



Selenium Toning

Selenium toner is commonly used to treat photographic prints in order to intensify the blacks, subtly shift the color toward a reddish-brown, and increase print longevity. The formula given here is based on one that Ansel Adams used, but a number of different formulas exist in the art.

Assignment:

Make two identical prints with your favorite paper. One will be toned, and one left untoned to provide a comparison.

Materials Required:

1. Two identical silver prints of any subject having dark, medium, and light tones. The prints can be freshly made, or prepared ahead of time and dried.
2. Kodak Rapid Selenium Toner - at least 2 oz.
3. Sodium Thiosulfate - 8 oz. min.
4. Sodium Sulfite - 1 oz. min.
5. Perma Wash or Hypo Clear working dilution
6. Tongs or rubber gloves
7. Four printing trays
8. A well lit, ventilated area

Mixing:

Solution 1 - Non-hardening Fixer Bath

1. Mix 8 oz. (200 gm.) Sodium Thiosulfate into 20 oz. (600 ml.) warm (not hot) water.
2. Add 1 oz. (25 gm.) Sodium Sulfite
3. Add cold water to make 32 oz. (approx. 1 liter) at room temperature

Solution 2 - Toning Bath

1. Measure out 2 oz. (60 ml.) Kodak Rapid Selenium Toner
2. Add 14 oz. (400 ml.) Perma Wash working solution (not concentrate). This makes a fairly strong toner (1:7) - some workers dilute the Selenium Toner as much as 1:20 for less toning action. You may substitute Kodak Hypo Clear for the Perma Wash, if desired.

Solution 3 (optional) - Perma Wash

1. This is regular Perma Wash working solution. Mix 3 oz. Perma Wash concentrate to a gallon of water (approx. 4 liters) as described on the bottle. If you wish, Hypo Clear solution can be substituted.

Solution 4 - Wash Water

1. Running water as usual for a final wash.

Health Hazard: Selenium metal and some selenium compounds are known carcinogens. The selenium seems to be inert in the toning solutions used, but there may be risk. Avoid skin contact and avoid breathing vapors.

Treatment: (note: all steps can be carried out in daylight)

1. Agitate continuously in Non-hardening Fixer Bath for 3 minutes. Drain and transfer to Toning Bath without rinsing.
2. Immerse in Toning Bath for 1-10 minutes with continuous agitation. Longer times increase toner effect. Judge the effect visually by comparing the print being treated to a wet untreated one. Different papers respond in different ways. Some don't change color at all. Warmer papers respond more than cold papers.
3. After toning as desired, lift, drain, and immerse into Perma Wash solution for 3 minutes with constant agitation. Interleave if more than one print is being treated. This extra treatment in Perma Wash is to aid fixer removal.
4. Wash for 5 minutes to an hour, depending on print longevity desired. Interleave continuously if more than one print in tray.
5. Dry on screens as usual. Identify the two prints on back.

Notes: The fixing bath can be reused quite a few times before it goes bad. Old age will probably destroy it first. The toning bath can treat about 20 - 30 8x10 prints before it is exhausted. It will slow down after 5 prints or so, and progressively require more time. Stained prints are caused by residual acid fixer from the printing process.

Process notes:

Paper used

Contrast grade or filter used

Quantity of Selenium Toner used (oz. or ml.)

Quantity of Perma Wash working solution mixed with the Selenium toner (oz. or ml.)

Time in toner tray (minutes:seconds)

Examine both the treated and the untreated print in bright light after drying. Describe any differences in print color and shadow tone darkness that you see. Please include this page and your prints with this assignment.