



Kodachrome 25, 64, and 200



FILMS

DESCRIPTION

KODACHROME 25, 64, and 200 Films are color slide 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) using filters.

KODACHROME 25 and 64 Films feature extremely fine grain and extremely high sharpness. They are excellent choices 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 25, 64, and 200 Films are members of the "Select Series" of Kodak films. The Select Series offers serious photographers and photo enthusiasts the widest selection of high-performance films. Choose from KODACHROME or KODAK ELITE Chrome Films for slides, or KODAK ROYAL GOLD Films for prints.

KODACHROME 25 Film / KM

- Exceptional results in close-up and still-life applications in bright light or using electronic flash
- Extremely sharp
- Extremely fine grain
- Reproduces subtle color naturally
- Archival dark keeping (KODACHROME Films are the most archival transparency films)

KODACHROME 64 Film / KR

- Excellent for general use—outdoor, travel, and nature applications
- Extremely sharp
- Extremely fine grain
- Reproduces subtle color naturally
- Archival dark keeping

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 dark keeping

SIZES AVAILABLE

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

Note: Use the catalog numbers in the tables only for orders placed in the United States and Canada.

KODACHROME 25 Film / KM

Rolls	Base	CAT No.
135-24	5.3-mil acetate	145 8454
135-36	5.3-mil acetate	156 0309

KODACHROME 64 Film / KR

Rolls	Base	CAT No.
135-24	5.3-mil acetate	190 5959
135-24 (carded)	5.3-mil acetate	114 0896
135-36	5.3-mil acetate	156 0028
135-36 (carded)	5.3-mil acetate	131 4228

KODACHROME 200 Film / KL

Rolls	Base	CAT No.
135-24	5.3-mil acetate	158 7559
135-24 (carded)	5.3-mil acetate	190 7559
135-36	5.3-mil acetate	197 3809
135-36 (carded)	5.3-mil acetate	155 0060

STORAGE AND HANDLING

Load and unload film in subdued light.

Store unexposed film at 21°C (70°F) 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		
		KM	KR	KL
Daylight or Electronic Flash	None	25	64	200
Tungsten (3200 K)	No. 80A	6	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 25 Film / KM		
Lighting Conditions	Shutter Speed (second)	Lens Opening
Bright/Hazy Sun on Sand or Snow	1/125	<i>f</i> /11
Bright/Hazy Sun, Distinct Shadows	1/125	<i>f</i> /8*
Weak, Hazy Sun, Soft Shadows	1/125	<i>f</i> /5.6
Cloudy Bright, No Shadows	1/125	<i>f</i> /4
Heavy Overcast or Open Shade†	1/60	<i>f</i> /4

* Use *f*/4 for backlit close-up subjects.

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

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

* 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</i> /22
Bright/Hazy Sun, Distinct Shadows	1/250	<i>f</i> /16*
Weak, Hazy Sun, Soft Shadows	1/250	<i>f</i> /11
Cloudy Bright, No Shadows	1/250	<i>f</i> /8
Heavy Overcast or Open Shade†	1/250	<i>f</i> /5.6

* 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)		
	KM	KR	KL
350	20/6	32/10	60/18
500	24/7	40/12	70/21
700	30/9	45/14	85/26
1000	35/11	55/17	100/30
1400	40/12	65/20	120/36
2000	50/15	80/24	140/42
2800	60/18	95/29	170/50
4000	70/21	110/33	200/60
5600	85/26	130/40	240/70
8000	100/30	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 25 Film		
Daylight	50R	+1 stop
White	40M	+2/3 stop
Warm White	20C + 40M	+1 stop
Warm White Deluxe	30B + 30C	+1 1/3 stops
Cool White	40M + 10Y	+1 stop
Cool White Deluxe	20C + 10M	+2/3 stop
Unknown Fluorescent	30M	+2/3 stop

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 25 Film		
General Electric Lucalox*	80B + 20C	+2 1/3 stops
General Electric Multi-Vapor	20R + 20M	+2/3 stop
Deluxe White Mercury	30R + 30M	+1 1/3 stops
Clear Mercury	70R	+1 1/3 stops
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

* A high-pressure sodium-vapor lamp. The information here may not apply to other manufacturers' sodium-vapor lamps because of differences in spectral characteristics.

