



KODAK PROFESSIONAL PORTRA 100T Film / Tungsten

KODAK PROFESSIONAL PORTRA 100T Film is an addition to the highly acclaimed family of KODAK PROFESSIONAL PORTRA Films. PORTRA 100T Film features outstanding color accuracy under tungsten illumination (3200 K). Long exposure time has a minimal effect on color balance and contrast. You can use PORTRA 100T Film for advertising, architecture, commercial and industrial photography, as well as copying all original art work.

PORTRA 100T Film is designed for exposure times of 1/1,000 second to 120 seconds with tungsten illumination (3200 K). With filtration, you can exposure this film with photolamps (3400 K), daylight, or electronic flash.

FEATURES	BENEFITS
• Outstanding color accuracy	• Better color response under tungsten illumination
• Excellent skin tones	• Kodak's legendary reproduction of the world's skin tones
• Improved reciprocity	• No need for compensating filters
• Scanner-friendly design	• Higher quality prints from digital output systems
• Printing/scanning compatible with the family of KODAK PROFESSIONAL PORTRA Films	• Convenient for your lab

SIZES AVAILABLE

Sizes and CAT numbers may differ from country to country. See your dealer who supplies KODAK PROFESSIONAL Products.

Rolls	Code	Acetate Base	CAT No.
135-36, single roll	100T	5-mil (0.13 mm)	159 2096
120 (pro-pack of 5 rolls)		3.9-mil (0.10 mm)	881 8460*
120 (pro-pack of 5 rolls)			811 3003†

* Export

† U.S. and Canada

Sheets	Size	Code Notch	ESTAR Thick Base	CAT No.
10	4 x 5 in.		7-mil (0.18 mm)	137 6219
50	4 x 5 in.			185 5436
10	8 x 10 in.			830 7316
10	9 x 12 cm			874 8766*
10	13 x 18 cm			873 7645*

* Export

STORAGE AND HANDLING

Store unexposed film at 70°F (21°C) or lower in the original sealed package. For extended periods, store film at 55°F (13°C) to preserve critical consistency. To avoid moisture condensation on film that has been refrigerated, allow the film to warm up to room temperature before opening the package. Typical warm-up times are given in the table below.

Size	Warm-Up Time (Hours) to Reach Room Temperature of 70°F (21°C) From a Storage Temperature of		
	0°F (-18°C)	35°F (2°C)	55°F (13°C)
Roll	1	¾	½
10-sheet box	1 ½	1	1
50-sheet box	3	2	2

Load and unload roll-film cameras in subdued light. Total darkness is required when you load and unload sheet film holders.

Process exposed film as soon as possible after exposure. Protect negatives from strong light, and store them in a cool, dry place. For extended periods, store negatives and film at 55°F (13°C) and 30 to 35 percent humidity. For more information on storing negatives, see KODAK Publication No. E-30, *Storage and Care of KODAK Photographic Materials—Before and After Processing*.

Important: Do not freeze processed film. If negatives have been frozen, rewashing can *sometimes* reverse the alteration of the coupler(s).

DARKROOM RECOMMENDATIONS

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

EXPOSURE

Film Speed

Use the speed numbers in the table below with cameras or meters marked for ISO, ASA, or DIN speeds or exposure indexes (EIs). Do not change the film-speed setting when metering through a filter. Metering through filters may affect light meter accuracy; see your meter or camera manual for specific information.

Light Source	KODAK Filter No.*	Exposure Time (seconds)	Exposure Index (EI)
Tungsten (3200 K)	None	1/1,000 to 5	100/21°
		10	80/20°
		30	64/19°
		60	50/18°
		120	40/17°
Photolamp (3400 K)	WRATTEN Gelatin Light Balancing 81A	1/1,000 to 5	80/20°
		10	64/19°
		30	50/18°
		60	40/17°
		120	32/16°
75-watt Tungsten Bulb 2800 K	WRATTEN Gelatin Light Balancing 82C	1/1,000 to 5	64/19°
		10	50/18°
		30	40/17°
		60	32/16°
		120	25/15°
Daylight 5500 K Electronic Flash 5500 K	WRATTEN Gelatin 85B	1/1,000 to 5	64/19°
		10	50/18°
		30	40/17°
		60	32/16°
		120	25/15°

* For best results without special printing.

