



ROYAL
GOLD 400
FILM



KODAK ROYAL GOLD 400 Film is the world's finest grain 400-speed color print film. 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 KODAK ROYAL GOLD Films for prints, or KODACHROME or KODAK ELITE Chrome Films for slides.

FEATURES	BENEFITS
<ul style="list-style-type: none"> • Very fine grain, unprecedented among 400-speed color films 	<ul style="list-style-type: none"> • Pictures that are very clear • Improved enlargements
<ul style="list-style-type: none"> • Excellent sharpness 	<ul style="list-style-type: none"> • Improved picture detail • Pictures very clear, crisp • Great enlargements
<ul style="list-style-type: none"> • ISO 400 speed* 	<ul style="list-style-type: none"> • Better pictures in a wider range of light conditions • Fewer underexposed pictures • Sharper pictures with moving objects • Longer flash range for better flash pictures over greater distances • Reduced impact of "camera shake" • Better pictures from zoom cameras
<ul style="list-style-type: none"> • Excellent color reproduction, improved color consistency 	<ul style="list-style-type: none"> • Bright, vibrant prints • Improved color consistency across a wider range of picture-taking situations • Optimized performance with KODAK EKTACOLOR Edge Paper
<ul style="list-style-type: none"> • KODAK Color Precision Technology for better skin tones 	<ul style="list-style-type: none"> • More natural-looking skin tones for improved "people pictures"
<ul style="list-style-type: none"> • Scratch-resistant overcoat technology 	<ul style="list-style-type: none"> • Less negative scratching for fewer print defects
<ul style="list-style-type: none"> • Print compatibility 	<ul style="list-style-type: none"> • Compatibility with all other Kodak films makes photofinishing workflows faster, easier
<ul style="list-style-type: none"> • Scan ready 	<ul style="list-style-type: none"> • High-quality results from digital output systems • Great prints for digital zoom and crop

*Compared to Kodak 200-speed film.

DARKROOM RECOMMENDATIONS

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

Process this film in total darkness through the bleach step in Process C-41.

STORAGE AND HANDLING

Load and unload your cameras in subdued light.

Store unexposed film at 21°C (70°F) 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*.

EXPOSURE

Film Speed:

Use these speed numbers in the table below with cameras 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	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 (seconds)	Lens Opening
Bright/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, 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 sky.

Existing Light

Subject and Lighting Conditions	Shutter Speed	Lens Opening
Home Interiors at Night —Average Light —Bright Light	1/30 1/30	f/2.8 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 —Bright Light	1/15*	f/2.8 f/2.8
Circuses—Floodlighted Acts —Spotlighted Acts	1/125 1/250	f/2.8 f/2.8
Ice Shows—Floodlighted Acts —Spotlighted Acts	1/125 1/250	f/2.8 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 numbers in the following table below as 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 Lights

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.

Fluorescent Lamp Type	KODAK Color Compensating Filter(s)	Exposure Adjustment
Daylight	40R	+ 2/3 stop
White	20C + 30M	+ 1 stop
Warm White	40B	+ 1 stop
Warm White Deluxe	30B + 30C	+ 1 1/3 stops
Cool White	30M	+ 2/3 stop
Cool White Deluxe	20C + 10M	+ 2/3 stop

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

High-Intensity Discharge Lamp Source

High Intensity Discharge Lamp Type	KODAK Color Compensating Filter(s)	Exposure Adjustment
High Pressure Sodium Vapor	70B + 50C	+ 3 stops
Metal Halide	10R + 20M	+ 2/3 stop
Mercury Vapor with Phosphor	20R + 20M	+ 2/3 stop
Mercury Vapor w/o Phosphor (clear envelope)	80R	+ 1 2/3 stops

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

Exposures longer than 10 seconds may require exposure compensation and filtration. For critical applications, may test under your conditions.

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

Sharpness: High
Degree of Enlargement: High

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.

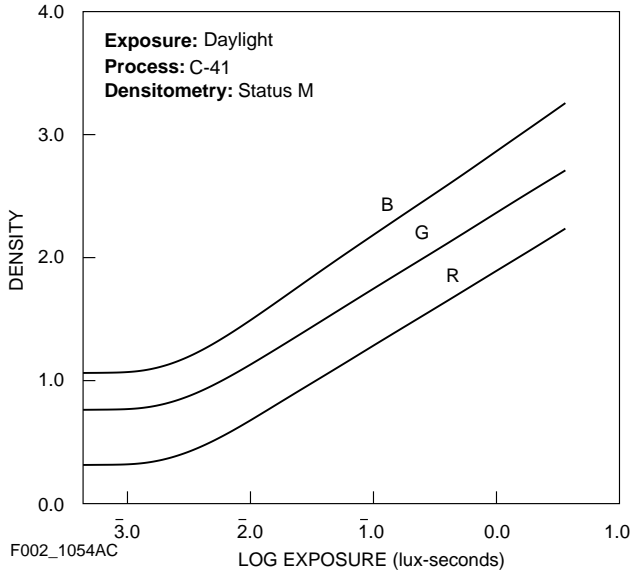
- The method uses a uniform perceptual scale, with a change of four units equaling a *just noticeable difference* in graininess to 90 percent of observers.
- A Print Grain Index rating of 25 on the scale represents the approximate visual threshold for graininess. A higher number indicates an increase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

