

## BLUE TONER

Blue Toner as packaged by Fotospeed, is a 3 part chemical solution that is mixed together to work as a single-bath blue toner. Blue and Copper toners both fall into the 'metal' toner category. They do not improve the archival quality of a print and in fact, somewhat degrade the silver. But it is not at all an unstable toner.

The potassium ferrocyanide bleach in the toner combines with silver to produce silver ferrocyanide, that is nearly colorless. The ferric ammonium citrate metal in the toner, produces a chemical reaction that alters the tonality of the silver. Different metals cause different chemical reactions to produce a range of colors.

cadmium	white
cobalt	violet-red to cyan-blue
copper	brown-red
iron	Prussian blue
lead	white
molybdenum	brown
nickel	red-brown
titanium	yellow
uranium	red-brown
vanadium	yellow-orange

The ferric ferrocyanide in blue toner is an iron compound that is commonly known as Prussian blue. The water in which the toner is mixed can greatly influence the tone and stability of the final prints. An acidic environment is more friendly, while alkaline is not. Typical wash water is alkaline! Weak fixing (or an acidic post-toner bath) after toning will remove any remaining silver ferrocyanide and make the print far more stable.

### PRINTING ADJUSTMENT

Blue toner tends to darken the shadows. Print with less contrast and more 'open' shadow areas. Fiber based paper has a tendency to stain and blotch. Fingerprints are deadly. It is very important to carefully fix, perma-wash and then fully wash all prints to be processed in any metal toner.

### MIXING

Mix fresh in small quantities and discard when the solution darkens. The capacity is about 20- 8 x 10" prints per quart.

A bit less might be better for a small batch of 8 x 10" prints :

mix 1 oz toner A with 4 oz. water	(1 + 4)
mix 1 oz toner B with 5 oz. water	(1 + 4)
mix 1 oz toner C with 5 oz. water	(1 + 4)
the yield is 12 oz. toner	

A more dilute concentration, replaced more often, allows more control and reduces staining  
Try mixing 1 oz with the twice the amount of water (8 oz.) or each solution.

## BLUE TONER, cont'd.

### PROCESSING

The toner will work from the highlights down. It may be hard to see the effect through the dark toning solution. The print may be removed from the toner for inspection periodically.

fully wash all prints prior to blue toning  
otherwise stains will appear  
presoak for 5 min  
blue tone until the desired color is reached (1 ~ 10 minutes)  
agitate gently  
wash for at least another 5 minutes afterwards  
or until the yellow stain clears,  
always shuffle prints  
post-process in a clearing bath or weak fixer (see below)  
final wash for 30 minutes

keep a neutral 'reference print' in water close by for comparison.

### POST TONING CLEARING BATHS

Salt Water 1 ~ 2 TB salt per quart  
Sodium Carbonate 2 ~ 4 g (pinch) per quart [alkali]  
shifts the blue to royal blue then purple (less stable)  
a weak acid bath will shift the color back to cyan (more stable)  
Borax 5g per quart (bigger pinch) [acid]  
shifts to a more slate grey blue  
dilute even further for more subtle results when only partially toning  
Sodium Carbonate and Borax are laundry detergents  
that can be purchased in the supermarket.

Always wash well (at least another 5 minutes) after using a post toning bath!

### POST TONING FIXING

Weak fixing (or an acidic post-toner bath) after toning will remove any remaining silver ferrocyanide and make the print far more stable.

An acid fix will shift the color towards a more cyan-blue.

An alkaline fix will shift the color towards a less stable purple.

A few drops of working fixer in a tray of water is all that is needed.

### FINAL WASHING & DRYING

Washing is imperative to reduce staining in the highlights and worse, in the borders.  
Dry flat, not hung and surely not in the hot archival print dryer!

### INTENSIFICATION

redevelopment for darkening [alkali]  
blue tone > wash > weak developer (quarter strength) > blue tone [repeat as desired]  
the image will disappear in the developer, the blue toner will restore it  
compensate by printing with less contrast, this process will darken the shadows

refixing for intensification [acid]  
blue tone > wash > weak fixer (quarter strength) > blue tone [repeat as desired]  
the fixer will make a ghost image. this may be kept as the final product (print darker for this process). re-toning in blue will restore the blue even more brightly.

## BLUE TONER, cont'd.

### MULTIPLE TONING

extended clearing [ split back to brown with solarization ]

STRONG BLUE TONER > WASH > EXTENDED CLEARING BATH > WASH

use sodium carbonate or borax mixed as described above

redeveloping [ pale blue highlights with blue-black shadows ]

BLUE TONE > WASH > WEAK DEVELOPER > RINSE > WEAK FIXER > WASH

immersion in a weak developer will move the print back toward black & white following this with a weak alkaline fixer will shift the resulting pale blue to a more green-blue and make the print more stable

copper + blue [ pink highlights with blue shadows ]

PARTIAL COPPER (into the light tones) > WASH > BLUE (into the shadows) >

WASH (mid-tones lighten) [repeatable]

the length of time in the copper determines the split, as the copper-toned silver will not react with the blue toner

sepia + blue [ brown highlights with blue shadows ]

PARTIAL BLEACH > WASH > SEPIA > WASH > BLUE > CLEAR/WASH

the length of time in the bleach determines the split

again, the sepia toned silver (now silver sulphide) is not affected by the blue toner

sepia + blue reversed [ blue highlights with brown shadows ]

FULL BLEACH > PARTIAL REDEVELOP > WASH > SEPIA (no preceding bleach) > WASH >

BLUE > CLEAR/WASH

bleach and redevelopment make the highlights regular silver and the shadows bleached silver ferrocyanide. The shadows will respond to the sepia while the highlights will react with the blue toner. The split point is determined by the redevelopment.

sepia + blue reversed [ blue highlights with brown shadows ]

PARTIAL BLUE TONE > WASH > FULL BLEACH > SEPIA > BLUE > CLEAR/WASH

the first brief blue toner protects some of the shadows against sepia. the brown color that appears after the sepia stage is a different composition than usual; highlights are ferrous sulphide and the shadows are silver sulphide. the sepia toned silver sulphide is not affected by the blue toner, so the second blue toner affects only the highlights.

sepia + blue reversed & solarized [ blue highlights with brown shadows ]

VERY LONG BLUE > WASH > DILUTE SEPIA (no bleach) > RINSE > DILUTE FIX > WASH

using blue toner first followed by sepia without bleach can create extreme split tones. the split point is determined by the length of time in the blue toner; longer pushes the blue down into the shadows with more brown in the highlights, while less blue toning will move the blue up into the midtones or even highlights. the weak fix shifts the blue to a more stable cyan-blue.

### CLEAN-UP

Wipe trays down with a paper towel between mixing new toner and after finishing toning. The trays should be cleaned with Developer, then Fixer, then wash water.

CREDITS : Tim Rudman's book [The Photographer's Toning Book](#), Amphoto Books, ISBN 0-8174-5465-9 is an amazing source for all toning information. Liam Lawless' article at [Unblinking Eye](#) is another great resource for blue toning.