

# Processing Black & White Film

## Equipment:

Film tank with cover, Reel, Film cassette opener, Scissors

## In Dark Room or changing bag:

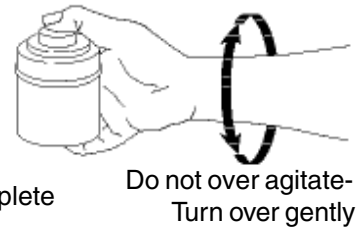
Open film cassette. Pull out film. Trim end square with scissors. Load film on reel. Put reel in tank and cover.

## Developing Film Steps:

**Chemicals needed: Developer, Stop Bath, Fixer, Hypo clear, wetting agent (photo flo)**

**Developer time is very important - stop and fix can safely go longer than recommended time**

- 1) Make sure all chemicals are up to the same temperature
- 2) Measure developer temperature, determine developing time from data sheet\*
- 3) Pre soak the film for one minute by filling the tank with plain water through small opening
- 4) Empty pre-soak - pour in **Developer** - start timer
- 5) Cap small opening, Rap tank to dislodge bubbles, agitate gently for 30 sec.
- 6) Agitate every 30 sec till completion of time (Gently turn tank over 2 times)
- 7) 30 seconds before develop time is completed - empty tank
- 8) Fill with **Stop Bath**, Cap, agitate for 30 sec. Empty Stop Bath in container (save)
- 9) Pour in **Fixer**, cap, agitate continuously 30 sec. then 5 sec every minute till complete  
(time varies depending on fixer and type of film T-Max takes longer to fix)



Fix: Tri-X & HP5 for 5 minutes Delta 400, T-Max and Arista EDU for at least 10 minutes

## Now it is safe to expose film to light

Check your film for proper fixing. If there is a strong purple color, re-fix for a few more minutes.

- 10) Rinse in water one minute
- 11) agitate in **Hypo clearing agent** one minute
- 12) Wash in water for 3 minutes
- 13) soak in **Photo-flo** (wetting agent) for 30 sec. Three drops of photo-flo in film tank of clean water.
- 14) Remove film from reel, drain
- 15) Hang to dry
- 16) Use light table (not dirty counter tops) to examine and cut film. Cut in 5 or 6 frame lengths to fit your film sleeve.  
Do not cut in single frame length-
- 17) Store film in plastic film sleeves.

**Identify your film with your name, and date and roll number.**

Log film in written record.

Treat your film very carefully. Keep it clean.

### KODAK Tri-X 400 Film Development Time in Minutes

Developer	65°F	68°F	70°F	72°F	75°F
D-76 (1:1)	11	10	9 1/2	9	8

### KODAK T-MAX 400 Professional Film

Development Time in Minutes

Developer	65°F	68°F	70°F	72°F	75°F
D-76 (1:1)	14 1/2	12 1/2	11	10	9

### Lessons learned the hard way:

Have all chemicals ready before you get your film wet. You can't stop & start over if once you start.  
Make sure you have the correct chemicals. Developer looks a lot like fixer. Use labels to mark them, test if in doubt.

**Rinse in water for One Minute- tap tank on sink to remove air bubbles**  
**Develop for indicated time in Kodak D-76 Developer diluted 1:1 with water**

<b>Film Development Time in Minutes (Developer D-76 1:1)</b>					
	<b>65° F</b>	<b>68° F</b>	<b>70° F</b>	<b>72° F</b>	<b>75° F</b>
<b>Kodak Tri-X</b>	<b>11</b>	<b>10</b>	<b>9 1/2</b>	<b>9</b>	<b>8</b>
<b>Kodak T-Max</b>	<b>14 1/2</b>	<b>12 1/2</b>	<b>11</b>	<b>10</b>	<b>9</b>
<b>Ilford Hp 5</b>	<b>12 1/2</b>	<b>11</b>	<b>10</b>	<b>9</b>	<b>8</b>
<b>Ilford Delta 400</b>	<b>15 1/2</b>	<b>14</b>	<b>12</b>	<b>11</b>	<b>10</b>
<b>Arista EDU</b>	<b>14 1/2</b>	<b>12 1/2</b>	<b>11</b>	<b>10</b>	<b>9</b>

**Develop:** Fill tank with developer, agitate gently for 30 seconds. Develop for time indicated by temperature chart. Agitate gently (two inversions) every 30 seconds. Dump developer 15 sec before time is up.

**Stop Bath for 30 seconds (Save used stop bath until it turns purple)**

**Fix** at 65 to 75°F (18 to 24°C) for 5 minutes (Save Fixer)

***(T-Max, Delta and EDU Film must be fixed for 10 or more minutes).***

If your negatives show a magenta (pink) stain after fixing, your fixer may be near exhaustion, or you may not have used a long enough time. If the stain is slight, it will not affect image stability, negative contrast, or printing times. You can remove a slight pink stain with KODAK Hypo Clearing Agent. However, if the stain is pronounced and irregular over the film surface, refix the film in fresh fixer.

**Wash** for 1 Minute

**Clear** with Hypo Clear for One Minute (discard after use).

**Final Wash** for 3-5 (or more) minutes

**Soak in Photo-flo (wetting agent) for 30 sec.** Three drops of photo-flo in film tank of clean water.

**Dry** film in drying cabinet- put weight clip on bottom to prevent curling.