QA

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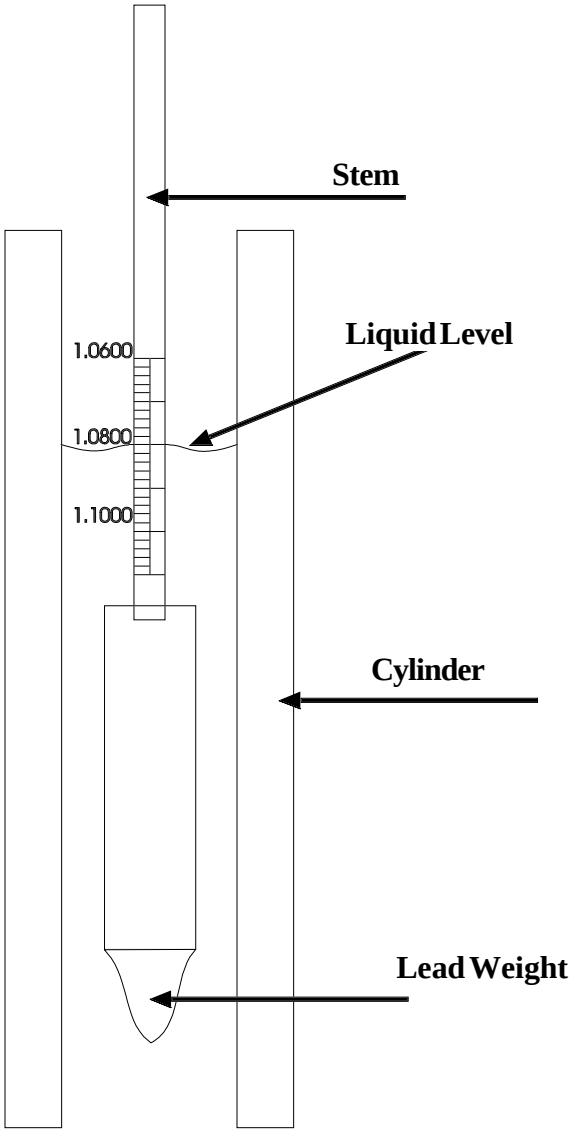
Specific Gravity Test:



Purpose:
To determine the proper strength of the solutions; will indicate too little, or too much water in the mixture.

Required Equipment:
- 1 Hydrometer with a range from 1.000 to 1.220
- 1 250ml. cylinder
- 1 1000ml. beaker
- 1 centigrade thermometer

Procedure:
Specific gravities of photographic solutions are measured using a hydrometer, which has a specific weight, and a cylinder. Cool 250 ml. of chemistry to **15.5°C.** Pour the solution into the cylinder high enough so that the hydrometer floats. Care should be taken to see that the **hydrometer does not touch the side or bottom of the cylinder.** Read the graduated scale in the hydrometer at the point where the surface touches the stem.

Clearing Time (for fixer):

Purpose: To determine the presence of proper fixing agents.

Required Equipment:
- 1 250ml. beaker
- 1 Stop watch or clock with a second hand
- 1 Scissors
- 1 Small strip of double emulsion film

Procedure: Fill a beaker with about 150 ml. of diluted fixer at 25^0 C. Cut a strip of film about 1 inch long and a half inch wide. Using a stopwatch, hold the film in the fixer. Start the stopwatch the second that the film is immersed and stop it when you see that the film has cleared. Properly mixed fixer will clear film in 7 - 11 seconds, depending on the type of film used.

Black Test (for developer)

Purpose: To determine the presence of developing agents.

Required Equipment:
- 1 250ml. beaker
- 1 Stopwatch or clock with a second hand.
- 1 Scissors
- 1 Small strip of film

Procedure: Fill a beaker with about 150ml of developer at 25^0 C. Cut a strip of film about 1 inch long and a half inch wide. Using a stopwatch, hold the film in the developer. Start the stopwatch the second that the film is immersed and stop it when you see that the film has turned black. Properly mixed developer will blacken film in 5 - 8 seconds, depending on the type of film used.

Developer and Fixer pH Test:

Purpose: pH is a measure of acidity or alkalinity. pH can also indicate the proper mixing of fixer, and the proper activity of developer.

