Miscellaneous Useful Things

Suppliers:

Calumet Photographic
890 Supreme Drive
Bensenville, IL 60106
(312) 860-7448 for info, 1-800-CALUMET for orders
http://www.calumetphoto.com
Enlargers, cameras, lenses, trays, some packaged chemistry, much good paper (Seagull, Insignia, Portriga, Elite). Reasonable prices, first class service. Their 175 page catalog is educational. Highly recommended source.

Freestyle Sales Co.
5124 Sunset Blvd.
Los Angeles, CA 90027
(213) 660-3460
Film and paper, including the excellent Arista printing paper at low cost. Arista matte surface is on of the best true matte papers available.

Light Impressions
439 Monroe Ave.
Rochester, NY 14607
(800) 828-6216 http://www.lightimpressionsdirect.com
Acid free mount board, mat cutting equipment, frames, much more. Good mat/mount board prices, everything else is average to high price. Recent service has been deteriorating.

University Products
517 Main St, P.O. Box 101
Holyoke, MA 01041-0101
(800) 628-1912
Acid-free mount board, mat-cutting equipment, frames.

Photo-Eye Books
P.O. Box 1504
Austin, TX 78767
(512) 480-8409 http://www.photoeye.com
A supplier of books catering to the photographic field. Has an extensive inventory of photographic books.

Lenswork Publishing
PO Box 22007
Portland OR 97269-2007
1-800-659-2130
www.lenswork.com
Books, periodical, and most importantly, quality photographic reproductions for low cost.

Shutterbug
5211 S. Washington Ave.
P.O. Box F
Titusville, FL 32781
Shutterbug is a newspaper-like classified ad publication for all sorts of used photo equipment.

Sprint Systems
100 Dexter St.
Pawtucket, RI 02860
Manufacturers of Sprint Speed Fixer, Brightener and other useful photographic chemicals (non-smelly stop bath, developers, etc)

Photographer's Formulary
P.O. Box 5105
Missoula, MT 59806
(406) 543-4534
Supplier of almost any kind of developing, fixing, toning, or odd-process chemical you might need. Has specialized developers for experimenting with historical processes. Prices are a bit high, though. If you need basic B/W chemicals for mixing standard developers only, you will save money by using Zone V.

Bostick and Sullivan
PO Box 16639
Santa Fe, New Mexico 87506
Phone: 505-474-0890 Fax: 505-474-2857
www.bostick-sullivan.com
Suppliers of platinum and palladium printing chemicals, as well as some odd heavy-metal toners. Excellent platinum and palladium printing information contained in back issues of a newsletter called *Lumen.*

Grump
P.O. Box 309
Bethlehem, CT 06751-0309
Newsletter about photography published by David Vestal. Opionated, thoughtful and entertaining. Considers philosophical and critical issues facing photographers. Well worth the $30 for 6 issue subscription cost.

Formulas:*

Kodak D-76 Film Developer

Water (125 deg. F)	750	ml	24	oz.
Metol (or "Elon")	2	gm.	1/2	teaspoon
Sodium Sulfite, anhydrous	100	gm.	4	tablespoons plus 1 teaspoon
Hydroquinone	5	gm.	1-1/2	teaspoons
Borax, granular	2	gm.	1/2	teaspoon
Cold water to make	1	liter	1	quart

Dilute 1:1 with water for use.

Super D-76

Kodak D-76 developer ages somewhat un-gracefully. It rapidly gains in pH in the early stages of oxidation, causing increased contrast and grain in the negative. Other developers, otherwise less able than D-76, have a longer storage life. If you use D-76 only occasionally and wish to extend its life, add the following chemicals to the one liter size of off-the-shelf Kodak D-76 mix. They act as a preservative.

Borax	6	gm.
Boric Acid	8	gm.
Kodak Antical No. 3 (DPTA)	1	gm.

Other size packages of D-76 require correspondingly different chemical quantities. The one gallon size, for example, would require 4 times the quantities given above. ***Note*** If you would like to use this modification, then be sure to run your speed and developing time tests *with* the new developer. Don't test with one developer, then switch to another without testing. This formula may change the pH of the developer slightly, based on minerals present in the tap water. Borax and Boric acid are available from Zone V. The Kodak product may be ordered through your dealer.

Kodak D-72 Print Developer (Similar to Dektol)

Water (125 deg. F)	500	ml.	16	oz.
Metol (or "Elon")	3	gm.	1	teaspoon
Sodium sulfite, anhydrous	45	gm.	2	tablespoons
Hydroquinone	12	gm.	1	tablespoon plus 1 teaspoon
Sodium carbonate, monohydrated	80	gm.	4	tablespoons plus 1-1/4 teaspoon
Potassium bromide, anhydrous	2	gm.	1/2	teaspoon
Cold water to make	1	liter	1	quart

Dilute 1 part D-72 to two parts water for use.

*Note: All formulas should be mixed in the order given.

Ansco 120 - low contrast print developer

Water (125 deg. F)	750	ml
Metol	12.3	g
Sodium Sulfite (desic.)	36	g.
Sodium Carbonate (desic.)	30	g.
(or monohydrated version	36	g)
Potassium Bromide, 10% sol'n	18	ml.
Cold water to make	1	liter stock sol'n.

To use: further dilute 1:2 with water to make working solution in tray. Develop print 1-1/2 to 3 minutes. Use half of the above quantities for 8x10 or smaller trays. This formula results in about a one-grade decrease in print contrast.

GAF 70 Hydroquinone Caustic Developer for High Contrast

Recommended for process film used in reproduction, especially Litho type films.

