

# KODAK PROFESSIONAL Law Enforcement Films

— Introducing Law Enforcement Films  
Now With An 800 Speed —



## DESCRIPTION

This portfolio of 35 mm professional color negative films is intended for law enforcement use, ranging from surveillance, to gathering evidence, to macro applications. These films are designed for exposure with daylight or electronic flash, but they can also be exposed with other light sources. KODAK PROFESSIONAL Law Enforcement Films are excellent choices when negatives will be electronically scanned.

KODAK PROFESSIONAL Law Enforcement Film LE100 features excellent sharpness and highlight detail and very fine grain; it allows a very high degree of enlargement. Use LE100 Film for crime scene photography, forensic lab photography, and macro applications.

KODAK PROFESSIONAL Law Enforcement Film LE400 features excellent sharpness and fine grain, excellent highlight and shadow detail, and 2-stop push-process performance to EI 1600. Suggested applications of LE400 Film include crime scene photography, traffic accident and property damage investigations, and mug shots.

KODAK PROFESSIONAL Law Enforcement Film LE800 is Kodak Professional's first 800-speed LE film. It provides photographers with a high-speed color negative film with rich and accurate colors, outstanding sharpness, excellent shadow detail, and push-processing capability to EI 3200. Suggested applications of LE800 Film include surveillance photography and for low ambient light applications including "painting with light."

FEATURES	BENEFITS
<ul style="list-style-type: none"> <li>• Wide exposure latitude</li> </ul>	<ul style="list-style-type: none"> <li>• Rich, accurate colors maintained with under- and overexposure</li> </ul>
<ul style="list-style-type: none"> <li>• Room-temperature storage</li> </ul>	<ul style="list-style-type: none"> <li>• Ideal when conditions prohibit refrigerated storage</li> </ul>
<ul style="list-style-type: none"> <li>• Consistent scanning performance</li> </ul>	<ul style="list-style-type: none"> <li>• Saves time, less need for scanner adjustments</li> </ul>
<ul style="list-style-type: none"> <li>• LE100 Film—extremely fine grain with excellent sharpness and highlight detail</li> </ul>	<ul style="list-style-type: none"> <li>• Provides maximum image quality under relatively bright daylight or flash conditions</li> <li>• Excellent for making high-quality enlargements</li> </ul>
<ul style="list-style-type: none"> <li>• LE400 Film—unsurpassed sharpness at 400 speed; fine grain; excellent highlight and shadow detail</li> </ul>	<ul style="list-style-type: none"> <li>• Provides a wide range of exposures for action shots and lighting conditions</li> </ul>

## FEATURES

- LE800 Film—unsurpassed sharpness, fine grain, and excellent shadow detail

## BENEFITS

- Provides a very wide exposure latitude—EI 200 to 3200
- Excellent for stopping action and for a variety of lighting conditions

### LE100, LE400, and LE800 Films also offer the following ease-of-use features—

- |                                                                                                     |                                                                                                                                                |
|-----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• 3/4-inch square notes area on the film magazine</li> </ul> | <ul style="list-style-type: none"> <li>• More space to indicate subject notes or exposure/processing conditions</li> </ul>                     |
| <ul style="list-style-type: none"> <li>• Writable magazine surface; improved texture</li> </ul>     | <ul style="list-style-type: none"> <li>• Readily accepts indelible markers or pencils</li> <li>• Reduces glare under harsh lighting</li> </ul> |
| <ul style="list-style-type: none"> <li>• Translucent ("frosted") film cans</li> </ul>               | <ul style="list-style-type: none"> <li>• Easier identification</li> <li>• More area for exposure/processing notes</li> </ul>                   |
| <ul style="list-style-type: none"> <li>• 20-roll Pro-Packs</li> </ul>                               | <ul style="list-style-type: none"> <li>• Includes a plastic film bag for easy transport</li> </ul>                                             |

## At-A-Glance Application Guide

Application	KODAK Law Enforcement Films		
	LE100	LE400	LE800
<b>Field Photography</b>			
Surveillance		✓	✓
Crime scene (all conditions)		✓	✓
Crime scene (controlled lighting)	✓	✓	
Community policing	✓	✓	✓
Traffic accidents	✓	✓	✓
<b>Lab/In House Photography</b>			
Forensic lab	✓	✓	
Macro applications/fingerprints	✓		
Public relations/promotions	✓	✓	
Mug shots/bookings	✓	✓	
Training	✓	✓	✓

## STORAGE AND HANDLING

Load and unload film in subdued light.

