FILM PROCESSING

08/19

waligore

chemical	use	time
D-76 or TMAX	**film developer:** converts silver salts to silver	**varies according to film type and temperature**
ACETIC ACID STOP BATH	**stops development**: converts alkaline developer bath to a slightly acidic environment	**30 seconds**
FIXER	**fixes the image**: removes unexposed silver salts	**5 minutes**
WATER	**water rinse** prepares film for HCA	**1 minute**
HCA: hypoclearing agent	**hypo neutralizer**: facilitates removal of fixer from film -- washing aid	**3 - 5 minutes**
WASH	**removes residual fixer**	**10 - 20 minutes**
PHOTO-FLO	**film wetting agent**: prevents water spots	**dip or run film** through **solution 3 - 4 times**

1-Load film into development tank in complete darkness and close tank.

2-**Check the room temperature of the chemicals**. Create a **water solution** for the pre-wet and developer that is close to the temperature of the remaining chemicals. You will be developing your film at 65-75 degrees.

3-**Dilute D-76 film developer 1:1** from the stock solution.

Measure 10 oz. of D-76 and 10 oz. of water for LARGE PLASTIC TANK

OR

8 oz. stock solution and 8 oz water for SMALL METAL TANK with 2 reels,

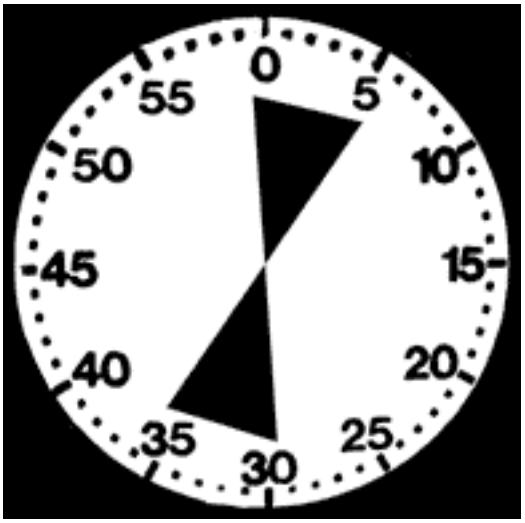
[for push process using TMAX developer, measure 4 oz. of TMAX and 16 oz. of water to create a 1:4 solution.].

4-Check **time/temperature** chart for proper development time.

5-All chemicals and washing temperature should be as close as possible to that of the developer to minimize excessive grain.

6-Fill tank with a water **PREWASH**. Agitate constantly for one minute. Tap tank against palm to dislodge air bells that may cling to film.

7-Pour **DEVELOPER** solution into tank, and using the clock's sweep second hand, time the development. Agitate constantly for the first 30 seconds and then for 5 seconds of every 30 second period as illustrated below:



Dark area shows period of tank agitation.

8-At the end of the development period, drain the developer and leave the tank closed. Do not save diluted developer solution; pour into designated container for used developer.

9-Pour **STOP** working solution into tank and agitate continuously for 30 seconds.

REUSE chemistry. The indicator stop bath turns purple in color upon exhaustion.

10-Pour **FIX** working solution into tank and agitate constantly for the first 30 seconds and then for 5 seconds of every 30 second period for a total of 5 minutes. The TMAX films require intermittent vigorous agitation for 5 seconds of every 30 second period with the RAPID FILM FIXER which we are using.

11-Drain **FIX** from the tank into gallon bottle to **SAVE AND REUSE**.

Strength of fix can be evaluated with hypocheck. Pour out a 2 oz sample of fixer and add 2 drops of hypocheck. If a white precipitate forms ("the white cloud"), then the fixer solution is exhausted. Review the instructions on the bottle of hypocheck since brands may vary. (Discard the sample used for the hypocheck test.)

12-Fill and drain tank twice with **WATER** (constant agitation for one minute).

13-**At this time the film developing tank may safely be opened.**

Inspect the film to be sure the fix has completely cleared the film. If the fix becomes exhausted, the film will not clear completely but will appear milky and bluish. If this happens, pour fresh fix working solution into tank and complete fixing. Discard exhausted fixer in the appropriate FIXER CONTAINER FOR DISPOSAL. Do not pour exhausted fixer down the drain as the solution contains silver metal and pollutes the environment.

14-Close the tank and pour in **HCA 1:4 working solution**. Agitate tank constantly for the first 30 seconds and then for 5 seconds of every 30 second period for a total of 3-5 minutes.

15-Drain **HCA** back into container provided to **SAVE AND REUSE**. HCA turns pink/purple in coloration when exhausted and is contaminated easily. When necessary, dispose of exhausted HCA in designated container.

16-Open tank and **RINSE FILM** (still on reels) in film washer for 10 - 20 minutes. After washing film, remove it carefully from the reel to avoid scratching film.

17-Remove film from reel and, holding it by both ends, slowly immerse it into a tray of **PHOTO-FLO** (squirt a small quantity of photoflo into a half-filled 8x10 tray of water). Gently pull the film back and forth through the solution three times. This method tends to prevent water spots from forming on the film. The Photo-Flo solution is discarded after use during a class period.

18-Drain excess solution from film but **do not touch or wash film**.

19-Immediately hang film in the film drying cabinet. Dry at low heat for 15 minutes.

10-When using the film drying cabinet, be sure to turn off the fan before opening the door. Fold end of film over wire and clip in place. Then put a clothespin on the bottom of the film strip to prevent curling. Turn on the drying fan AFTER you close the door. Use air, low, or medium heat settings to dry negatives. Excessive use of heat will permanently damage negatives. Archival processing of film stipulates that negatives be dried without heat. Air drying can also prevent dust accumulation.

NOTES:

1-**Always handle film by the ends or edges only**. The emulsion is easily scratched. Make sure the film is **completely dry** before you file the film strips.

2-Do not put the film down at all until it is cut and placed into negative preservers. Most all areas of the film development room are contaminated with chemicals and neither film nor prints should be place down any surface in the room without proper precaution.

3-If the chemical is a stock solution ready for dilution, then the **proper ratio** for the working solution is indicated on the stock container. The **first number indicates the number of parts of the solution** for the stock chemical and the **second number indicates the parts of water** to be added to make a working solution.

i.e. **1:4** = **one part chemical is mixed with 4 parts water**
or 4 oz. of chemical is mixed with 16 oz. of water....

4-Chemicals that are stored in a stock solution usually have a shorter life expectancy when they are diluted to create a working solution. Our developers are usually stored in stock solutions. Chemicals are weakened and/or spoiled by exposure to the air. Keep all bottles capped at all times to prolong their life. Use care when returning used chemicals back to the appropriate container. As chemicals are reused, the length of time of immersion should be increased somewhat. **The chemicals for film processing are parallel to those for paper processing but the solutions are not used interchangeably.**

5-**Exhausted fixer** will leave film milky, rather than transparent. In that case the fixer is unable to "clear" the film, to remove all unexposed silver salts. Film can be reprocessed with fresh fixer in this instance.