



**Kodak Select SERIES** *ROYAL* **GOLD** **400**  
FILM

**DESCRIPTION**

KODAK ROYAL GOLD 400 Film introduces 35 mm to the state-of-the-art technology of KODAK ADVANTIX Films. It provides a unique balance of fine grain, sharpness, color reproduction, and contrast to yield results with excellent clarity and enlargement capability. This multi-purpose film is designed for exposure with daylight or electronic flash. You can also obtain pleasing results under most existing-light sources without filters.

ROYAL GOLD 400 Film is a member of the "Select Series" of Kodak films. The Select Series offers serious snapshotters and photo enthusiasts the widest selection of high-performance films. Choose from KODACHROME or KODAK ELITE Chrome Films for slides, or KODAK ROYAL GOLD for prints.

**DARKROOM RECOMMENDATIONS**

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

**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, and store them in a cool, dry place. For more information on storing negatives, see KODAK Publication No. E-30, *Storage and Care of KODAK Photographic Materials—Before and After Processing*.

**FEATURES**

**BENEFITS**

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>• Kodak's finest grain 400-speed color negative film</li> </ul>                     | <ul style="list-style-type: none"> <li>• Image-structure characteristics allow a high degree of enlargement</li> </ul>   |
| <ul style="list-style-type: none"> <li>• Wide exposure latitude</li> </ul>   | <ul style="list-style-type: none"> <li>• Good quality prints from negatives exposed at speeds from ISO 50 to ISO 1600</li> </ul>   |
| <ul style="list-style-type: none"> <li>• Twice the film speed of ROYAL GOLD 200 Film</li> </ul>                            | <ul style="list-style-type: none"> <li>• Very well suited for stop-action, sport, low-light, and telephoto pictures</li> <li>• Allows smaller apertures for greater depth of field</li> <li>• Greater range with flash pictures than is possible with 200-speed films</li> </ul> |
| <ul style="list-style-type: none"> <li>• Designed for processing in KODAK FLEXICOLOR Chemicals for Process C-41</li> </ul> | <ul style="list-style-type: none"> <li>• Can be processed by any photofinisher along with other KODAK GOLD and ROYAL GOLD Films</li> </ul>   |

**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. Do not change the ISO-speed setting when metering through a filter.

Light Source	KODAK WRATTEN Gelatin Filter*	ISO Speed
Daylight or Electronic Flash	None	400/27°
Photolamp (3400 K)	No. 80B	125/22°
Tungsten (3200 K)	No. 80A	100/21°

\* For best results without special printing.

## Daylight

Use the exposures in the table below for average frontlit subjects from 2 hours after sunrise to 2 hours before sunset.

Lighting Conditions	Shutter Speed (second)	Lens Opening
Bright or Hazy Sun on Light Sand or Snow	1/500	f/16
Bright or Hazy Sun (Distinct Shadows)	1/500	f/11*
Weak, Hazy Sun (Soft Shadows)	1/500	f/8
Cloudy Bright (No Shadows)	1/500	f/5.6
Heavy Overcast or Open Shade†	1/500	f/4

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

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

## Existing Light

Subject and Lighting Conditions	Shutter Speed (second)	Lens Opening
Home Interiors at Night —Average Light	1/30	f/2.8
—Bright Light	1/30	f/2.8
Aerial Fireworks	Bulb*	f/4
Interiors with Bright Fluorescent Light	1/60†	f/4
Brightly Lighted Street Scenes at Night	1/60	f/2.8
Neon and Other Lighted Signs	1/125	f/2.8
Floodlighted Buildings, Fountains, Monuments	1/60	f/2
Night Football, Soccer, Baseball, Racetracks	1/125	f/2.8
Basketball, Hockey, Bowling	1/125	f/2
Stage Shows—Average Light		f/2.8
—Bright Light	1/15*	f/2.8
Circuses—Floodlighted Acts	1/125	f/2.8
—Spotlighted Acts	1/250	f/2.8
Ice Shows—Floodlighted Acts	1/125	f/2.8
—Spotlighted Acts	1/250	f/2.8
School—Stage and Auditorium	1/30	f/2

\* Use a tripod or other firm camera support for exposure times longer than 1/30 second.

† Use shutter speeds of 1/60 second or longer with fluorescent light.

## Electronic Flash

Use the guide number in the following table as a starting point for your equipment. 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. If negatives are consistently too dense (overexposed), use a higher guide number; if they are too thin (underexposed), use a lower number.

Unit Output (BCPS)*	Guide Number For Distances in Feet/Metres
350	85/26
500	100/30
700	120/36
1000	140/42
1400	170/50
2000	200/60
2800	240/70
4000	280/85
5600	340/105
8000	400/120

\* BCPS = beam candlepower seconds

## Fluorescent and High-Intensity Discharge Lamps

Use the color-compensating filters and exposure adjustments in the following tables as starting points to expose this film under fluorescent or high-intensity discharge lamps. For critical applications, make a series of test exposures under your actual conditions.

