



Processing

Kodak black-and-white film

Small Tank Processing, Intermittent Agitation for Tanks That Can Be Inverted

ROLL FILMS							
KODAK Film	Film Code	Development Time (Minutes)				Comments	Reference Publication
		20°C (68°F)		24°C (75°F)			
		KODAK PROFESSIONAL XTOL Developer	KODAK PROFESSIONAL Developer D-76	KODAK PROFESSIONAL HC-110 Developer (Dilution B)	KODAK PROFESSIONAL T-MAX Developer (1:4)		
KODAK PROFESSIONAL T-MAX 100 	100TMX	7 1/2	6 1/2	6	6 1/4		F-4016
KODAK PROFESSIONAL T-MAX 400 	400TMY	6 1/2	8	6	6		F-4016
KODAK PROFESSIONAL T-MAX P3200 	P3200TMZ	9 1/2	10 1/2	7 1/2	6 1/2		F-4016
		10 1/2	11 1/2	8 1/2	7 1/2		
		11 1/2	12 1/2	9 1/4	8		
		13 1/2	14	10 1/2	9 1/2		
		15 1/4	15 1/2	12	11		
		17 1/4	—	—	12		
		19	—	—	13 1/2		
KODAK PROFESSIONAL PLUS-X 125 	125PX	(135) 5 1/2 (120/220) 6	5 1/2	3 1/2	4 1/4		F-4018
KODAK PROFESSIONAL TRI-X 320 	320TXP	7 3/4	9	4 3/4	5 1/4	Also T-MAX Developer for 7 1/4 minutes at 20°C (68°F)	F-4017
KODAK PROFESSIONAL TRI-X 400 	400TX	7	6 3/4	3 3/4	4 3/4	Also Developer D-76 (1:1) for 9 3/4 minutes at 20°C (68°F)	F-4017
SPECIALTY FILMS							
KODAK Film	Film Code	Development Time (Minutes)				Reference Publication	
		20°C (68°F)					
		KODAK PROFESSIONAL Developer D-76 for CI 0.70	KODAK PROFESSIONAL HC-110 Developer (dil B) for CI 0.80	KODAK PROFESSIONAL Developer D-19 for CI 1.65	KODAK PROFESSIONAL TECHNIDOL Liquid Developer (EI 25)		KODAK PROFESSIONAL XTOL Developer CI 0.65
KODAK PROFESSIONAL High-Speed Infrared 	HIE	8 1/2	5	6	—	6 3/4	F-13
KODAK PROFESSIONAL Technical Pan (135) 	TP	—	—	—	9	—	P-255

Tray Processing

SHEET FILMS							
KODAK Film	Film Code	Development Time (Minutes)				Comments	Reference Publication
		20°C (68°F)		24°C (75°F)			
		KODAK PROFESSIONAL XTOL Developer	KODAK PROFESSIONAL Developer D-76	KODAK PROFESSIONAL HC-110 Developer (Dilution B)	KODAK PROFESSIONAL T-MAX RS Developer and Replenisher (1:4)		
KODAK PROFESSIONAL T-MAX 100 	100TMX	6 3/4	5 3/4	5 1/2	5 3/4		F-4016
KODAK PROFESSIONAL T-MAX 400 	400TMY	7 1/4	7	7 1/2	6		F-4016
KODAK PROFESSIONAL TRI-X 320 	320TXP	6	6	3 1/4	NR	Also Developer DK-50 (1:1) for 5 minutes at 20°C (68°F)	F-4017
KODAK PROFESSIONAL Technical Pan (sheets) 	TP	—	—	—	—	TECHNIDOL Liquid Developer (EI 25) for 8 minutes at 20°C (68°F)	P-255

Final Steps in Processing Black-and-White Film

Step/Solution	Time (min:sec)	Temperature	Comments
Rinse/stop bath	0:30	18 to 24° C (65 to 75° F)	Agitate continuously. Rinse with a stop bath such as: - KODAK PROFESSIONAL Stop Bath (1:63) - KODAK PROFESSIONAL EKTAFLO Stop Bath (1:31)
Fix	2:00 to 4:00* with a liquid-concentrate fixer -OR- 5:00 to 10:00* with a powder fixer		Agitate continuously for the first 30 seconds and at 30-second intervals after that with a hardening fixer such as: - KODAK PROFESSIONAL Rapid Fixer (liquid) - KODAK PROFESSIONAL KODAFIX Solution (liquid) - KODAK PROFESSIONAL POLYMAX Fixer (liquid) - KODAK PROFESSIONAL EKTAFLO Fixer (powder) Fix for twice as long as it takes the film to clear (lose its milky appearance). See instructions for the specific fixer. IMPORTANT: With KODAK PROFESSIONAL T-MAX Films, fixer will be exhausted more rapidly than with other films. If negatives show a magenta (pink) stain after fixing, fixer may be near exhaustion, or fixing time is too short. If the stain is pronounced and irregular, refix the film in fresh fixer.
Rinse	0:30		Rinse the film in the tank under running water.
Wash aid	1:00 to 2:00		Treat with KODAK PROFESSIONAL Hypo Clearing Agent. Agitate continuously for the first 30 seconds and then at 30-second intervals.
Wash	5:00		Run the wash water at least fast enough to provide a complete change of water in the container in 5 minutes. For rapid washing in a small tank, fill the tank to overflowing with fresh water and then dump it all out. Repeat this cycle 10 times.
Final rinse/wetting agent	0:30		To minimize drying marks, treat the film with KODAK PROFESSIONAL PHOTO-FLO Solution after washing. Provide gentle agitation for 5 seconds of the total time.
Dry	—		Hang the film to dry in a dust-free place. You may wipe the surface carefully with a soft viscose sponge to remove excess liquid. Store dry negatives in sleeves or envelopes away from dust and extreme temperature and humidity.

* Times are approximate. Refer to the film or developer instructions.

These are starting-point recommendations for processing KODAK PROFESSIONAL Black-and-White Films with KODAK PROFESSIONAL Chemicals. For best results, you should make tests to determine the best development time for your application.

NOTE: Development times shorter than 5 minutes may produce unsatisfactory uniformity.

www.kodak.com/go/bwFilms or
www.kodak.com/go/professional

TM: Kodak, Kodak Professional, D-19, D-76, DK-50, Ektaflo, HC-110, Kodafix, Photo-Flo, Plus-X, Polymax, T-Max, Tri-X, Technidol and Xtol

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