



KODACHROME 64 and 200 Films

DESCRIPTION

KODACHROME 64 and 200 Films are color reversal films designed for processing in Process K-14 chemicals. These films are intended for exposure with daylight or electronic flash. You can also expose them with tungsten illumination (3200 K) or photolamps (3400 K) using filters.

KODACHROME 64 Film features extremely fine grain and extremely high sharpness. It is an excellent choice for a wide variety of applications. KODACHROME 200 Film features fine grain and extremely high sharpness. With its faster speed, the film is ideal for low-light situations and photo shoots requiring increased depth of field.

Use these films to produce color transparencies for projection or viewing with 5000 K illumination. Duplicate transparencies can be made by direct printing. To make color prints, you can print transparencies onto color reversal paper. Or make internegatives for printing onto color negative paper. You can also scan transparencies for digital printing and for graphic arts and Photo CD applications.

KODACHROME 64 Film / KR

- Excellent for outdoor, travel, and nature applications
- Extremely sharp
- Extremely fine grain
- Reproduces subtle color naturally
- Archival

KODACHROME 200 Film / KL

- Well suited for fast action and low-light applications
- Natural colors
- 200 speed for stopping action and for use with telephoto lenses
- Extremely high sharpness and fine grain
- Archival

SIZES AVAILABLE

Sizes and catalog numbers may differ from country to country. See your dealer who supplies Kodak products.

STORAGE AND HANDLING

Load and unload film in subdued light.

Store unexposed film in a refrigerator at 55°F (13°C) or lower in the original sealed package. To avoid moisture condensation on film that has been refrigerated, allow the film to warm up to room temperature before opening the package. Process film as soon as possible after exposure.

Protect transparencies from strong light, and store them in a cool, dry place. For more information, see KODAK Publication No. E-30, *Storage and Care of KODAK Photographic Materials—Before and After Processing*.

EXPOSURE

Exposure Index Numbers

Use the exposure index numbers below with cameras or light meters marked for ISO or ASA speeds or exposure indexes. Do not change the film-speed setting when metering through a filter. Metering through filters may affect meter accuracy; see your meter or camera manual for specific information. For critical work, make a series of test exposures.

Light Source	KODAK WRATTEN Gelatin Filter	Exposure Index	
		KR	KL
Daylight or Electronic Flash	None	64	200
Photolamp (3400 K)	No. 80B	20	64
Tungsten (3200 K)	No. 80A	16	50

Daylight

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

KODACHROME 64 Film / KR		
Lighting Conditions	Shutter Speed (second)	Lens Opening
Bright/Hazy Sun on Sand or Snow	1/125	<i>f/16</i>
Bright/Hazy Sun, Distinct Shadows	1/125	<i>f/11*</i>
Weak, Hazy Sun, Soft Shadows	1/125	<i>f/8</i>
Cloudy Bright, No Shadows	1/125	<i>f/5.6</i>
Heavy Overcast or Open Shade†	1/125	<i>f/4</i>

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

† Subjects shaded from sun but lit by large area of clear sky.

KODACHROME 200 Film / KL		
Lighting Conditions	Shutter Speed (second)	Lens Opening
Bright/Hazy Sun on Sand or Snow	1/250	<i>f/22</i>
Bright/Hazy Sun, Distinct Shadows	1/250	<i>f/16*</i>
Weak, Hazy Sun, Soft Shadows	1/250	<i>f/11</i>
Cloudy Bright, No Shadows	1/250	<i>f/8</i>
Heavy Overcast or Open Shade†	1/250	<i>f/5.6</i>

* Use *f/8* for backlit close-up subjects.

† Subjects shaded from sun but lit by large area of clear sky.

Electronic Flash

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

Unit Output (BCPS*)	Guide Number (Distance in Feet/Metres)	
	KR	KL
350	32/10	60/18
500	40/12	70/21
700	45/14	85/26
1000	55/17	100/30
1400	65/20	120/36
2000	80/24	140/42
2800	95/29	170/50
4000	110/33	200/60
5600	130/40	240/70
8000	160/50	280/85

*BCPS=beam candlepower seconds.

Fluorescent and High-Intensity Discharge Lamps

Use the color-compensating filters and exposure adjustments in the following charts as starting points to expose these films 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 1/125 second or longer.