To avoid the brightness and color variations that occur during a single alternating-current cycle, use exposure times of 1/60 second or longer with fluorescent lamps; with high-intensity discharge lamps, use exposure times of 1/125 second or longer.

Type of Fluorescent Lamp	KODAK Color Compensating Filters	Exposure Adjustment
Daylight	40R	+ <sup>2</sup> / <sub>3</sub> stop
White	20C + 30M	+1 stop
Warm White	40B	+1 stop
Warm White Deluxe	30B + 30C	+1 <sup>1</sup> / <sub>3</sub> stops
Cool White	30M	+ <sup>2</sup> / <sub>3</sub> stop
Cool White Deluxe	20C + 10M	+ <sup>2</sup> / <sub>3</sub> stop

**Note:** When you don't know the type of fluorescent lamps, try a 10C + 20M filter combination and increase exposure by <sup>2</sup>/<sub>3</sub> stop; color rendition will probably be less than optimum.

High-Intensity Discharge Lamp	KODAK Color Compensating Filters	Exposure Adjustment
General Electric Lucalox*	70B + 50C	+3 stops
General Electric Multi-Vapor	10R + 20M	+ <sup>2</sup> / <sub>3</sub> stop
Deluxe White Mercury	20R + 20M	+ <sup>2</sup> / <sub>3</sub> stop
Clear Mercury	80R	+1 <sup>2</sup> / <sub>3</sub> stops

\* This is a high-pressure sodium-vapor lamp. The information in the table may not apply to other manufacturers' high-pressure sodium-vapor lamps because of differences in spectral characteristics.

**Note:** Some primary color filters were used in the tables above to reduce the number of filters and keep the exposure adjustment to a minimum. Red filters were substituted for equivalent filtration in magenta and yellow. Blue filters were substituted for equivalent filtration in cyan and magenta.

## Adjustments for Long and Short Exposures

No filter correction or exposure compensation is required for exposures from 1/10,000 second to 10 seconds.

## PROCESSING

Process KODAK ROYAL GOLD 400 Film in KODAK FLEXICOLOR Chemicals for Process C-41. For more information, see KODAK Publication No. Z-131, *Using KODAK FLEXICOLOR Chemicals*.

## IMAGE STRUCTURE

<b>Sharpness:</b>	High
<b>Degree of Enlargement:</b>	High
<b>Print Grain Index:</b>	41

## 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.

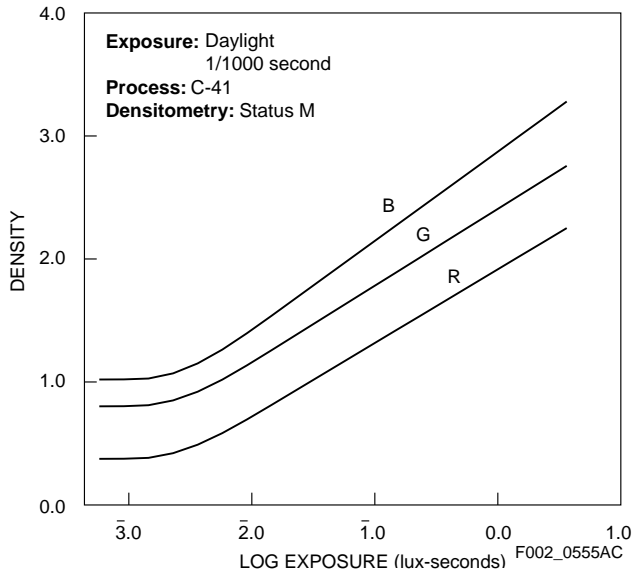
- This method uses a uniform perceptual scale, with a change of four units equaling a *just noticeable difference* in graininess to 90 percent of observers.
- A Print Grain Index rating of 25 on the scale represents the approximate visual threshold for graininess. A higher number indicates an increase 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.

The Print Grain Index number printed in this publication applies to the following standards:

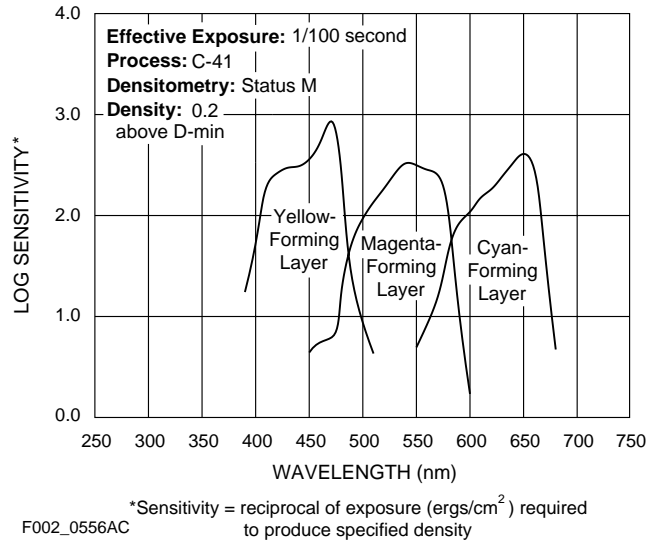
<b>Negative size:</b>	24 x 36 mm (135 size)
<b>Print size:</b>	4 x 6 inches
<b>Magnification:</b>	4.4X