Store unexposed film at 70°F (21°C) or lower in the *original sealed package*. Always store film (exposed or unexposed) in a cool, dry place. Process film as soon as possible after exposure. Protect negatives from strong light. For more information about storing negatives, see KODAK Publication No. E-30, *Storage and Care of KODAK Photographic Materials—Before and After Processing*.

**Note:** High-speed films, such as LE800 Film, are sensitive to environmental radiation. Expose and process them promptly. As exposure to radiation is cumulative, you may also want to request *visual* inspection of LE800 at airport and other security x-ray inspection stations.

## DARKROOM RECOMMENDATIONS

Do not use a safelight. Handle unprocessed film in total darkness.

## EXPOSURE

### Exposure Compensation

For light sources other than daylight, use the filtration and exposure compensation in the table below.

Light Source	KODAK WRATTEN Gelatin Filter	Exposure Compensation* (lens stops)
Photolamp (3400 K)	No. 80B	+1 <sup>2</sup> / <sub>3</sub>
Tungsten (3200 K)	No. 80A	+2

\* SLR cameras will automatically make the exposure compensation when metering through a filter.

## Daylight

Recommended exposures in the table below are for frontlit subjects from 2 hours after sunrise to 2 hours before sunset when you expose each of these films at its *nominal speed*.

Lighting Conditions	Shutter Speed (second) and Lens Opening—Law Enforcement Film		
	LE100	LE400	LE800
Bright or Hazy Sun on Light Sand or Snow	1/125 <i>f/16</i>	1/500 <i>f/16</i>	1/1000 <i>f/16</i>
Bright or Hazy Sun (Distinct Shadows)	1/125 <i>f/11</i> <sup>*</sup>	1/500 <i>f/11</i> <sup>*</sup>	1/1000 <i>f/11</i> <sup>*</sup>
Weak, Hazy Sun (Soft Shadows)	1/125 <i>f/8</i>	1/500 <i>f/8</i>	1/1000 <i>f/8</i>
Cloudy Bright (No Shadows)	1/125 <i>f/5.6</i>	1/500 <i>f/5.6</i>	1/1000 <i>f/5.6</i>
Heavy Overcast or Open Shade†	1/125 <i>f/4</i>	1/500 <i>f/4</i>	1/1000 <i>f/4</i>

\* Use *f/5.6* for backlit close-up subjects.

† Subject shaded from the sun but lighted by a large area of clear sky.

## Electronic Flash

Use the guide numbers in the table below as a starting point for your equipment when you expose each of these films at its *nominal speed*. Select the unit output closest to the number given by your flash manufacturer. Then find the guide number for feet or metres. To determine the lens opening, divide the guide number by the flash-to-subject distance.

Unit Output (BCPS*)	Guide Number Distances in Feet/Metres Law Enforcement Film		
	LE100	LE400	LE800
350	40/12	85/26	120/36
500	50/15	100/30	140/42
700	60/18	120/36	170/50
1000	70/21	140/42	200/60
1400	85/26	170/50	240/70
2000	100/30	200/60	280/85
2800	120/36	240/70	330/100
4000	140/42	280/85	400/120
5600	170/50	340/100	470/140
8000	200/60	400/120	560/170

\* BCPS = beam candlepower seconds

## Adjustments for Long and Short Exposures

For LE100 and LE400, no filter corrections or exposure adjustments are required for exposure times of 1/10,000 second to 10 seconds; for Law Enforcement LE800 Film, no adjustments are required for exposures from 1/10,000 second to 1 second. At longer exposure times, exposure compensation is required.

## PROCESSING

Process these films in KODAK FLEXICOLOR Chemicals for Process C-41.