PROCESSING

Process PROFESSIONAL PORTRA 100T Film in KODAK FLEXICOLOR Chemicals for Process C-41. For more information, see KODAK Publication No. Z-131, *Using KODAK FLEXICOLOR Chemicals*.

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 these red density values for a normally lighted forehead only as a guide. For best results, use a *KODAK Gray Card* (gray side).

Area Measured	Density Reading
<i>KODAK Gray Card</i> (gray side), receiving same illumination as subject	0.74 to 0.94
Lightest step (darkest in negative) of <i>KODAK Paper Gray Scale</i> receiving same illumination as subject	1.15 to 1.35
Highest diffuse density on normally lighted forehead	
—light complexion	1.04 to 1.34
—dark complexion	0.82 to 1.22

RETOUCHING

You can retouch this film on the base and the emulsion sides.

For information on retouching equipment, supplies, and techniques, see KODAK Publication No. E-71, *Retouching Color Negatives*.

PRINTING NEGATIVES

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

Make color transparencies or slides directly onto KODAK VERICOLOR Print Film, KODAK VERICOLOR Slide Film, or KODAK PROFESSIONAL DURATRANS or DURACLEAR Display Material.

Make black-and-white prints on KODAK PANALURE SELECT RC Paper for conventional black-and-white processing, or KODAK EKTAMAX RA Professional Paper for Process RA-4.

To set up a color printer or negative analyzer, use the following control negatives.

KODAK PROFESSIONAL PORTRA Printer Control Negative	CAT No.
Set / Size*	179 8511
Normal / Size 120	846 0958
Very Under / Size 120	107 1398
Under / Size 120	841 1902
Over / Size 120	177 1302
Very Over / Size 120	144 5741

* Set includes one each: very under, under, normal, over, and very over negatives.

SCANNING NEGATIVES

You can easily scan PROFESSIONAL PORTRA 100T Film negatives with a variety of linear-array-CCD, area-array-CCD, and PMT film scanners. You can scan negatives on desk-top 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. Some scanners allow you to use "plug-in" programs to customize scanner setups.

Note: For more information, visit the following web sites.

To access	Go to
Film Terms for KODAK PHOTO CD Imaging Workstations	www.kodak.com/go/pcdFilmTerms
Drivers for KODAK Film Scanners	www.kodak.com/go/scannerDrivers

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.

- In practice, larger prints will likely be viewed from distances greater than 14 inches, which reduces apparent graininess.
- Print Grain Index numbers may not represent graininess observed from more specular printing illuminants, such as condenser enlargers.

Negative Size: 24 x 36 cm (Size 135)

Print Size (inches)	4 x 6	8 x 10	16 x 20
Magnification	4.4X	8.8X	17.8X
Print Grain Index	33	55	84

Negative Size: 6 x 6 cm (Size 120)

Print Size (inches)	4 x 6	8 x 10	16 x 20
Magnification	2.6X	4.4X	8.8X
Print Grain Index	Less than 25	33	55

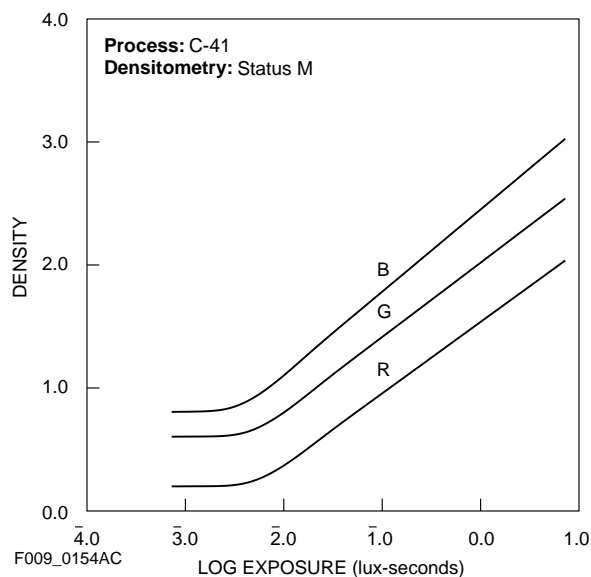
Negative Size: 4 x 5 Inches (Sheets)