Type of Fluorescent Lamp	KODAK Color Compensating Filters	Exposure Adjustment
KODACHROME 64 Film		
Daylight	50R + 10M	+1 1/3 stops
White	05C + 40M	+1 stop
Warm White	20B + 20M	+1 stop
Warm White Deluxe	40B + 05C	+1 1/3 stops
Cool White	40M + 10Y	+1 stop
Cool White Deluxe	05B + 10M	+2/3 stop
Unknown Fluorescent	05C + 30M	+1 stop
KODACHROME 200 Film		
Daylight	30R	+2/3 stop
White	10B + 05M	+2/3 stop
Warm White	40B + 05C	+1 1/3 stops
Warm White Deluxe	10B + 50C	+1 1/3 stops
Cool White	20M	+1/3 stop
Cool White Deluxe	05B + 20C	+2/3 stop
Unknown Fluorescent	10B + 05C	+2/3 stop

High-Intensity Discharge Lamp	KODAK Color Compensating Filters	Exposure Adjustment
KODACHROME 64 Film		
General Electric Lucalox	70B + 30C	+2 2/3 stops
General Electric Multi-Vapor	30R + 10M	+1 stop
Deluxe White Mercury	30R + 30M	+1 1/3 stops
Clear Mercury	120R + 20M	+ 3 stops
KODACHROME 200 Film		
General Electric Lucalox	50B + 70C	+2 2/3 stops
General Electric Multi-Vapor	20R + 10M	+2/3 stop
Deluxe White Mercury	10R + 30M	+1 stop
Clear Mercury	110R + 10M	+2 2/3 stops

Note: Consult the manufacturer of high-intensity lamps for ozone ventilation requirements and safety information on ultraviolet radiation.

Some primary color filters were used in the previous tables 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 Exposures

Use the adjustments in the following table when working with long exposure times.

Film Code	Calculated Exposure Time (Sec). Exposure increases include adjustment required for KODAK Color Compensating Filters			
	1/10,000 to 1/100	1/10	1	10
KR	None	+ $\frac{1}{3}$ stop CC05R	Not recommended	
KL	None		+ $\frac{1}{2}$ stop CC10Y	Not recommended

Note: This information applies only when exposing the films to daylight. The data are based on average emulsions rounded to the nearest $\frac{1}{2}$ stop and assume normal, recommended processing. Use the data only as a guide. For critical applications, make tests under your conditions.

PROCESSING

Have these films processed in Process K-14 chemicals. For a list of KODACHROME Film processing labs, go to www.kodak.com/go/k14.

KODACHROME 200 Film can be push-processed to gain film speed or compensate for underexposure. Before exposing your film, contact the lab where your film will be processed to discuss the push-processing levels they offer and the associated charges. Be sure to mark your film container with the EI number used and inform the lab that you want the appropriate push processing.

When the film is push processed, the color balance will shift in the magenta-red direction, compensating for some of the greenish artificial illumination present in most stadiums and other large facilities.

We do not recommend push processing of KODACHROME 64 Film.

SCANNING TRANSPARENCIES

The KODACHROME Film family is characterized by sets of image dyes which perform very similarly when scanned.

The scanner operator can set up one basic tone scale and color-correction channel for KODACHROME Films, and then optimize the tone scale and gray balance for the requirements of individual images.

PRINTING TRANSPARENCIES

You can reproduce images made on KODACHROME Film by using a variety of Kodak products.

Duplicate Color Transparencies

For duplicate transparencies, use—

KODAK PROFESSIONAL EKTACHROME
Duplicating Film EDUPE

Color Prints

You can scan your image to a file and print digitally to—
KODAK PROFESSIONAL PORTRA, SUPRA, and
ULTRA ENDURA Papers