### LE100 Film

<b>Exposure Index</b>	100
<b>Development Time (minutes:seconds)</b>	3:15

### LE400 Film

<b>Exposure Index</b>	400	800 Push 1	1600 Push 2
<b>Development Time (minutes:seconds)</b>	3:15	3:45	4:15

### LE800 Film

<b>Exposure Index</b>	800	1600 Push 1	3200 Push 2
<b>Development Time (minutes:seconds)</b>	3:15	3:45	4:15

**Note:** These times are starting points. Make tests to determine the best development time for your application.

## JUDGING NEGATIVE EXPOSURE

You can check the exposure level with a suitable electronic densitometer equipped with a filter such as a KODAK WRATTEN Gelatin Filter No. 92 or the red filter for Status M densitometry. Depending on the subject and the light source used for exposure, a normally exposed and processed color negative measured through the red filter should have the approximate densities listed below.

Because of the extreme range in skin color, use the red density values for a normally lit forehead only as a guide. For best results, use a *KODAK Gray Card* (gray side), KODAK Publication No. R-27.

Area Measured	Law Enforcement Film Density Reading				
	LE100	LE400	LE400 (EI 800) Push 1	LE800	LE800 (EI 1600) Push 1
<i>KODAK Gray Card</i> (gray side) receiving same illumination as subject	0.80 to 1.00	0.84 to 1.04	0.80 to 1.00	0.85 to 1.05	0.80 to 1.00
Lightest step (darkest in negative) of <i>KODAK Paper Gray Scale</i> receiving same illumination as subject	1.20 to 1.40	1.20 to 1.40	1.19 to 1.39	1.10 to 1.30	1.10 to 1.30
Highest diffuse density on normally lighted forehead					
—light complexion	1.10 to 1.35	1.10 to 1.40	1.07 to 1.37	1.00 to 1.30	1.00 to 1.30
—dark complexion	0.90 to 1.25	0.92 to 1.28	0.90 to 1.26	0.87 to 1.22	0.82 to 1.17

## PRINTING NEGATIVES

You can make color prints by direct contact printing or enlarging on KODAK ULTRA, SUPRA, or PORTRA Papers or KODAK DURAFLEX® RA Print Material.

Make slides by direct exposure onto KODAK VERICOLOR Slide Film. Make display transparencies on KODAK DURATRANS® RA Display Material, DURACLEAR™ RA Display Material, or KODAK VERICOLOR Print Film.

Make black-and-white prints on KODAK PANALURE SELECT RC Paper or KODAK EKTAMAX RA Professional Paper.

## SCANNING NEGATIVES

You can easily scan Law Enforcement Film negatives with a variety of linear-array-CCD, area-array-CCD, and PMT film scanners. You can scan negatives on desktop scanners as well as high-end drum scanners.

Because no standards exist to define the colored filter sets that film scanners use to capture the red, green, and blue information of the film image, each manufacturer's scanner has its own characteristic output. The output depends on the scanner's sensitivity to the dyes in the film. This sensitivity is determined by the spectral distribution of the colored filter sets and/or the spectral sensitivity of the charge-coupled-device (CCD). In addition to these spectral specifications, scanner output depends on the look-up tables or matrices that the scanner uses to output information for CRT monitors, transmission, etc. These tables or matrices are part of either "plug-in" programs used with specific software packages designed for image manipulation, updateable ROMs included with the equipment, or fixed algorithms for calibrating and balancing, similar to those used in photographic color printing equipment.

The generic "color negative film" channel designation available with scanner software is only a starting point. You can adjust the final color balance and the scene-dependent contrast and brightness of an image by using the scanner's controls during pre-scan, or by using an image-manipulation software program or workstation after acquisition.

When scanning Law Enforcement Films with KODAK PROFESSIONAL RFS 2035, 2035 Plus, or 3570 Film Scanners, be sure to use the most recent scanner driver with updated film terms. To verify that you have the latest software release, contact your Kodak representative or visit our site at [www.kodak.com/go/professional](http://www.kodak.com/go/professional).

Some scanners allow you to use "plug-in" programs to make calibrations based on D-min film stock. Because different types of color negative films have different colored-coupler masks, the optimum D-min balance is different for each type of film. Therefore, for optimum results, set up a specific channel for each type of film you are scanning.

## KODAK Photo CD Imaging Workstation (PIW)

Photo CD Film Term tables store information that determines the tone scale and color reproduction characteristics of a Photo CD image. These tables also contain photographic information about different types of film and parameters specific to each film.

Photo CD Film Term tables are intended for use by owners and operators of KODAK Photo CD Imaging Workstations (PIWs), and can be downloaded from our site at [www.kodak.com/go/PIW/FilmTerms](http://www.kodak.com/go/PIW/FilmTerms). Use the PIW Film Term Version 6.5.8 ADDS contains the film term for Law Enforcement Films.

