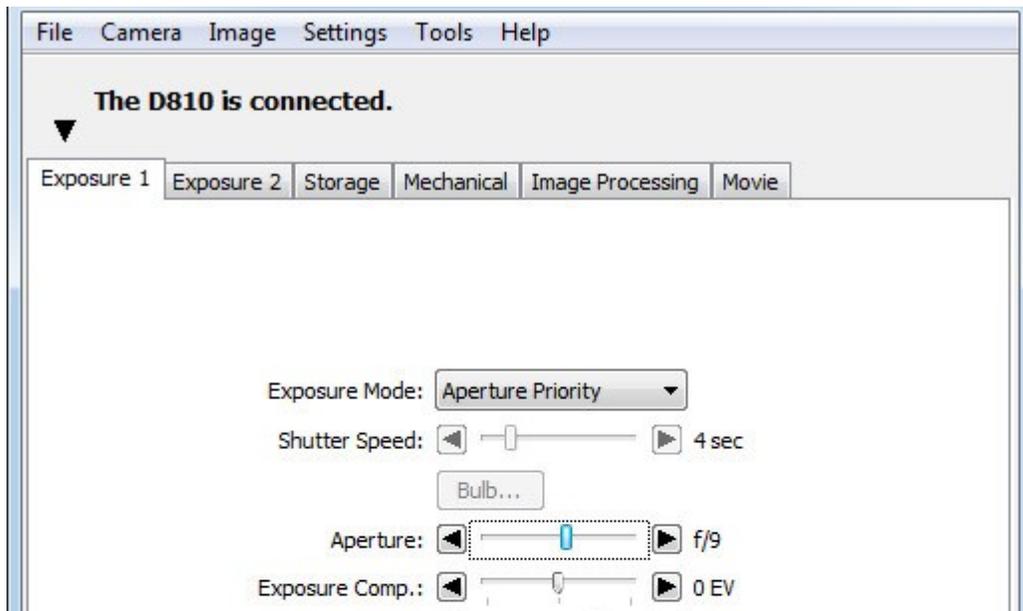


Figure 9.03



Figure 9.04



Figure 9.05

Section 9—Polarized Illumination

Image Capture

1. In **Camera Control Pro** under the *Exposure 1* tab, select the following (fig. 9.03):
 - Exposure Mode: Aperture Priority
 - Aperture: f/9
 - Exposure Comp.: 0
2. Settings under the *Exposure 2* (including auto white balance), *Storage*, and *Image Processing* tabs are the same as with normal illumination (page 2.13).
3. Open *Live View*, set the *Magnification Ratio* to 100%, and locate the Polarizer Alignment Card within the frame.
4. Rotate the circular polarizer on the end of the camera lens to achieve the level of polarization desired. If full polarization is desired, rotate until the silver lines of the Polarizer Alignment Card turn from silver (fig. 9.04a) to black (fig. 9.05a). Note the slight glare near the upper right edge of the polyester L-sleeve under minimal polarization (fig. 9.04b), and the glare reduction at the same location under full polarization (fig. 9.05b).
5. Press *AF and Shoot*.

Preview Images

1. In **Bridge**, open the image in **Camera Raw**.
2. Select the *Color Sampler Tool* and click on the lightest gray patch on the color target. The RGB values should be 200 +/-5 (fig. 14.09c).
3. If RGB values are outside 200 +/-5, adjust *Exposure Comp.* in the *Exposure 1* tab of **Camera Control Pro** and reshoot. Reevaluate in **Camera Raw**.

Finish

Finish the photography session as done with normal illumination (Section 2). In addition, return the Circular Polarizer, Polarizing Alignment Card, and if used, the 62-77 mm step-up ring to the studio cabinet.

Section 9—Polarized Illumination

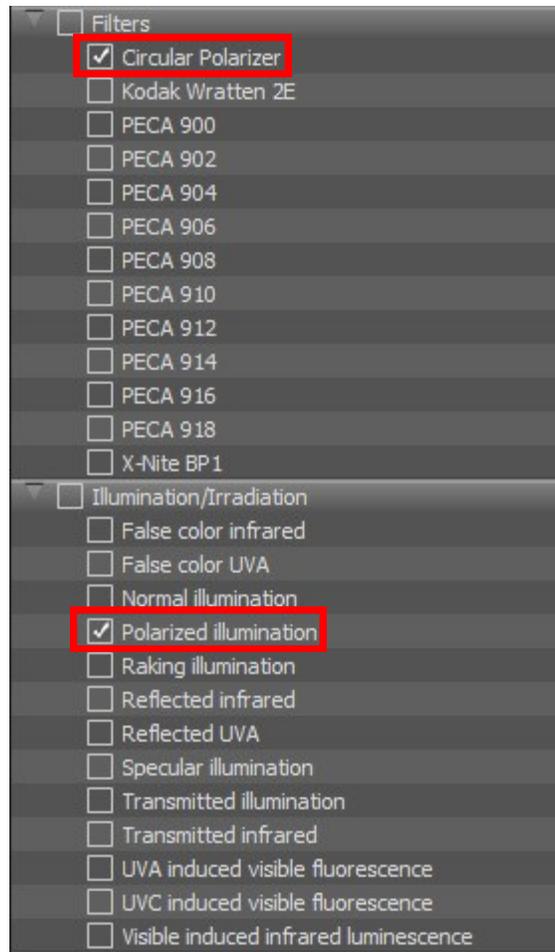


Figure 9.06

Section 9—Polarized Illumination

Metadata

Add metadata as you would for normal illumination except when applying *Keywords* (Section 3). Select *Circular Polarizer* under *Filters* and *Polarized illumination* under *Illumination/Irradiation* (fig. 9.06).

Image Processing

Adjust Image Files

1. In **Bridge**, open the image in **Camera Raw**.
2. White balance, exposure, sharpening, straightening, cropping and confirming workflow procedures are the same as with normal illumination images (Section 4).
3. Click *Done* to save your adjustments.

Rename and Save

Follow the instructions in Section 4 for renaming and to create .dng archive files and .tiff derivative files.