KODAK PROFESSIONAL ENDURA Clear Display
Material

KODAK PROFESSIONAL ENDURA Transparency
Display Material

KODAK PROFESSIONAL ENDURA Metallic Paper

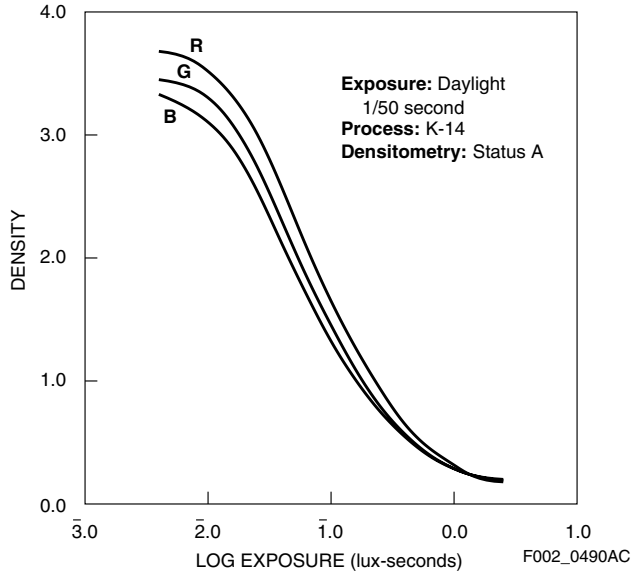
IMAGE STRUCTURE

KODACHROME 64 Film

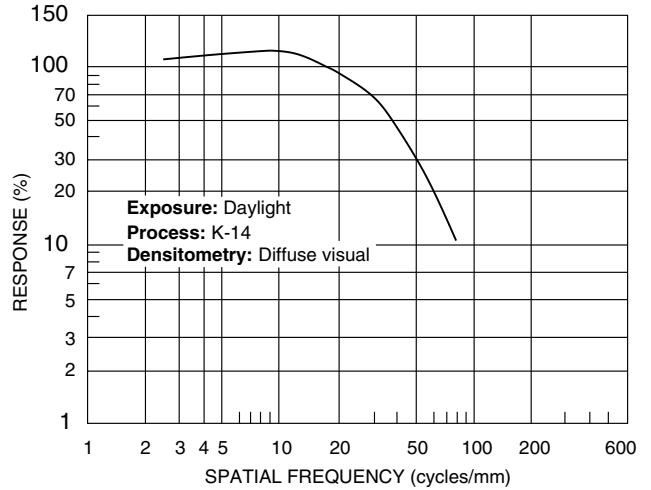
Diffuse rms Granularity: 10

Read at a gross diffuse visual density of 1.0, using a 48-micrometre aperture, 12X magnification.