## IMAGE STRUCTURE

### Print Grain Index

The Print Grain Index number refers to a method of defining graininess in a print made with diffuse-printing illumination. It replaces rms granularity and has a different scale which cannot be compared to rms granularity.

- This method uses a uniform perceptual scale, with a change of four units equaling a *just-noticeable difference* in graininess for 90 percent of observers.
- A Print Grain Index rating of 25 on the scale represents the approximate visual threshold for graininess. A higher number indicates an increase in the amount of graininess observed.
- The standardized inspection (print-to-viewer) distance for all print sizes is 14 inches, the typical viewing distance for a 4 x 6-inch print.
- Print Grain Index numbers may not represent graininess observed from more specular printing illuminants, such as condenser enlargers.
- In practice, larger prints will likely be viewed from distances greater than 14 inches, which reduces apparent graininess.

To determine the Print Grain Index numbers listed below, prints were made from 135-size (24 x 36 mm) negatives. In each case, the viewing distance was the standard 14 inches.

Print Size (inches)	4 x 6	8 x 10	16 x 20
Magnification	4.4X	8.8X	17.8X
Law Enforcement Film	Print Grain Index No.		
LE100	28	50	79
LE400	41	62	92
LE800	53	75	104

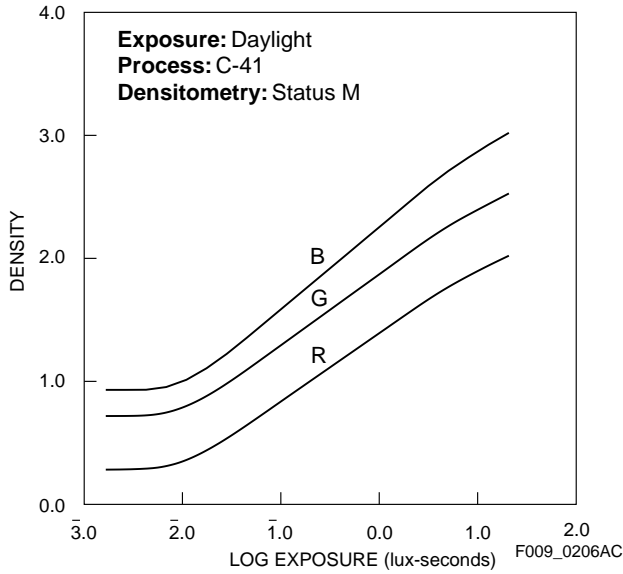
For more information, see KODAK Publication No. E-58, *Print Grain Index—An Assessment of Print Graininess from Color Negative Films*.