Print Size (inches)	4 x 6	8 x 10	16 x 20
Magnification	1.2X	2.1X	4.2X
Print Grain Index	Less than 25	Less than 25	31

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

CURVES

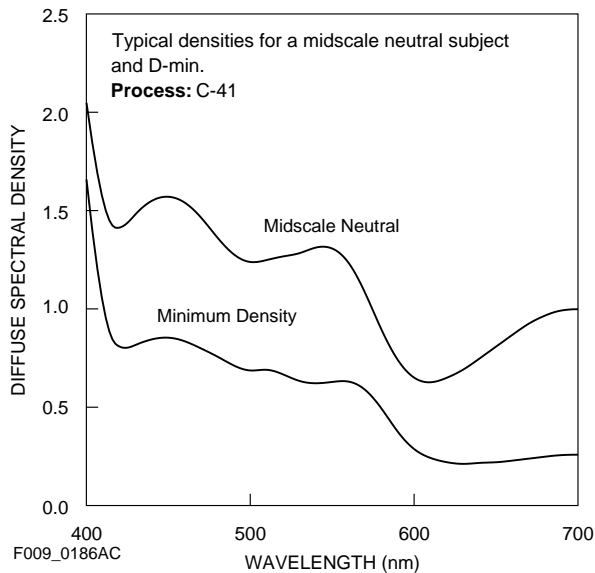
Characteristic Curves



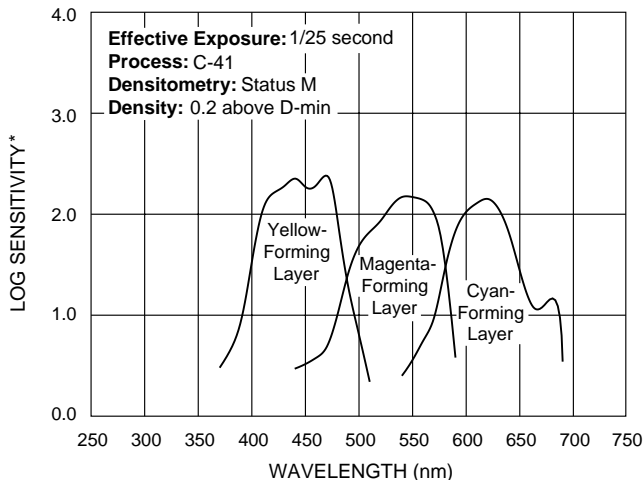
NOTICE: The sensitometric curves and data in this publication represent product tested under the conditions of exposure and processing specified. They are representative of production coatings, and therefore do not apply directly to a particular box or roll of photographic material. They do not represent 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.

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Spectral-Dye-Density Curves



Spectral-Sensitivity Curves



*Sensitivity = reciprocal of exposure (ergs/cm²) required to produce specified density

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-30 *Storage and Care of KODAK Photographic Materials—Before and After Processing*
- E-58 *KODAK Print Grain Index*
- E-190 *KODAK PROFESSIONAL PORTRA Films*
- E-2528 *KODAK PROFESSIONAL PORTRA 800 Films*
- Z-131 *Using KODAK FLEXICOLOR Chemicals*

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

Many technical support publications for KODAK PROFESSIONAL Products can be sent to your fax machine from the Kodak Information Center. Call:
U.S. 1-800-242-2424, Ext. 33 / Canada 1-800-295-5531
 —Available 24 hours a day, 7 days a week—

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

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 1-800-465-6325, Monday–Friday
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