Solution 1

Water (125 F. or 52 C.)	750	ml.
Hydroquinone	25	gm.
Potassium Metabisulfite	25	gm.
Potassium Bromide	25	gm.
Cold water to make	1.0	liter

Solution 2

Cold water	1.0	liter
Sodium Hydroxide (caustic soda)	36	gm.
or		
Potassium Hydroxide (caustic Potash)	50	gm.

Always use cold water to mix solution 2 because considerable heat is released during mixing, and the mixture may boil with violence. It could cause serious burns.

Mix equal parts of Solution 1 and 2 immediately before use. It does not keep well once mixed. Develop film for 3 min. at 68 F. (20 C.).

Benzotriazole Additive

Add 1/2 to 1 oz. of 2% Benzotriazole solution per quart of print developer working solution to a) slightly increase contrast of printing paper, and b) to cool image color. Works wonderfully with the older version of Portriga Rapid followed by selenium toning - subtle warm blacks that don't appear greenish. Benzotriazole solution can be purchased from Zone VI Studios.

Iron Blue Toner

Producing brilliant blue tones, this formula is suitable for some papers.

Water (125 F. or 52 C.)	16	oz.	500	ml.

Ferric Ammonium Citrate	1/4	oz.	8.0	gm.
Potassium Ferricyanide	1/4	oz.	8.0	gm.
Acetic Acid, 28%	9	oz.	265	ml.
Cold Water to make	32	oz.	1.0	liter

Solution should be prepared with distilled water if possible. If enameled iron trays are used, no chips or cracks in the enamel should be present or spots and streaks may appear in the print.

Prints for blue toning should be fixed in plain, non-hardening hypo bath. Maintain fixing bath at 68 F. (20 C.) or under to avoid emulsion swelling. When prints have been fully toned in the above solution, they will be greenish in appearance, but will be easily washed out to a clear blue color when placed in running water.

The depth of the toning will vary somewhat with the quality of the prints toned in it, with light prints toning to a lighter blue. Some intensification of the prints usually occurs in toning; consequently, prints should be slightly lighter than the density desired in the final toned print.

Wash water should be acidified slightly with acetic acid, since the blue tone is considerably weakened when wash water is alkaline. Pleasing variations in tone can be obtained by bathing the washed prints in a 1/2% solution (5 gm. per liter) of Borax which produces softer, blue-gray tones, the extent depending on the length of treatment.

Green Toner (GAF 251)

This formula produces rich tones by combining the effects of iron blue toning and sulfide sepia toning. It must, however, be used carefully and with particular attention both to the directions outlined below and to cleanliness in handling prints throughout all steps of the process. This formula should work well with most warm toned Bromide papers, but it would be wise to test the paper you select before attempting production.

Solution 1

Potassium Ferricyanide	40	gm.
Water	1	liter
Ammonia .91 S.G. (25% in weight)	15	ml.

Solution 2

Ferric Ammonium Citrate	17	gm.
Water	1	liter
Hydrochloric Acid (conc.)	40	ml.

Solution 3

Sodium Sulfide	2	gm.
Water	1	liter
Hydrochloric Acid (conc.)*	10	ml.

*Do not add Hydrochloric Acid to Solution 3 until immediately before use.

Black and white prints to be toned should be darker and softer in contrast than a normal print, using approximately 25% over exposure on the next softest grade of paper. Development of the print should be done in a suitable developer with particular attention given to avoid under-development. Prints should be fixed as usual, thoroughly washed and completely dried out before toning.

Prints to be toned should be first soaked in cold water until limp and then placed in Solution 1 until bleached. The print should then be transferred to running water for a thor-

ough 30 min. wash. Bleached prints are then placed in Solution 2 for 45 seconds to 1 minute, toning being permitted to continue until the deepest shadows are completely toned. Prints should then be washed briefly (4 to 6 minutes), excessive washing being undesirable in view of the solubility of the blue image. If wash water is slightly alkaline, it should be acidified somewhat with acetic acid to prevent degradation of the blue tone during washing.

The blue toned prints are next immersed in Solution 3 until the green tone is sufficiently strong, the operation requiring about 30 seconds. Toned prints should then receive a final washing of 20 to 30 minutes in neutral or slightly acidified wash water and dried. Avoid heat and drying machine for drying.

Red Toner (GT-15)

Solution A

Potassium Citrate	100	gm.
Water to make	500	ml.

Solution B

Copper Sulfate	7.5	gm.
Water to make	250	ml.

Solution C

Potassium Ferracyanide*	6.5	gm.
Water to make	250	ml.

Mix solution B into Solution A, then slowly add Solution C, stirring well. Remove prints from toning bath when desired tone is reached and wash thoroughly. This formula may lighten prints, so darker tones than normal might be desirable to start with. Test the paper you intend to use before committing a good print to the toner.

*I don't know if this spelling represents a different chemical than Potassium Ferricyanide.

More toner formulas can be found in The Photo Lab Index (Morgan and Morgan, N.Y.) if you are interested in them. Most of the above formulas are taken from the Index. The Photo Lab Index is a virtual encyclopedia of photographic formulas of all types.

Eric Logsdon's Infrared Process

Load into camera in *total* darkness
Expose Kodak High-Speed Infrared film at ASA/ISO 400.
Develop in T-Max developer 1:4 at 68 deg. F for 8 minutes.
Agitate initially with 9 inversions, afterward for 3 to 5 seconds every 45 seconds

To Make Black and White Slides

Use the *T-Max 100 Direct Positive Film Developing Outfit* with T-Max 100 film. The kit costs about $30 and processes 12 rolls of film. T-Max 100 film is exposed at ASA/ISO 50 for normal contrast in the resulting slides. Follow the instructions in the kit for use.