# KODAK PROFESSIONAL LAW ENFORCEMENT FILM LE100

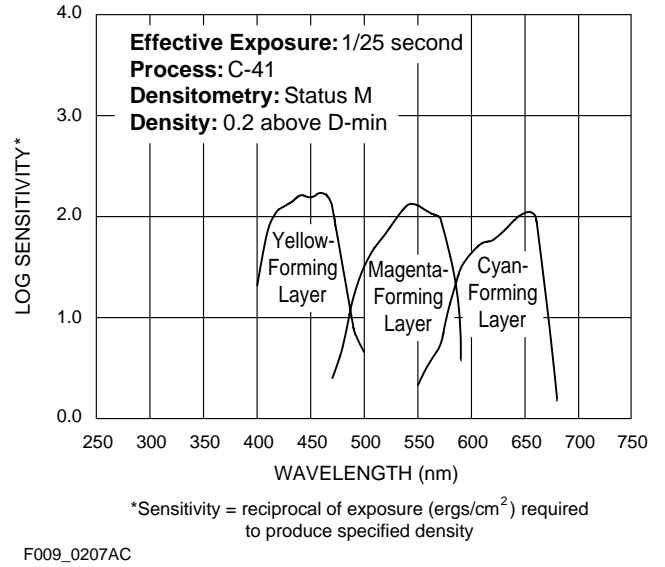
## Image-Structure Data

<b>Sharpness:</b>	Extremely High
<b>Degree of Enlargement:</b>	Very High

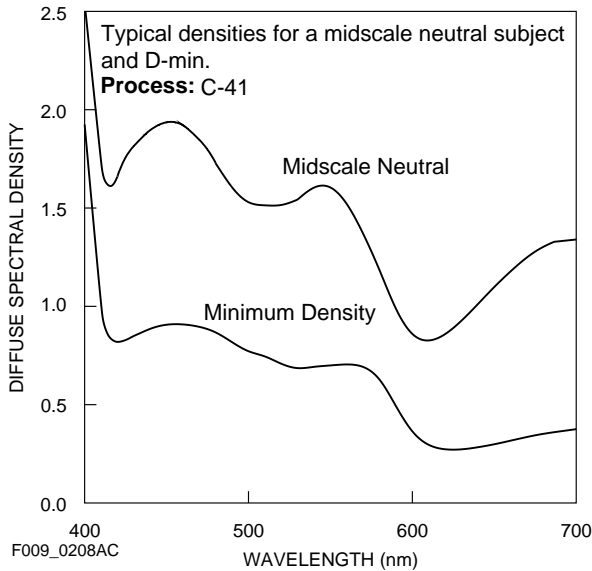
### Characteristic Curves



### Spectral-Sensitivity Curves



### Spectral-Dye-Density Curves



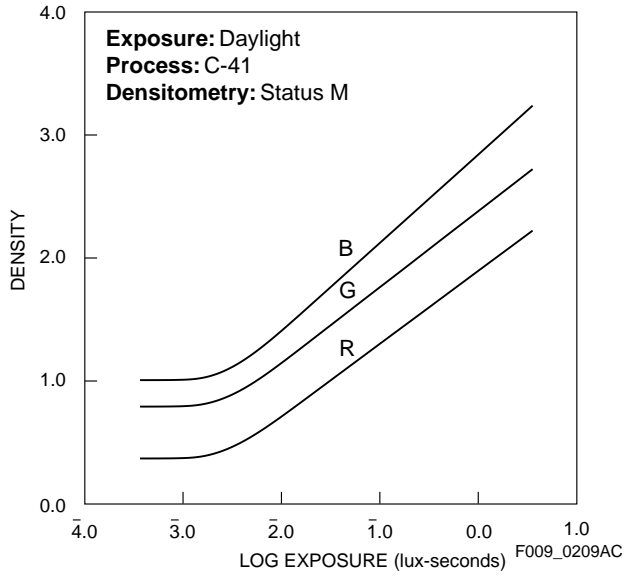
**NOTICE:** The sensitometric curves and data in this publication represent product tested under the conditions of exposure and processing specified. They are representative of production coatings, and therefore do not apply directly to a particular box or roll of photographic material. They do not represent standards or specifications that must be met by Eastman Kodak Company. The company reserves the right to change and improve product characteristics at any time.