CHARACTERISTIC CURVES

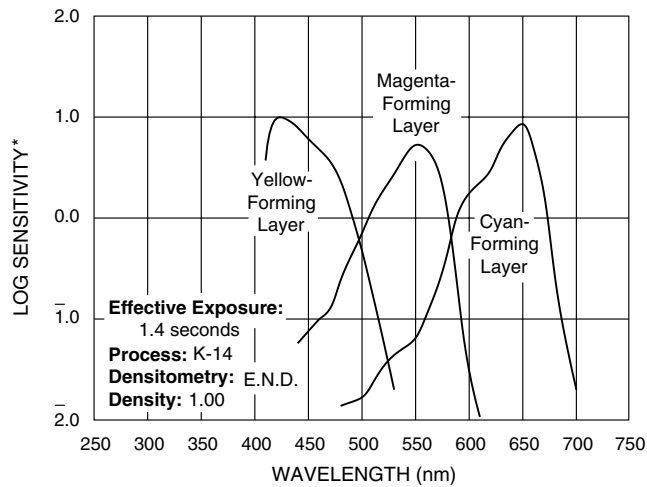


MODULATION-TRANSFER CURVE



F002_0489AC

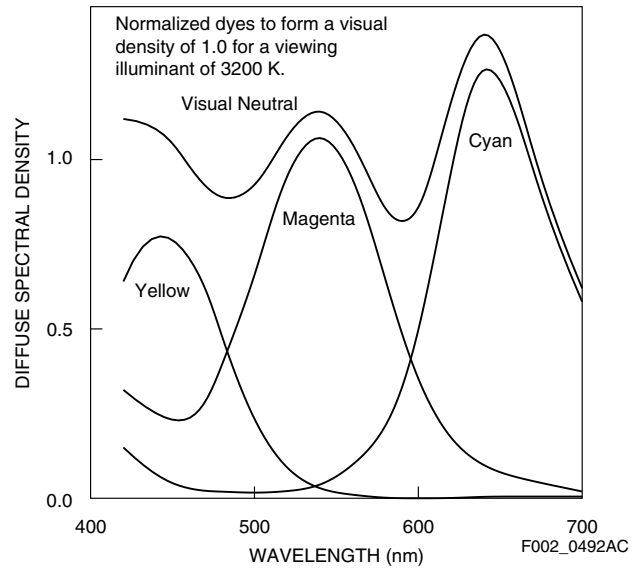
SPECTRAL-SENSITIVITY CURVES



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

F002_0491AC

SPECTRAL-DYE-DENSITY CURVES



F002_0492AC

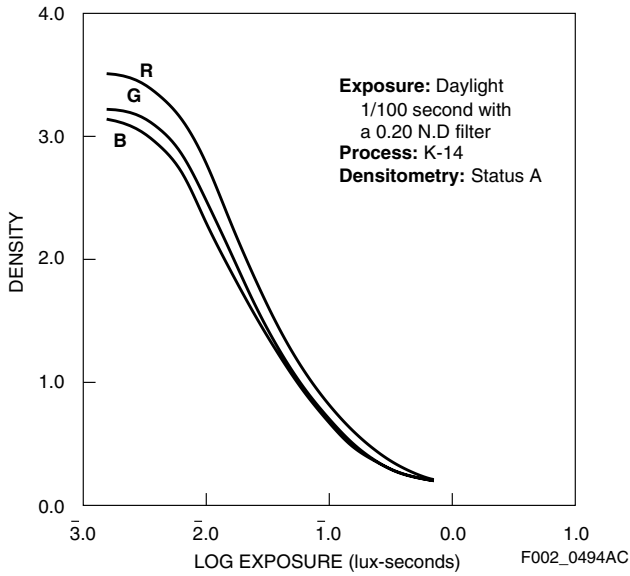
IMAGE STRUCTURE

KODACHROME 200 Film

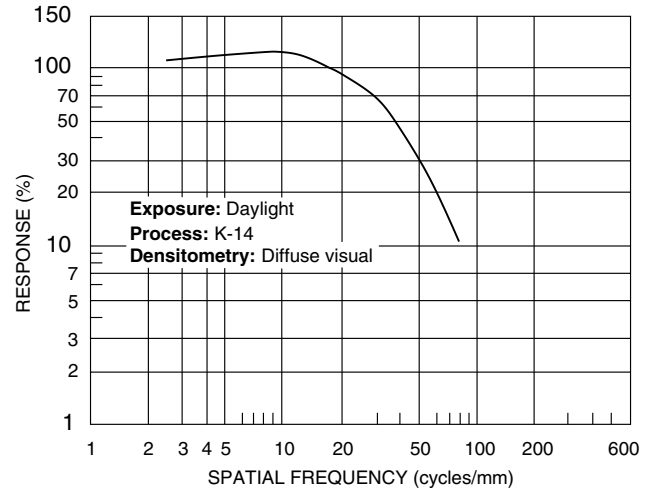
Diffuse rms Granularity: 16

Read at a gross diffuse visual density of 1.0, using a 48-micrometre aperture, 12X magnification.

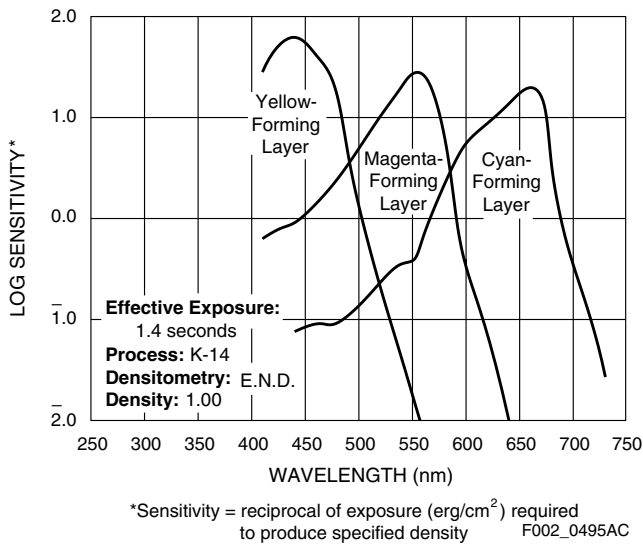
CHARACTERISTIC CURVES



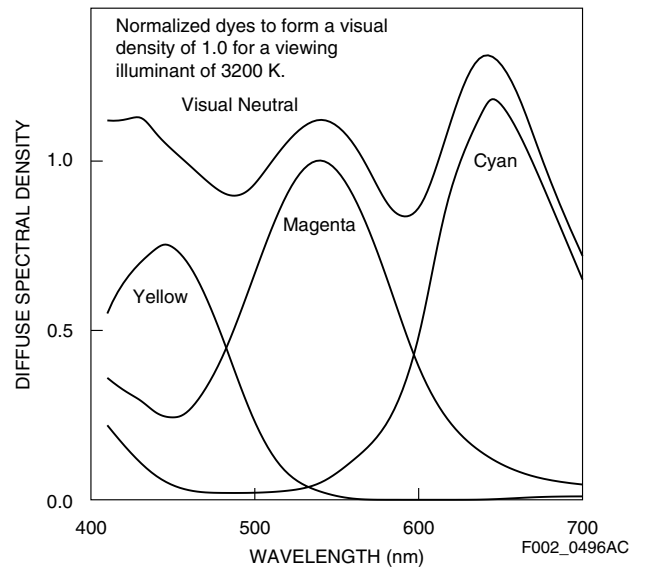
MODULATION-TRANSFER CURVE



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.

KODACHROME 64 and 200 Films

MORE INFORMATION

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

- E-6 *KODAK Color Films: The Differences Between Professional Films and General Picture-Taking Films*
- E-30 *Storage and Care of KODAK Photographic Materials—Before and After Processing*
- E-31 *Reciprocity and Special Filter Data for KODAK Films*

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

If you have questions about Kodak products, call Kodak.

In the U.S.A.

*1-800-242-2424, Ext. 25, 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)*

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