

## KODAK Technical Pan Film 2415 (ESTAR-AH Base)

- Black-and-white, panchromatic negative film with extended red sensitivity.
- Extremely fine grain and extremely high resolving power.
- Dimensionally stable 4-mil ESTAR-AH Base with 0.1-density dye that suppresses halation and light piping.
- Good latent-image keeping.
- Contrast can be varied with changes in development.
- Useful in photomicrography and other scientific, medical, biological, and industrial applications where high-definition photographic records are required.
- High-quality pictorial results can be obtained with low-contrast developers such as KODAK TECHNIDOL LC Developer or KODAK TECHNIDOL Liquid Developer.

### HANDLING

Load and unload the camera in subdued light. Rewind the film *completely* into the magazine before unloading.

Because this film is coated on a tough polyester support, it cannot be torn with your fingers. Use a pair of scissors or a knife to trim the ends of the film.

**Darkroom Handling:** Total darkness required. A KODAK 3 Safelight Filter (dark green) in a suitable lamp with a 15-watt bulb can be used at 4 feet for a few seconds only, after development is half completed.

### EXPOSURE

The speed of this film depends upon the end use, the type and degree of development, and, consequently, the level of contrast desired. Therefore, no single speed value is appropriate for all situations. While all the EI speeds given below can be used as ISO (ASA/DIN) meter settings, they are properly identified as Exposure Indexes (EI), not ISO (ASA/DIN) speeds. These are suggested meter settings for trial exposures.

**Pictorial Applications:** To obtain contrast values normally recommended for pictorial work, use a compensating developer such as KODAK TECHNIDOL LC Developer or KODAK TECHNIDOL Liquid Developer.

**Note:** Each of the TECHNIDOL Developers has different development times and agitation procedures. Use the appropriate times and procedure for the developer that you select.

**KODAK TECHNIDOL Liquid Developer:** Drop the loaded film reel into a full tank of developer solution. Then promptly dislodge any air bubbles by tapping the bottom of the tank on the work surface. Immediately agitate by shaking vigorously with an up-and-down motion for 2 seconds. Do not rotate the tank. Let the tank sit for 28 seconds, and then start the next 2-second agitation. Repeat every 30 seconds for the duration of the development time.



Pictorial Applications—35 mm Film

Contrast	Contrast Index	KODAK Developer	Development Time (minutes)	Exposure Index
Pictorial (Daylight)	0.64	TECHNIDOL Liquid	6½ at 86°F (30°C) 7½ at 77°F (25°C) 9 at 68°F (20°C)	25/15°

**KODAK TECHNIDOL LC Developer:** Drop the loaded film reel into a full tank of developer solution. Extend your arm and agitate the tank 180° at the wrist with no lateral arm movement. Agitate for 5 seconds every 30 seconds with a 1-pint tank.



Pictorial Applications—35 mm Film

Contrast	Contrast Index	KODAK Developer	Development Time (minutes)	Exposure Index
Pictorial (Daylight)	0.56	TECHNIDOL LC	8 at 86°F (30°C) 11 at 77°F (25°C) 15 at 68°F (20°C)	25/15°

**Photomicrography:** The following exposure index (EI) values are intended as starting points for trial exposures to give satisfactory results with meters or photomicrography equipment having through-the-lens meters of the ANSI type. We suggest that you bracket exposures by half-stop intervals for first tests.

A light-colored contrast filter such as a KODAK WRITTEN Gelatin Filter No. 11 (yellowish-green) is suggested for use with most common histological stains.

Degree of Contrast Required	Contrast Index	KODAK Developer	Development Time at 68°F (20°C)	Exposure Index (Tungsten)
Maximum	2.40	D-19	4 minutes	125/22°
High	1.45	HC-110, Dilution B	6 minutes	100/21°
Moderate	0.85	HC-110, Dilution F	8 minutes	50/18°

**Copy Applications:** This film can be used in some applications where high-contrast "lith-type" films have been used, such as in copying printed material and making reverse-text title slides.

### PROCESSING PROCEDURE

Procedure for processing in small tanks with spiral reels using agitation at 30-second intervals:

1. **Develop** to the desired contrast index as specified under "Exposure." See KODAK Publication No. P-255 for further details.

**Note:** If one of the optional higher developer temperature recommendations is used, the rinse and fix temperature should be maintained within 3°F (1.7°C) of the developer temperature, and the wash temperature maintained within 5°F (3°C) of the developer temperature.

2. **Rinse** at 65 to 70°F (18 to 21°C) in KODAK Indicator Stop Bath, KODAK Stop Bath SB-1a, or KODAK Stop Bath SB-5 for 15 to 30 seconds. Use running water for 30 seconds if no stop bath is used.

3. **Fix** at 65 to 70°F (18 to 21°C), with frequent agitation.  
 KODAK Rapid Fixer —1½ to 3 minutes  
 KODAK Fixer —2 to 4 minutes  
 KODAK Fixing Bath F-5—2 to 4 minutes

4. **Wash** in clear running water at 65 to 70°F (18 to 21°C) for 5 to 15 minutes.

To save time and conserve water, use KODAK Hypo Clearing Agent. First rinse the fixed film in running water for 15 seconds. Next bathe the film in KODAK Hypo Clearing Agent for 30 seconds with agitation. Then wash the film for 5 minutes in running water at 65 to 70°F (18 to 21°C), allowing at least one change of water during this time.

5. **Dry** in a dust-free place. Heated forced air at 120 to 140°F (49 to 60°C) may be used to reduce drying time.

### STORAGE

Store unexposed film at 70°F (21°C) or lower in the original sealed container. Aging effects are lessened by storing the film at lower temperatures. If film has been refrigerated, allow the package to reach room temperature for 2 to 3 hours before opening; if frozen, allow 5 hours. Store processed film in a cool, dry place.

### ADDITIONAL INFORMATION

For more information regarding specialized applications, processing, exposure, and machine processing in a KODAK VERSAMAT Film Processor, Model 11, see KODAK Publication No. P-255, *KODAK Technical Pan Film 2415*. A single copy may be obtained free of charge from Department 412-L, Eastman Kodak Company, 343 State Street, Rochester, NY 14650.

The Kodak materials described in this publication for use with KODAK Technical Pan Film 2415 (ESTAR-AH Base) are available from those dealers normally supplying Kodak products. Other materials may be used, but similar results may not be obtained.

**Notice:** This film will be replaced if defective in manufacture, labeling, or packaging. Except for such replacement, the sale or any subsequent handling of this film is without other warranty or liability even though defect, damage, or loss is caused by negligence or other fault.

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EASTMAN KODAK COMPANY, Rochester, N.Y. 14650