# KODAK PROFESSIONAL LAW ENFORCEMENT FILM LE400

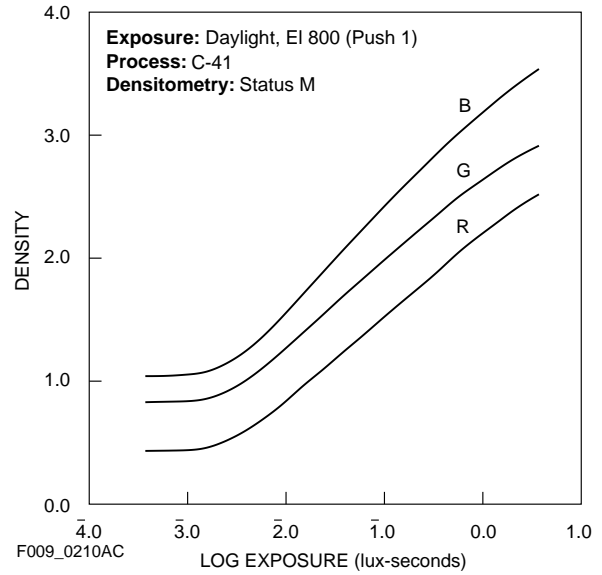
## Image-Structure Data

Sharpness:	High
Degree of Enlargement:	High

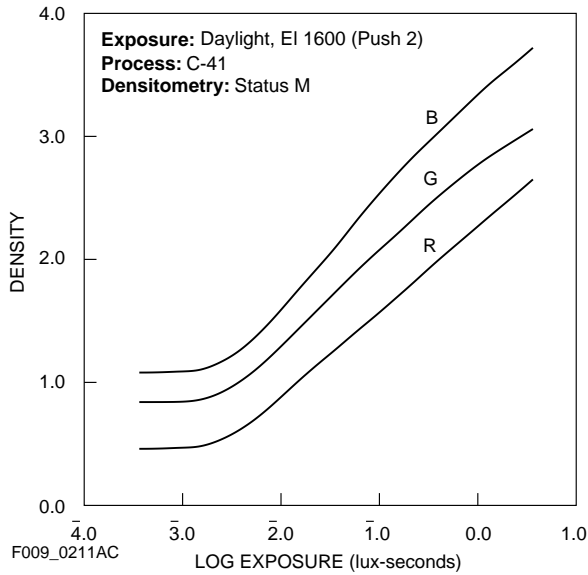
### Characteristic Curves



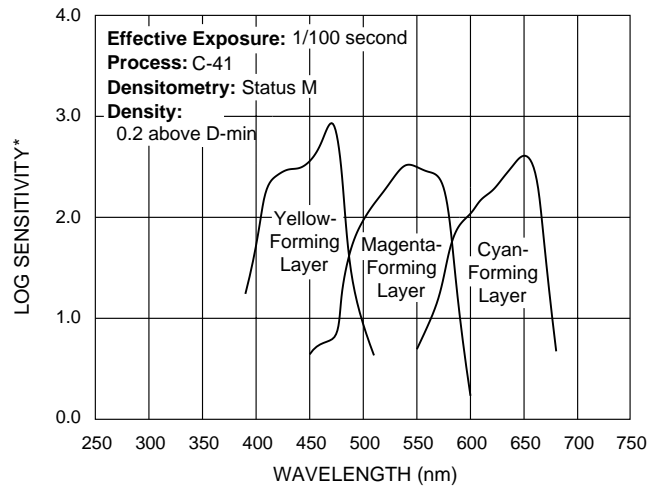
### Characteristic Curves / Push 1



### Characteristic Curves / Push 2

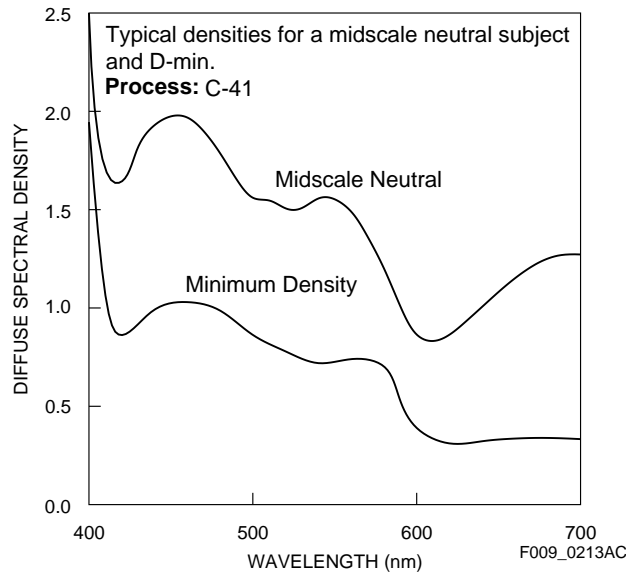


### Spectral-Sensitivity Curves



\*Sensitivity = reciprocal of exposure (ergs/cm<sup>2</sup>) required to produce specified density