Required Equipment:

	HRS Recommended
•1 pH meter	Orion model 501
•1 pH electrode	Orion model 13-641-751
•1 Reference electrode	Orion model 13-641-756

•1 bottle fresh pH buffer rated 4.0
•1 bottle fresh pH buffer rated 10.00
•1 bottle of de-ionized or distilled water
•2 250ml. beakers (1 for buffers, 1 for test solutions)
•1 Centigrade thermometer
•1 Box of soft facial tissue

Procedure for Developer: ***Always turn your meter to "standby" mode before removing the electrode tips from liquid.*** Follow proper procedures for setting up your pH meter according to your pH meter manual. Warm your buffer to 25^0C. Place a fresh sample of 10.00 buffer in 1 beaker filled about 1.5 inches high, under the electrodes and submerse the tips, making sure they are not touching the bottom or the sidesof the beaker. The electrodes should be submersed in the buffer about 1 inch. Calibrate the meter to 10.00 (follow owners manual). Set the meter to standby and remove the buffer-beaker. Rinse the electrodes with distilled or de-ionized water. Pat the electrodes dry with the soft facial tissue; do not wipe them because wiping could cause damage to the electrodes. Pour 150ml. developer (recommended temperature is 25^0C.) into the solutions beaker and place it under the electrodes. Submerse the electrodes 1 inch into the solution, making sure they are not touching the bottom or the sides of the beaker. Take your reading. Switch the meter to standby. Rinse the electrodes dry with the de-ionized water and pat the electrodes dry. Repeat rinse and dry twice more. If you are testing fixer afterwards soak the electrodes in de-ionized water for 30 minutes before testing.

Developer and Fixer pH Test:

(Continued)

Procedure for Fixer:

Always make sure your beakers and electrodes are clean and dry before testing any new chemical. Warm your buffer to 25^{0}C. Place a fresh sample of 4.00 buffer in 1 beaker, filled about 1.5 inches high, under the electrodes and submerse the tips, making sure they are not touching the bottom or the sides. The electrodes should be submersed in the buffer about 1 inch. Calibrate the meter to 4.00 (follow your owners manual). Set the meter to standby and remove the buffer-beaker. Rinse the electrodes with distilled or de-ionized water. Pat the electrodes dry with the soft facial tissue; do not wipe them because wiping could cause damage to the electrodes. Pour 150ml. fixer (recommended temperature is 25^{0}C.) into the solutions beaker and place it under the electrodes. Submerse the electrodes 1 inch into the solution, making sure they are not touching the bottom or the sides of the beaker. Switch the meter to on and wait until the reading has settled for 20-30 seconds. Take your reading. Switch the meter to standby. Rinse the electrodes dry with the de-ionized water and pat the electrodes dry. Repeat rinse and dry twice more. Soak electrodes for 30 minutes if you are testing developer afterwards.

Helpful Hints:

Always make sure your meter is set to "standby" before removing the electrode tips from any liquid. Keep the electrode tips submerged in de-ionized water when not using the meter. Before starting any tests, always make sure that your equipment is clean and dry. Always keep your buffer solutions closed tightly as moisture, which naturally occurs in the air, will contaminate your supply if exposed long enough. When testing one solution right after a different one, always make sure you clean and dry everything thoroughly between tests. Never save buffer in an open beaker for more than eight hours. Never pour the used buffer back into your buffer supply. You may want to have 2 beakers; one labeled 4.0 buffer and the other labeled 10.00 buffer. You may also want 2 more beakers; one labeled fixer, and the other developer. Dedicating beakers to a single function helps eliminate contamination.

Sensitometric / Densitometric Tests:

Purpose:

To test for specific results and performance of the chemistry. Many variants must be considered when testing the chemistry this way.

Required Equipment:

- 1 sensitometer, X-Rite model 383
- 1 densitometer, X-Rite model 380
- 1 serial printer, Panasonic, Epson or other name brand
- 1 darkroom with tanks, safelights, scissors, and photo timing clock with buzzer or bell
- 1 box of film
- Other miscellaneous darkroom supplies

Procedure:

Contact H.R. Simon & Company at (800) 638-9460 for a custom tailored program and list of procedures and equipment to fit your budget.

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Techincal Support:

If you are an H.R. Simon Dealer and you would like specific guidelines and recommendations feel free to call H.R. Simon QA Technical Support at (800) 638-9460. All of the equipment required for these QA tests can be purchased at H.R. Simon and Company. Quality Assurance packages are available, and will be compiled separately for each customer according to their specific needs and budget.

Call for specific mixing instructions of H.R. Simon Chemistry.

Keep this manual in a safe place for future reference.

Specific Gravities and pH of H.R. Simon Chemistry:

Note: Specific gravity and pH vary according to temperature.

		Specific Gravity	pH
Developers			
	HS Powder	1.0785-1.081	10.31-10.40
	Chemblend	1.0785-1.081	10.31-10.40
	Chemblend CB2	1.0785-1.081	10.31-10.40
	HS Manual	1.0623-1.0625	10.54-10.58
Fixers			
	Automatic 300	1.0785-1.0810	4.15-4.25
	Chemblend UC	1.0785-1.0810	4.20-4.29
	HS Manual	1.0623-1.0625	4.20-4.30
	Please note that these are wider ranges than we use in our quality control lab. They are perfectly acceptable field test results. Specific Gravity is measured at 15 degrees C. and pH is measured at 25 degrees C.		

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