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
KM	None		+ $\frac{1}{2}$ stop No filter	Not recommended
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 $\frac{1}{3}$ or $\frac{1}{2}$ 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.

KODACHROME 200 Film can be push-processed to gain film speed or compensate for underexposure. The film can be exposed at EI 500 and pushed 1 $\frac{1}{3}$ stops. It can also be exposed at EI 800 and pushed 2 stops. 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 25 or 64 Films.

PRINTING TRANSPARENCIES

Duplicate Color Transparencies

For direct printing, use—

KODAK EKTACHROME Duplicating Films

KODAK EKTACHROME RADIANCE Overhead Material

Or make internegatives on KODAK Commercial

Internegative Film, and print them on—

KODAK VERICOLOR Print Film

KODAK VERICOLOR Slide Film

KODAK DURATRANS® RA Display Material

KODAK DURACLEAR™ RA Display Material

Color Prints

For direct printing, use—

KODAK EKTACHROME RADIANCE Papers

KODAK EKTACHROME RADIANCE SELECT Material

Or make internegatives on KODAK Commercial

Internegative Film, and print them on—

KODAK EKTACOLOR PORTRA III Papers

KODAK EKTACOLOR SUPRA II Paper

KODAK EKTACOLOR ULTRA II Paper

KODAK DURAFLEX® RA Print Material

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.

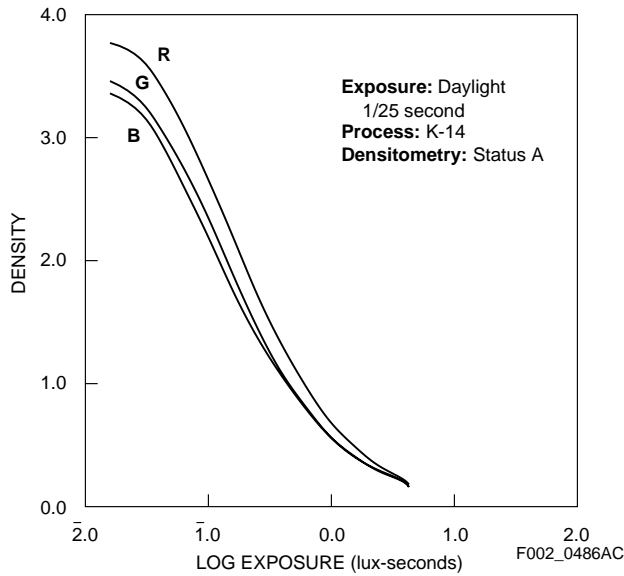
IMAGE STRUCTURE

KODACHROME 25 Film

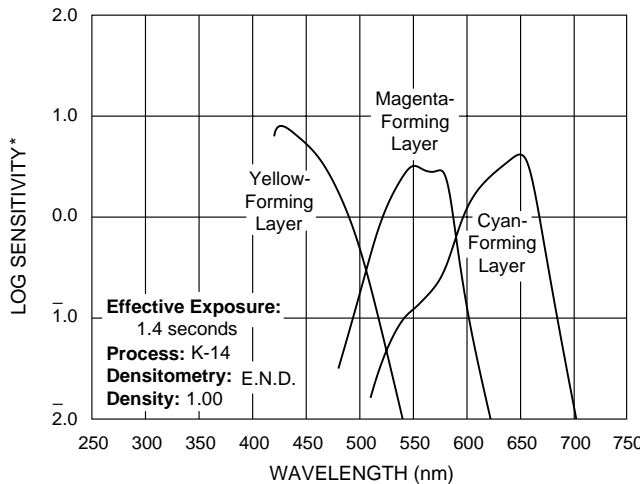
Diffuse rms Granularity: 11

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

CHARACTERISTIC CURVES



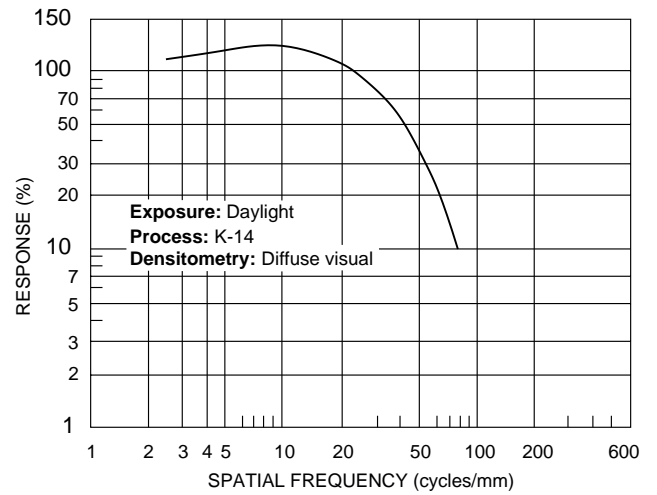
SPECTRAL-SENSITIVITY CURVES



*Sensitivity = reciprocal of exposure (erg/cm^2) required to produce specified density