### Spectral-Dye-Density Curves

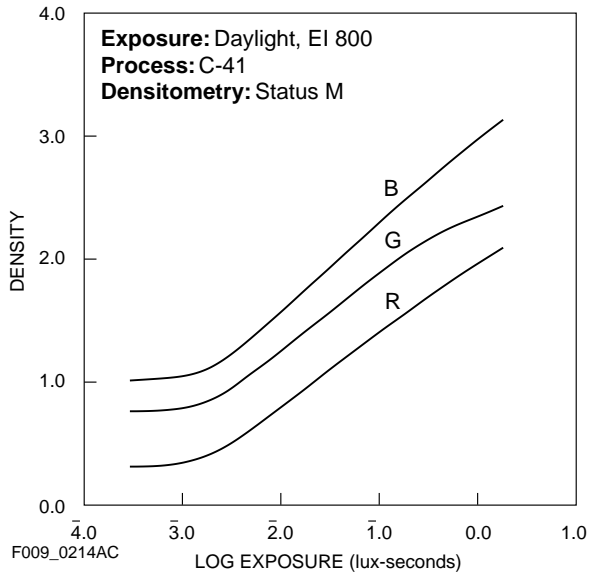


### KODAK PROFESSIONAL LAW ENFORCEMENT FILM LE800

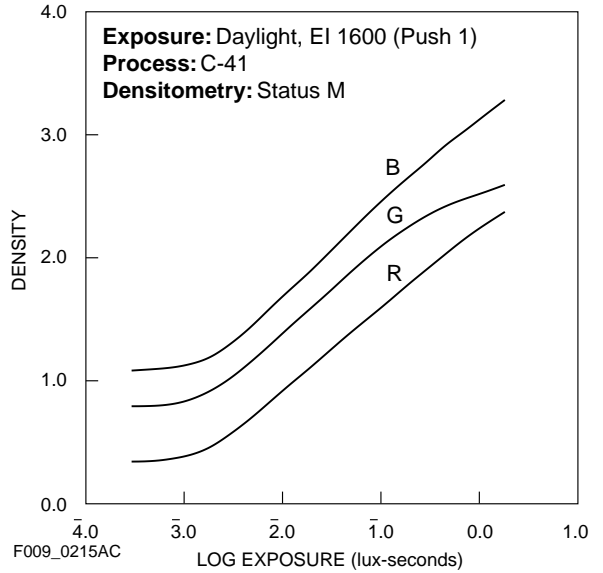
#### Image-Structure Data

<b>Sharpness:</b>	High
<b>Degree of Enlargement:</b>	High

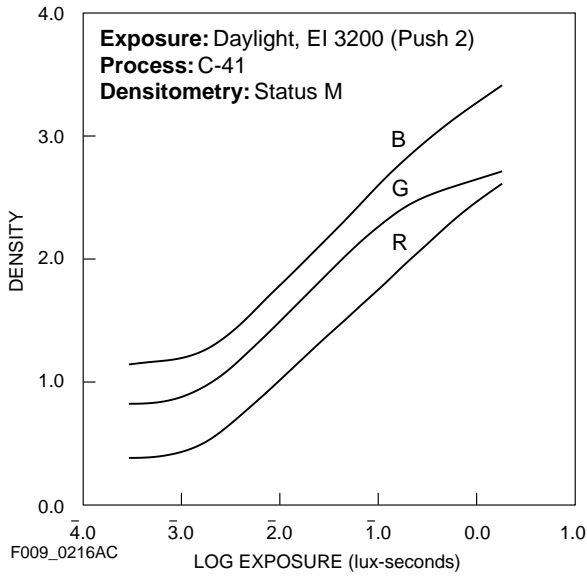
#### Characteristic Curves



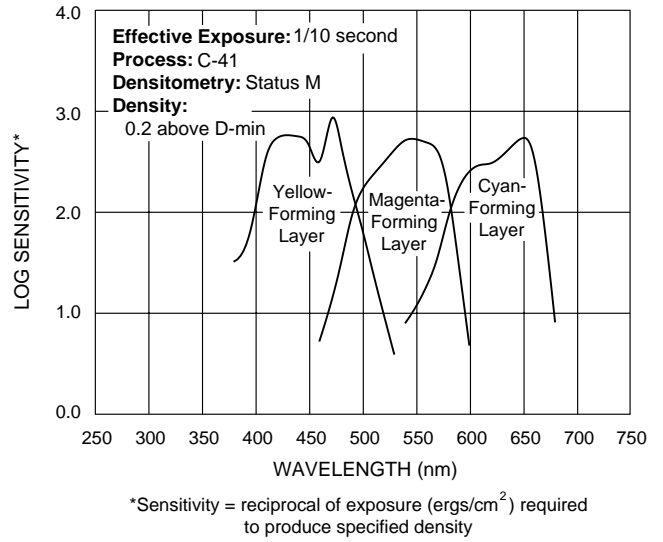
#### Characteristic Curves / Push 1



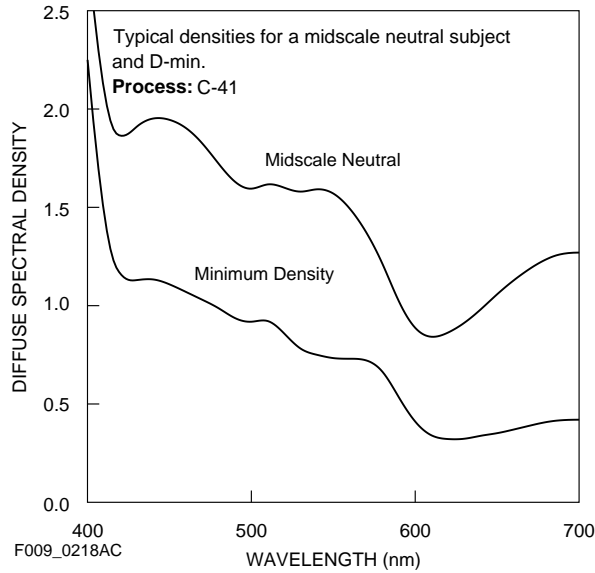
### Characteristic Curves / Push 2



### Spectral-Sensitivity Curves



### Spectral-Dye-Density Curves





## SIZES AVAILABLE

Sizes and catalog (CAT) numbers may differ from country to country. See your dealer who supplies KODAK PROFESSIONAL Law Enforcement Products.

### KODAK PROFESSIONAL Law Enforcement Film LE100

Film Size	Code	Base	CAT No.
135-12 (Pro-Pack 20 rolls)	LE100	5-mil acetate	114 4583
135-24 (Pro-Pack 20 rolls)	LE100	5-mil acetate	839 6947

### KODAK PROFESSIONAL Law Enforcement Film LE400

Film Size	Code	Base	CAT No.
135-12 (Pro-Pack 20 rolls)	LE400	5-mil acetate	160 5948
135-24 (Pro-Pack 20 / 20 rolls)	LE400	5-mil acetate	177 6939

### KODAK PROFESSIONAL Law Enforcement Film LE800

Film Size	Code	Base	CAT No.
135-12 (Pro-Pack 20 rolls)	LE800	5-mil acetate	101 6666
135-24 (Pro-Pack 20 rolls)	LE800	5-mil acetate	819 3898

# KODAK PROFESSIONAL Law Enforcement Films

## MORE INFORMATION

Kodak has many publications to assist you with information on Kodak products, equipment, and materials.

Additional information is available on the Kodak website and through the U.S.A./Canada faxback system.

