SPRINT®
SYSTEMS OF PHOTOGRAPHY

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
II 100	N	8:30	7:45	7:00	6:15	5:30
II 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
Kentmere						
K100	N	8:30	7:45	7:00	6:15	5:30
K400	P	11:30	10:15	9:15	8:30	7:30
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
100TMX	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		**TIMING**
Step 1:	Water Pre-Wet	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:

(# of Students) X (# of Rolls 35mm, 36exp) / 50 = (# 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 in^2 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