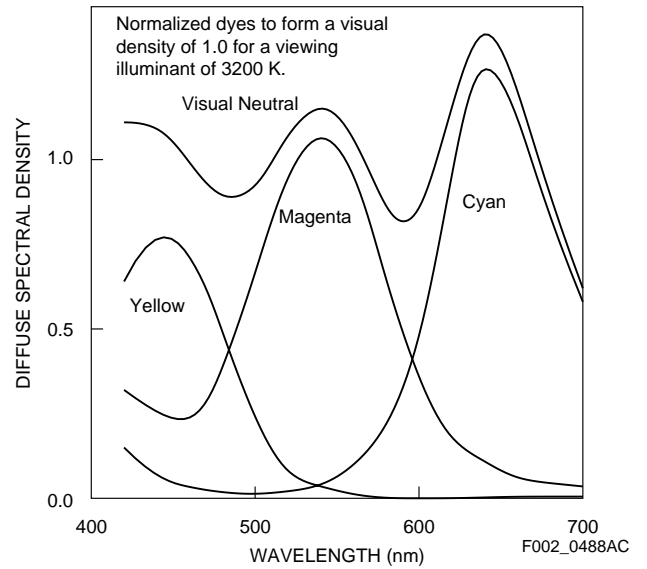
F002_0487AC

MODULATION-TRANSFER CURVE



F002_0485AC

SPECTRAL-DYE-DENSITY CURVES



F002_0488AC

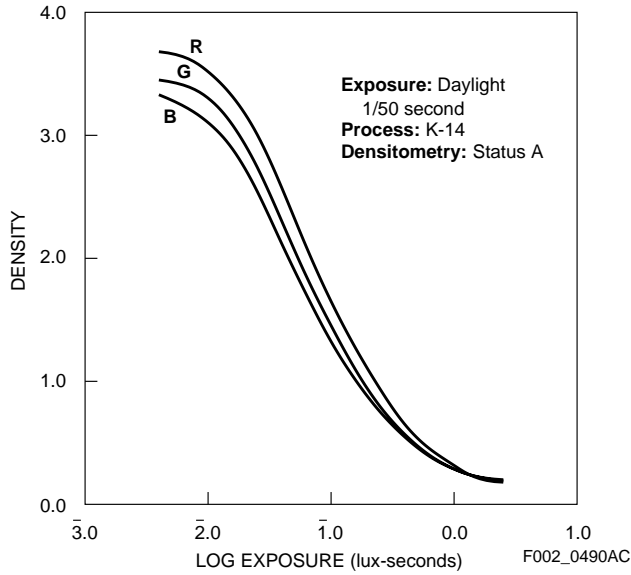
IMAGE STRUCTURE

KODACHROME 64 Film

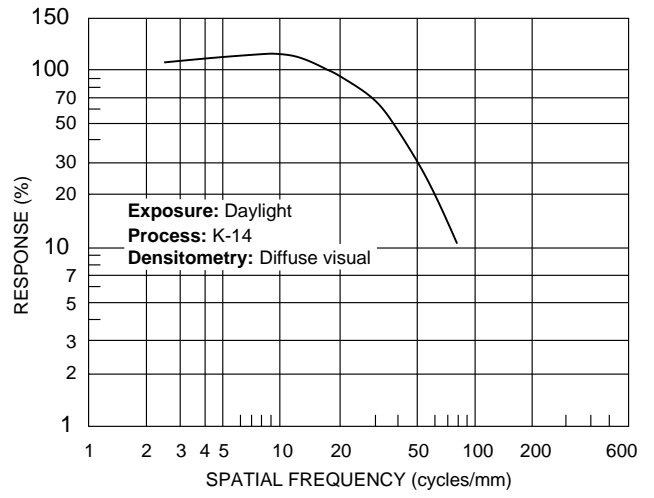
Diffuse rms Granularity: 12

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