# CURVES

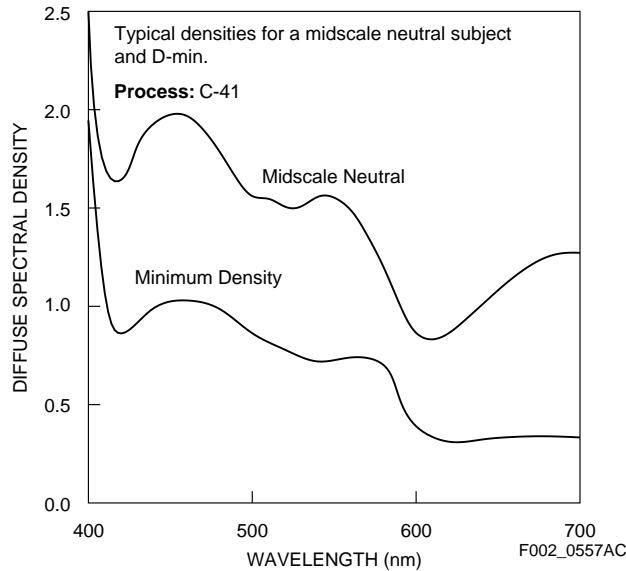
## Characteristic Curves



## 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.

## 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.

Area Measured	Density Reading
The KODAK Gray Card (gray side), receiving the same illumination as the subject	0.85 to 1.05
The lightest step (darkest in negative) of a KODAK Paper Gray Scale receiving the same illumination as the subject	1.25 to 1.45
The highest diffuse density on a normally lighted forehead: —light complexion —dark complexion	1.10 to 1.40 0.95 to 1.30

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 KODAK Gray Card (gray side).

## PRINTING NEGATIVES

You can make color prints from negatives by enlarging them on KODAK EKTACOLOR Papers or KODAK DURAFLEX® RA Print Material.

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

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

## MORE INFORMATION

Kodak has many publications to assist you with information on Kodak products, equipment, and methods. The following publications are available from dealers who sell Kodak products, or you can order them directly from Kodak through the order form in KODAK Publication No. L-1, *KODAK Index to Photographic Information*. To obtain a copy of L-1, send your request with \$1 to Eastman Kodak Company, Department 412-L, Rochester, New York 14650-0532.

- E-30 *Storage and Care of KODAK Photographic Materials—Before and After Processing*
- E-40 *KODAK ROYAL GOLD 25 Film*
- E-41 *KODAK ROYAL GOLD 100 Film*
- E-42 *KODAK ROYAL GOLD 200 Film*
- E-44 *KODAK ROYAL GOLD 1000 Film*
- 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 products can be sent to your fax machine from the Kodak Information Center. Call:

**U.S.A. 1-800-242-2424, Ext. 25**  
**Canada 1-800-295-5531**

*If you have questions about Kodak products, call Kodak.*

*In the U.S.A.:*

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

*In Canada:*

*1-800-465-6325, Monday–Friday  
8:30 a.m.–5 p.m. (Eastern time)*

*Or contact Kodak on-line at:  
<http://www.kodak.com/>*

**Note:** The Kodak materials described in this publication for use with KODAK ROYAL GOLD 400 Film are available from dealers who supply Kodak products. You can use other materials, but you may not obtain similar results.

# KODAK ROYAL GOLD 400 Film

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## AT-A-GLANCE FILM SELECTOR

KODAK Select Series Film	Film Speed	Exposure	Lighting Conditions	Grain	Sharpness	Process
<i>For Color Prints</i>						
ROYAL GOLD 100	ISO 100	Daylight or Electronic Flash	Bright or hazy sun Enlargements	Micro-fine	Extremely high	C-41
ROYAL GOLD 200	ISO 200		Weak or hazy sun Enlargements	Very fine	Extremely high	C-41
ROYAL GOLD 400	ISO 400		Cloudy Bright, Indoors, Low light	Very Fine	Very high	C-41
ROYAL GOLD 1000	ISO 1000		Low light, Indoors, Fast action	Moderate	High	C-41

This publication is printed on recycled paper that contains  
50 percent recycled fiber and 10 percent post-consumer material.

Consumer Imaging  
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