The following publications are available from Kodak Customer Service, from dealers who sell Kodak products, or you can contact Kodak in your country for more information.

- E-24 *KODAK VERICOLOR Slide and Print Films*
- E-30 *Storage and Care of KODAK Photographic Materials—Before and After Processing*
- E-58 *Print Grain Index—An Assessment of Print Graininess from Color Negative Films*
- E-71 *Retouching Color Negatives*
- E-140 *KODAK PROFESSIONAL PORTRA III Paper*
- E-141 *KODAK PROFESSIONAL SUPRA III Paper*
- E-142 *KODAK PROFESSIONAL ULTRA III Paper*
- E-143 *KODAK Display and Print Materials for Process RA-4*
- G-22 *KODAK EKTAMAX RA Professional Paper*
- G-27 *KODAK PANALURE SELECT RC Paper*
- J-38 *Using KODAK FLEXICOLOR Chemicals in Sink-Line, Batch, and Rotary-Tube Processors*
- Z-131 *Using KODAK FLEXICOLOR Chemicals*

### Kodak Information Center's Faxback System

—Available 24 hours a day, 7 days a week—

Many technical support publications for Kodak professional products can be sent to your **fax** machine from the Kodak Information Center. Call:

**U.S.A. 1-800-242-2424, Ext. 33**  
**Canada 1-800-295-5531**

*If you have questions about Kodak Law Enforcement 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)*

*Or contact Kodak on-line at:  
[www.kodak.com/go/law](http://www.kodak.com/go/law)*

**Note:** The Kodak materials described in this publication for use with KODAK PROFESSIONAL Law Enforcement Films are available from dealers who supply KODAK PROFESSIONAL Products. You can use other materials, but you may not obtain similar results.



Kodak Professional Division  
EASTMAN KODAK COMPANY

## Kodak Professional