CHARACTERISTIC CURVES

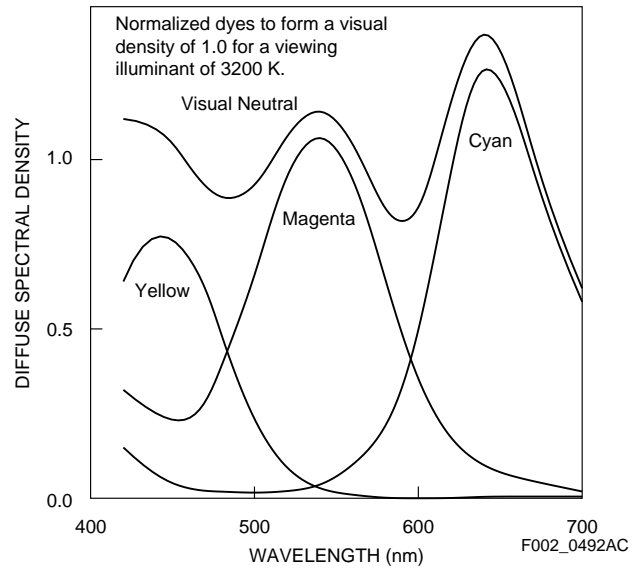


MODULATION-TRANSFER CURVE

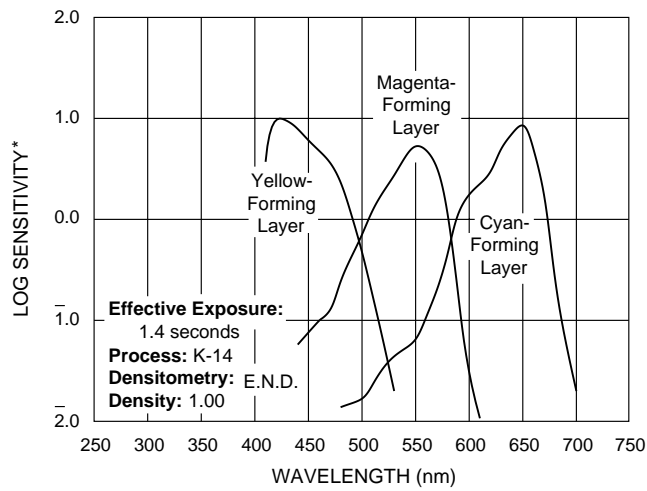


F002_0489AC

SPECTRAL-DYE-DENSITY CURVES



SPECTRAL-SENSITIVITY CURVES



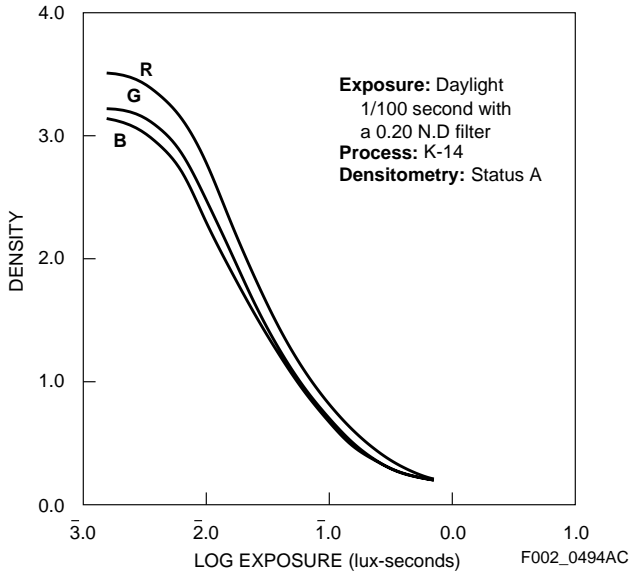
*Sensitivity = reciprocal of exposure (erg/cm²) required to produce specified density F002_0491AC

