



STANDARD B&W FILM DEVELOPER TIME CHART

RECOMMENDED TIME + TEMPERATURE BASED ON FILM TYPE

FILM TYPE		TEMP / TIME (min.)				
		20.0°C 68.0°F	21.0°C 70.0°F	22.0°C 71.5°F	23.0°C 73.5°F	24.0°C 75.0°F
Agfa						
Apx 100	N	8:30	7:45	7:00	6:15	5:30
Apx 400	R	15:00	13:30	12:30	11:00	10:00
Arista						
.Edu 100	M	7:30	6:45	6:00	5:30	5:00
.Edu 200	O	10:00	9:00	8:00	7:15	6:30
.Edu 400	R	15:00	13:30	12:30	11:00	10:00
.Edu Ultra 100	N	8:30	7:45	7:00	6:15	5:30
.Edu Ultra 200	L	6:30	5:45	5:15	4:45	4:15
.Edu Ultra 400	Q	13:00	11:45	10:30	9:30	8:30
Il 100	N	8:30	7:45	7:00	6:15	5:30
Il 400	R	15:00	13:30	12:30	11:00	10:00
Bergger						
BRF / BPF 200	P	11:30	10:15	9:15	8:30	7:30
Efke / Adox						
KB25 **	J	5:00	4:30	4:00	3:40	3:18
KB50	N	8:30	7:45	7:00	6:15	5:30
KB100	O	10:00	9:00	8:00	7:15	6:30
Fuji						
Acros 100	O	10:00	9:00	8:00	7:15	6:30
Neopan SS 100	N	8:30	7:45	7:00	6:15	5:30
Neopan 400	N	8:30	7:45	7:00	6:15	5:30
Neopan 1600	P	11:30	10:15	9:15	8:30	7:30
Foma						
Fomapan 100 Classic	N	8:30	7:45	7:00	6:15	5:30
Fomapan 200 Creative	L	6:30	5:45	5:15	4:45	4:15
Fomapan 400 Action	Q	13:00	11:45	10:30	9:30	8:30
Forte / J&C						
Fortepan 100	M	7:30	6:45	6:00	5:30	5:00
Fortepan 200	O	10:00	9:00	8:00	7:15	6:30
Fortepan 400	R	15:00	13:30	12:30	11:00	10:00
Ilford						
PanF +	N	8:30	7:45	7:00	6:15	5:30
FP4 +	N	8:30	7:45	7:00	6:15	5:30
HP5 +	O	10:00	9:00	8:00	7:15	6:30
Delta 100	N	8:30	7:45	7:00	6:15	5:30
Delta 400	P	11:30	10:15	9:15	8:30	7:30
Delta 3200 *	S	17:00	15:00	14:00	12:30	11:15
SFX200	O	10:00	9:00	8:00	7:15	6:30
Kodak						
125PX	N	8:30	7:45	7:00	6:15	5:30
400TX	O	10:00	9:00	8:00	7:15	6:30
100TMAX	O	10:00	9:00	8:00	7:15	6:30
400TMY	P	11:30	10:15	9:15	8:30	7:30
3200TMZ *	S	17:00	15:00	14:00	12:30	11:15
320TXP	N	8:30	7:45	7:00	6:15	5:30
Infrared (HSI) *	P	11:30	10:15	9:15	8:30	7:30
Eastman Double-X	O	10:00	9:00	8:00	7:15	6:30
Maco						
UP 25 + **	J	5:00	4:30	4:00	3:40	3:18
UP 100 +	O	10:00	9:00	8:00	7:15	6:30
UP 400 +	O	10:00	9:00	8:00	7:15	6:30
Maco Cube 400	R	15:00	13:30	12:30	11:00	10:00

SPECIAL PROCESSING INSTRUCTIONS:

* When using these films, use STANDARD concentrate diluted 2:8 at 24°C / 75°F.

** When using these films, agitate continuously for the first 15 seconds, then one inversion each minute thereafter.

NOTES ON STANDARD FILM DEVELOPER:

HOW TO MIX

Dilute STANDARD concentrate 1:9 with water to make the desired volume.

FOR EXAMPLE: 100ml STANDARD B&W Film Developer concentrate
+ 900ml Water
—————
1000ml STANDARD B&W Film Developer working solution

PROCEDURE FOR B&W NEGATIVE FILMS

Step 1:	Water Pre-Wet	TIMING 1 Minute(s)
Step 2:	Develop	See TIME CHART
Step 3:	Stop	1 Minute(s)
Step 4:	Fix	3 Minute(s)
Step 5:	Water Pre-Wash	1 Minute(s)
Step 6:	Remove Fixer	3 Minute(s)
Step 7:	Water Wash	5 Minute(s)
Step 8:	Stabilize	1 Minute(s)
Step 9:	Squeegee & Dry	

Use all solutions at the temperature selected for DEVELOPMENT

AGITATION

Agitate continuously for the first minute of each step, and for 10 - 15 seconds of each minute thereafter. When development time is less than 6 minutes, agitate for 10 - 15 seconds of each half-minute thereafter; when development time is less than 3 minutes, agitate continuously. Use only enough working solution to cover reels, leaving an air space for thorough agitation with bubbles.

WATER WASHES

Wash films with a complete exchange of water (empty & refill) three times per minute, even with automatic washers.

CAPACITY

One liter of STANDARD concentrate will make 10 liters of working solution, enough to develop at least 50 rolls of film, or enough replenished solution to develop 110 rolls.

One liter of STANDARD 1:9 working solution will develop 400 square inches of film (5 rolls of 35mm 36 exposure or 120 film). With replenishment as directed, 1 liter of working solution will process ten times this amount of film.

Faculty in school/university darkrooms may use the following formula to determine the amount of STANDARD concentrate needed for a given class size.

FORMULA:

$$(\# \text{ of Students }) \times (\# \text{ of Rolls } 35\text{mm}, 36\text{exp}) / 50 = (\# \text{ liters of STANDARD concentrate })$$

REPLENISHMENT

To renew a volume of working solution which has been used to capacity, add STANDARD concentrate to it in the following proportions:

- 7.5ml for each 35mm, 36 Exposure or 120 Roll
- 4.5ml for each 35mm, 20 Exposure Roll
- 1.0ml for each 10 in² Sheet Film

This replenishment returns the working solution to its fresh working condition and capacity. When replenished developer is used to capacity it may be replenished again, repeatedly, until a total of 4000 square inches has been developed per liter.

SHELF LIFE

Stored at 25°C / 77°F or lower, away from strong light, STANDARD Film Developer has the following shelf life:

Concentrate	Shelf Life	Diluted 1:9	Shelf Life
Unopened	12 Months	Full container	1 Month
Opened air free	6 Months	With up to 25% air	1 Week
Opened w/ up to 25% air	3 Months	In open tray	24 Hours