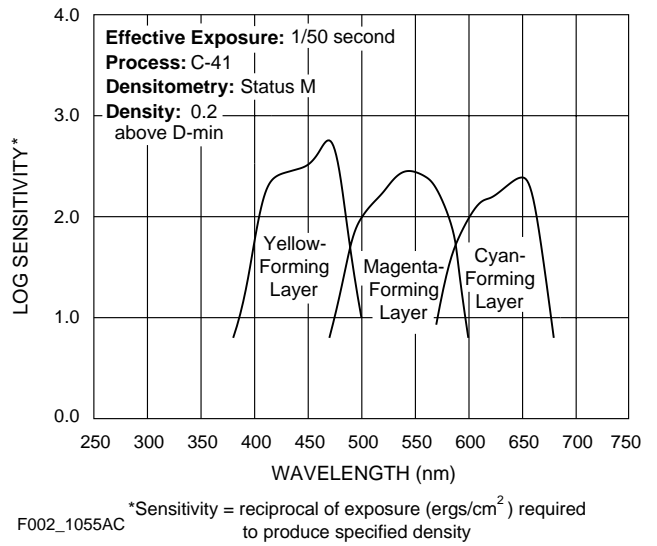
Negative size: 24 x 36 mm
(135 size)
Print Size: 4 x 6 inches
Magnification: 4.4X
Print Grain Index: 39

Curves

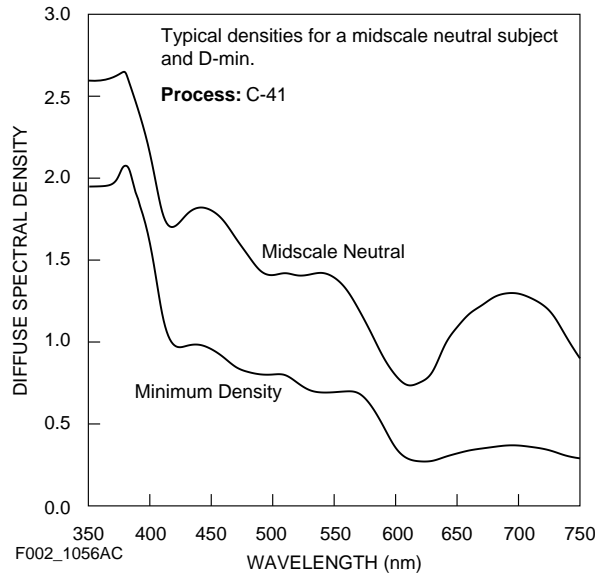
Characteristic Curves



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 EXPOSURES

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
The <i>KODAK Gray Card</i> (gray side) receiving the same illumination as the subject	0.80 to 1.00
The lightest step (darkest in the negative) of a <i>KODAK Paper Gray Scale</i> receiving the same illumination as the subject	1.15 to 1.35
Normally lighted forehead of person with light complexion*	1.05 to 1.35
Normally lighted forehead of person with dark complexion*	0.90 to 1.20

* Because of the extreme range in skin color, use these values only as a guide. For best results, use a *KODAK Gray Card* (gray side).

PRINTING NEGATIVES

You can make color prints from negatives by enlarging/printing them on KODAK EKTACOLOR Edge or ROYAL Papers and KODAK PROFESSIONAL DURAFLEX Print Material.

Make color transparencies by printing negatives on KODAK VERICOLOR Print Film, KODAK VERICOLOR Slide Film, or KODAK PROFESSIONAL DURATRANS or KODAK DURACLEAR PROFESSIONAL Display Material.

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

KODAK ROYAL GOLD 400 Film

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. and Canada faxback system.

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

E-30	<i>Storage and Care of KODAK Photographic Materials—Before and After Processing</i>
E-41	<i>KODAK ROYAL GOLD 100 Film</i>
E-42	<i>KODAK ROYAL GOLD 200 Film</i>
E-44	<i>KODAK ROYAL GOLD 1000 Film</i>
Z-131	<i>Using KODAK FLEXICOLOR Chemicals</i>

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

Many technical support publications for KODAK 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 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 a.m.–5 p.m. (Eastern time)

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.

Consumer Imaging
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