PUSH-PROCESSING

When lighting conditions are extremely poor, push-processing procedures may be used. Exposure indices are based on incident-light meter readings in tungsten light. The following table provides processing instructions for Kodak Tri-X Pan and Agfapan 400. Agitation cycle intervals are 15 seconds, or use reversing motor drum drive. Use undiluted stock solution as developer.

	Exposure Index	Starting Temperature	Dev. Time (Minutes)
Kodak Tri-X Pan (35mm & roll)	3200	86°F/30°C	16
Agfapan 400 (35mm & roll)	3200	86°F/30°C	30
Kodak Tri-X Pan (35mm only)	6400	92°F/33.3°C	16
Kodak Tri-X Pan (roll film)	6400	86°F/30°C	26

At EI 3200, you will capture all but the darkest shadow detail. At EI 6400 your negative will contain weak shadow detail. EI 6400 should be reserved for impossible conditions such as surveillance photography. Tri-X roll film exposed at EI 6400 will require an extra-hard grade of paper. Unlike negatives "pushed" in conventional speed-increasing developers, XR-1 negatives do not exhibit objectionable contrast or base fog.

EXTENDED RANGE NIGHT PHOTOGRAPHY

To capture more than 20 stops of luminance when photographing city street scenes at night, including dark shadow detail and light sources, expose and process these films as follows:

Film	Exposure ± 1-Stop Bracket	Development Time (minutes)
Tri-X	f/5.6, 10 sec.	8
Agfapan 400	f/5.6, 10 sec.	9

Exposure bracket should normally be by aperture adjustment to minimize reciprocity effect. Dilute stock 1+4, pre-wet and developer starting temperature 86°F/30°C, agitate every 15 seconds or use reversing motor drive.

CAUTION: XR-1 contains phenidone, hydroquinone and p-methylaminophenol sulfate. Stock solution has a pH of 7.7. Repeated contact may cause skin irritation or allergic skin reaction. If this occurs, wash affected area immediately with water. Also, chemicals may be harmful if taken internally. If accidentally swallowed, induce vomiting and call a physician. KEEP OUT OF REACH OF CHILDREN.

GUARANTEE: This product will be replaced only if defective in manufacture, labeling or packaging. Any claim for replacement must be accompanied by a description of the problem and at least one defective negative processed in the suspected chemicals. Except for replacement of chemicals, this product is sold without warranty or liability even though defect, damage, or loss is caused by negligence or other fault.

PERFECTION
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Perfection XR-1

EXTENDED RANGE BLACK & WHITE

Film Developer

EXPOSURE & PROCESSING INSTRUCTIONS

XR-1 is a reliable one-shot developer capable of producing perfect, full-tone negatives with a wide variety of films — at film speeds one to three stops faster than the film-maker's ASA rating.

FILM SELECTION - THE KEY TO IMPROVED PRINT QUALITY

XR-1 is not a "fine-grain" developer. With XR-1, improved quality is achieved by switching to a finer-grained film. Films with the lowest ASA ratings have the highest resolving power and the lowest granularity. Conversely, high-speed films have less resolving power and greater granularity. With XR-1, you can switch to a finer-grain, higher-resolution film and improve print quality without sacrificing film speed.

DENSITY RANGE CONTROL - EXPOSING AND PROCESSING FOR SCENE CONTRAST.

When an entire roll of film is to be exposed and processed for a specific lighting condition, tonal values can be expanded or compacted to produce negatives with a correct density range. Tables 2 through 5 specify exposure indices and procedures to achieve "perfection" negatives for normal-, low- and high-contrast scenes.

"Normal-contrast" refers to front-lit, sunlight scenes with a typical 7-stop luminance range. "Low-contrast" scenes are found in open shade, under overcast skies or in evenly lit, floodlighted areas. Low-contrast scenes contain approximately 5 stops of luminance and require increased negative contrast to print on a No. 2 paper.

"High-contrast" scenes contain 9 to 10 stops of luminance. Part of the scene may be sunlit and part in shade, or there may be a great difference in light reflectance between the brightest and darkest subjects to be photographed. Perfection's procedures for high-contrast scenes allow the photographer to capture unblocked highlight detail and maximum shadow detail. When calculating exposure for high-contrast scenes, take your readings in the brightest area of the scene using an incident-meter or a reflected-light meter reading from an 18-percent gray card. This method eliminates light meter "averaging", assures unblocked highlights and captures all shadow detail possible without compromising the ideal density range.

SIMPLIFIED CONTRAST CONTROL WITH NORMAL XR-1 DEVELOPMENT

Another procedure expands low-contrast scenes to a 7-stop luminance range, without affecting the contrast of normal 7-stop scenes on the same roll of film. Simply overexpose low-contrast subjects (no shadows) one stop, and medium-contrast subjects (soft shadows) one-half stop. All of the resulting negatives on the same roll of film will print on or close to a No. 2 paper.

MIXING STOCK SOLUTION

Quarter pound, half pound and one pound bottles of XR-1 contain a four gram measuring cup. Fill the cup, press powder tightly into cup with thumb and scrape level with a straight edge. Pour XR-1 powder (4-grams) from cup into two ounces of hot water (110°-140°F/49°-69°C) and stir.

