

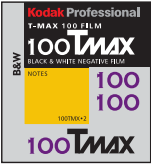

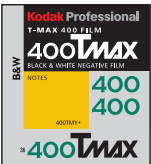

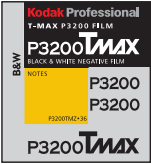


# Processing KODAK PROFESSIONAL Black-And-White Films


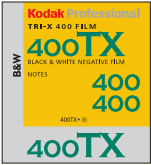
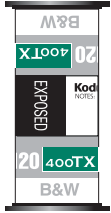


The following are starting-point recommendations for processing KODAK PROFESSIONAL Black-and-White Films with KODAK Chemicals. For best results, make tests to determine the best development time for your application.




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

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

ROLL FILMS								
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 ½	6 ½	6	6 ¼	F-4016
T-MAX 400			400TMY	6 ½	8	6	6	F-4016
T-MAX P3200	EI 400		—	P3200TMZ	9 ½	10 ½	7 ½	F-4016
	EI 800				10 ½	11 ½	8 ½	
	EI 1600				11 ½	12 ½	9 ¼	
	EI 3200				13 ½	14	10 ½	
	EI 6400				15 ¼	15 ½	12	
	EI 12,500				17 ¼	—	12	
	EI 25,000				19	—	13 ½	
PLUS-X 125			125PX	(135) 5 ½ (120) 6	5 ½	3 ½	4 ¼	F-4018

ROLL FILMS								
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)	
TRI-X 320	—		320TXP	7 ¾	9	4 ¾	5 ¼	F-4017
TRI-X 400			400TX	7	6 ¾	3 ¾	4 ¾	F-4017

## Tray Processing

SHEET FILMS						
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 ¾	5 ¾	5½	5 ¾	F-4016
T-MAX 400 	400TMY	7 ¼	7	7 ½	6	F-4016
TRI-X 320 	320TXP	6 ¾	6	3 ¼	NR	F-4017

## Small-Tank Processing (Intermittent Agitation)

SPECIALTY FILMS							
KODAK Professional Film	Film Code	Development Time (Minutes)					Reference Publication
		20°C (68°F)					
		KODAK PROFESSIONAL D-76 Developer for CI 0.70	KODAK Professional HC-110 Developer (dil B) for CI 0.80	KODAK Professional TECHNIDOL Liquid Developer (EI 25)	KODAK Developer D-19 for CI 1.65	KODAK Professional XTOL Developer for CI 0.65	
High-Speed Infrared	HIE	8 ½	5	6	—	6 ¾	F-13

## Final Steps in Processing Black-and-White Film

Step/Solution	Time (min:sec)	Temperature	Comments
<b>Rinse/stop bath</b>	0:30	18 to 24°C (65 to 75°F)	<p>Agitate continuously.</p> <p>Rinse with a stop bath such as:</p> <ul style="list-style-type: none"> <li>• KODAK PROFESSIONAL Indicator Stop Bath (1:63)</li> <li>• KODAK PROFESSIONAL EKTAFLO Stop Bath (1:31)</li> </ul>
<b>Fix</b>	<p>2:00 to 4:00* with a liquid-concentrate (L) fixer</p> <p><b>-OR-</b></p> <p>5:00 to 10:00* with a powder (P) fixer</p>		<p>Agitate continuously for the first 30 seconds and at 30-second intervals after that with a hardening fixer such as:</p> <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> <p>Fix for twice as long as it takes the film to clear (lose its milky appearance). See instructions for the specific fixer.</p> <p>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.</p>
<b>Rinse</b>	0:30		Rinse the film in the tank under running water.
<b>Wash aid</b>	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.
<b>Wash</b>	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.
<b>Final rinse/wetting agent</b>	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.
<b>Dry</b>	—		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.

# Processing KODAK PROFESSIONAL Black-And-White Films

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## MORE INFORMATION

Kodak has many publications to assist you with information on Kodak products.

Complete information on KODAK PROFESSIONAL Black-and-White Films, Chemicals, and Papers is available on the Kodak website.

- E103BF *KODAK PROFESSIONAL Back-and-White Films*
- E103BP *KODAK PROFESSIONAL Black-and-White Papers*
- E103CF *Chemicals for KODAK PROFESSIONAL Black-and-White Films*
- E103CP *Chemicals for KODAK PROFESSIONAL Black-and-White Papers*
- F-2 *Pathways to Black and White*
- F-13 *KODAK PROFESSIONAL High-Speed Infrared Film*
- F-4016 *KODAK PROFESSIONAL T-MAX Films*
- F-4017 *KODAK PROFESSIONAL TRI-X Films*
- F-4018 *KODAK PROFESSIONAL PLUS-X 125 Film*

For the latest version of technical support publications for KODAK PROFESSIONAL Products, visit Kodak on-line at:  
**<http://www.kodak.com/go/professional>**

If you have questions about KODAK PROFESSIONAL Products,  
call Kodak.

In the U.S.A.:

1-800-242-2424, Ext. 19, Monday–Friday  
9 a.m.–7 p.m. (Eastern time)

In Canada:

1-800-465-6325, Monday–Friday  
8 a.m.–5 p.m. (Eastern time)



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