IMAGE STRUCTURE
KODACHROME 200 Film

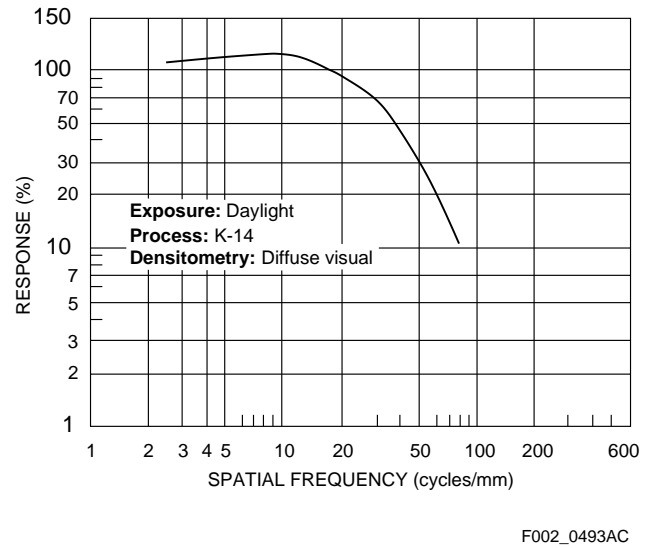
Diffuse rms Granularity: 19

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

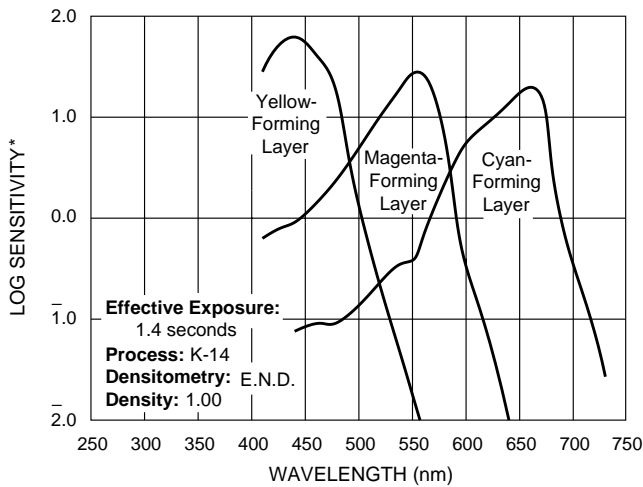
CHARACTERISTIC CURVES



MODULATION-TRANSFER CURVE

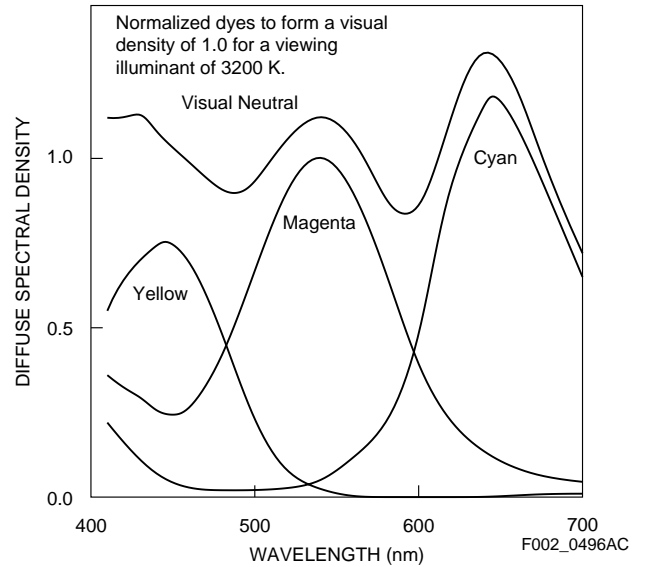


SPECTRAL-SENSITIVITY CURVES



*Sensitivity = reciprocal of exposure (erg/cm²) required to produce specified density F002_0495AC

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 25, 64, 200 Films

MORE INFORMATION

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

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:

1-800-242-2424, Ext. 33

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)*

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

AT-A-GLANCE FILM SELECTOR

KODAK Select Series Film	Film Speed	Exposure	Lighting Conditions	Grain	Process
<i>For Color Slides</i>					
KODACHROME 25	EI 25	Daylight or Electronic Flash	Bright or hazy sun Enlargements	Extremely fine	K-14
KODACHROME 64	EI 64	Daylight or Electronic Flash	Multi-purpose use	Extremely fine	K-14
KODACHROME 200	EI 200	Daylight or Electronic Flash	Low light Fast action	Fine	K-14

Consumer Imaging
EASTMAN KODAK COMPANY • ROCHESTER, NY 14650

