

# Processing KODAK PROFESSIONAL Black-and-White Films

Kodak alaris




## TECHNICAL DATA / BLACK-AND-WHITE FILM

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




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

### Roll Films: Small Tank Film Processing (Intermittent Agitation for Tanks That Can Be Inverted)

KODAK PROFESSIONAL Film	Film Code	Development Time (Minutes)				Reference Publication
		20°C (68°F)		24°C (75°F)		
		KODAK PROFESSIONAL XTOL Developer	KODAK PROFESSIONAL D-76 Developer	KODAK PROFESSIONAL HC-110 Developer (Dilution B)	KODAK PROFESSIONAL T-MAX Developer (1:4)	
T-MAX 100  	100TMX	7 1/2	6 1/2	6	6 1/4	F-4016
T-MAX 400  	400TMY	6 1/2	7 1/2	5 1/2	5 1/2	F-4043
TRI-X 400  	400TX	7	6 3/4	3 3/4	4 3/4	F-4017

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## Sheet Films: Tray Processing

KODAK PROFESSIONAL Film	Film Code	Development Time (Minutes)				Reference Publication
		20°C (68°F)		24°C (75°F)		
		KODAK PROFESSIONAL XTOL Developer	KODAK PROFESSIONAL D-76 Developer	KODAK PROFESSIONAL HC-110 Developer (Dilution B)	KODAK PROFESSIONAL T-MAX RS Developer and Replenisher (1:4)	
T-MAX 100 	100TMX	6 <sup>3</sup> / <sub>4</sub>	5 <sup>3</sup> / <sub>4</sub>	5 <sup>1</sup> / <sub>2</sub>	5 <sup>3</sup> / <sub>4</sub>	F-4016
T-MAX 400 	400TMY	6	6 <sup>3</sup> / <sub>4</sub>	5 <sup>1</sup> / <sub>4</sub>	4	F-4043
TRI-X 320 	320TXP	6	6	3 <sup>1</sup> / <sub>4</sub>	NR	F-4017

## 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: <ul style="list-style-type: none"> <li>• KODAK PROFESSIONAL Indicator Stop Bath (1:63)</li> </ul>
Fix	2:00 to 4:00* with a liquid-concentrate (L) fixer  -OR- 5:00 to 10:00* with a powder (P) fixer		Agitate continuously for the first 30 seconds and at 30-second intervals after that with a hardening fixer such as: <ul style="list-style-type: none"> <li>• KODAK PROFESSIONAL Rapid Fixer (liquid)</li> <li>• KODAFIX Solution (liquid)</li> <li>• KODAK PROFESSIONAL POLYMAX Fixer (liquid)</li> <li>• KODAK PROFESSIONAL Fixer (powder)</li> </ul> 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 film in a dust-free place. You may wipe the surfaces 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.

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TM/MC/MR: D-76, Dektol, HC-110, Photo-Flo, Polymax, T-Max, and Xtol

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