With XR-1 16-gram packets, pour powder into 8 ounces of hot water. Stock solution is then ready for dilution with water as specified in processing recommendations.

PRE-WETTING FILM

Pre-wetting pre-heats the tank, film, and reels to developing temperature, and ensures even development. Do not eliminate this step.

Use a wetting agent such as Kodak Photo-Flo 200, but use only one-fourth of the concentrate recommended by the manufacturer when making your "wetted-water" solution.

TEMPERATURE CONTROL — DRIFT METHOD

With Perfection XR-1, both the pre-wet and developer should be within ±1.0°F/0.6°C of the specified starting temperature. Developer will cool during processing. This has been taken into account

AGITATION

One inversion cycle is defined as turning the tank upside down and returning to an upright position in two seconds. The number of inversion cycles is determined by tank size, while the agitation interval is specified for each film.

For one-reel tanks do four inversion cycles (8 seconds). Two-reel tanks require three inversions (6 seconds). Tanks holding three or more reels are to be inverted only twice (4 seconds). Begin specified agitation as soon as the developer is poured into the tank. Be sure to allow air space in developing tank neck.

The use of a reversing motor drum drive such as the Unicolor Uniroller is recommended for most 35mm and medium-format roll films. Do not use a single direction drive. Many 3-reel or larger size tanks, or the Unicolor Film Drum, can be used with the motor unit. A minimum of 8 oz/240 ml of working solution is required for each roll of 36-exposure 35mm or 120 film.

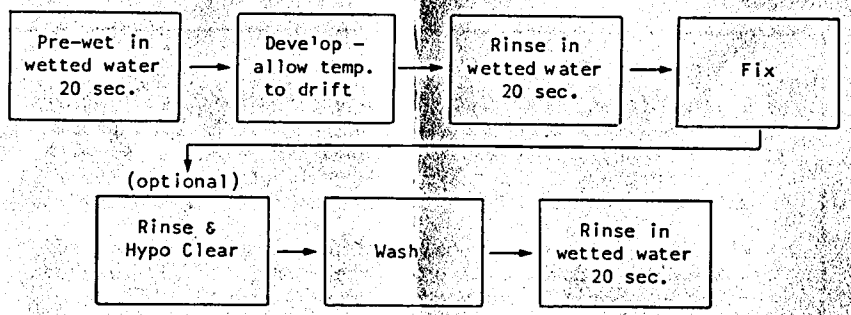
WATER RINSE AND FIXING BATHS

Do not use stop bath. Use a 20-second wetted-water rinse with agitation to remove residual developer. Follow with an acid fixer with hardener.

WASHING, RINSING AND DRYING

A hypo clearing agent may be used in the usual manner to reduce wash time. The final rinse must be made with wetted-water. If tap water is questionable, use deionized or distilled water for the final wetted-water rinse solution.

Inspect hanging film for signs of residue. If detected, pour wetted-water down both sides of film strip, wipe very gently with wet fingers, and rinse film again by pouring fresh wetted-water down both sides. Hang and dry in a dust-free environment. Never use a squeegee, chamois or sponge on negatives.



XR-1 PROCESSING RECOMMENDATIONS

All Pre-wet and Developer Starting Temperatures are 86°F/30°C

	Scene Contrast	Exp Index	Stock+Water Dilution	Dev. Time (Minutes)	Agitation Interval*
Kodak Technical Pan 2415 (35mm)	NORMAL	50	1+7	13	minute
	Low	80	1+7	15	minute
	High	32	1+7	12	minute
	NORMAL	50	1+22	18	motor only
	Low	80	1+22	21	motor only
Agfapan 25 (35mm & roll)	NORMAL	80	1+7	15	minute
	Low	100	1+7	16	minute
	High	32	1+7	12	minute
Kodak Panatomic-X (35mm & roll)	NORMAL	100	1+6	12	minute
	Low	200	1+6	16	minute
	High	50	1+6	9	minute
	NORMAL	100	1+12	17	motor only
	Low	200	1+12	22	motor only
	High	50	1+12	9	motor only
Ilford Pan F (35mm)	NORMAL	100	1+9	12	minute
	Low	200	1+9	20	minute
	High	50	1+9	10	minute
Agfapan 100 (35mm & roll)	NORMAL	400	1+3	15	15 sec.**
	Low	800	1+3	20	15 sec.**
	High	40	1+3	7	15 sec.**
Kodak Plus-X Pan (35mm & roll)	NORMAL	400	1+3	17	15 sec.**
	Low	800	1+3	22	15 sec.**
	High	80	1+3	8	15 sec.**
Agfapan 400 (35mm & roll)	NORMAL	1600	stock	20	15 sec.**
	Low	3200	stock	26	15 sec.**
	High	100	1+1	10	15 sec.**
Kodak Tri-X Pan (35mm & roll)	NORMAL	1600	1+1	15	15 sec.**
	Low	2500	1+1	18	15 sec.**
	High	200	1+1	12	15 sec.**

* You may use constant agitation with a reversing motor drum drive instead of agitating every 15 seconds.