

EASTMAN EKTACHROME High-Speed Daylight Film 7251 EASTMAN EKTACHROME High-Speed Daylight Film 2253



EASTMAN EKTACHROME High-Speed Daylight Film 7251 (16 mm) and EASTMAN EKTACHROME High-Speed Daylight Film 2253 (ESTAR Base) are very high-speed, color reversal camera films that are intended for photography under very low-level daylight illumination or under other light sources using proper filtration. They have a medium degree of sharpness. Among their many applications are color news photography, sporting events, industrial photography using existing light, and color instrumentation applications. The processed original camera film is ready for projection; and because it is balanced for projection at 5400 K, it is suitable for television broadcasting. Also, color duplicates can be made on EASTMAN EKTACHROME Print Film 7399.

2253 Film and 7251 Film can be exposed at effective speeds up to twice the normal exposure indexes with little loss in quality. In situations where some loss in quality is acceptable, the normal exposure index can be increased by the equivalent of 2 camera stops. When the film is exposed at other than the normal exposure index, the processing laboratory should be informed so that compensations can be made in the processing.

BASE

EASTMAN EKTACHROME High-Speed Daylight Film 7251 has a clear acetate safety base. 2253 Film has a clear ESTAR safety base.

DARKROOM RECOMMENDATIONS

Handle unprocessed film in total darkness until after the stop bath following first development. You can do the remaining operations in a normally lighted room. You can use a safelight with a KODAK Safelight Filter No. 3 / dark green to illuminate dials, meters, etc., during the first development, but do not shine the light directly on the film.

STORAGE

Store unexposed film at 13°C (55°F) or lower. For extended storage, store at -18°C (0°F) or lower. Process exposed film promptly. Store processed film according to the recommendations in ANSI/PIMA IT9.11-1998: for medium-term storage (minimum of ten years), store at 10°C (50°F) or lower at a relative humidity of 20 to 30 percent; for extended-term storage (for preservation of material having permanent value), store at 2°C (35°F) or lower at a relative humidity of 20 to 30 percent. For active use, store at 25°C (77°F) or lower, at a relative humidity of 50 +/- 5 percent. This relates to optimized film handling rather than preservation; static, dust-attraction and curl-related problems are generally minimized at the higher relative humidity. After usage, the film should be returned to the appropriate medium- or long-term storage conditions as soon as possible.

For more information about medium- and long-term storage, see ANSI/PIMA IT9.11-1998, SMPTE RP131-2002, and KODAK Publications No. H-1, *KODAK Motion Picture Film* available online at <http://www.kodak.com/US/en/motion/support/h1>, and No. H-23, *The Book of Film Care*.

EXPOSURE INDEXES

Tungsten (3200K)¹ - 100/21 Daylight - 400

Use these indexes with incident- or reflected-light exposure meters and cameras marked for ISO or ASA speeds or exposure indexes. These indexes apply for meter readings of average subjects made from the camera position or for readings made from a gray card of 18-percent reflectance held close to and in front of the subject. For unusually light- or dark-colored subjects, decrease or increase the exposure indicated by the meter accordingly.

1. With a KODAK WRATTEN Gelatin Filter No. 80A.

COLOR BALANCE

These films are balanced for exposure with daylight illumination (5500K). For other light sources, use the correction filters in the table below.

Light Source	KODAK Filters on Camera ¹	Exposure Index
Tungsten (3000 K)	WRATTEN Gelatin No. 80A	100
Tungsten (3200 K)	WRATTEN Gelatin No. 80A	100
Tungsten photoflood (3400 K)	WRATTEN Gelatin No. 80B	125
Daylight (5500 K)	None	400
White-Flame Arcs	None	400
Yellow-Flame Arcs	WRATTEN Gelatin No. 80A	100
OPTIMA 32	WRATTEN Gelatin No. 80A	100
VITALITE	None	400
Fluorescent, Cool White ²	Color Compensating 30M	250
Fluorescent, Deluxe Cool White ²	Color Compensating 20B	250
Metal Halide	None	400

¹ These are approximate corrections only. For critical work, tests should be made to determine optimum filtration.

² These are starting-point recommendations for trial exposures. If the kind of lamp is unknown, a KODAK Color Compensating Filter CC20M can be used with an exposure index (EI) of 250.

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

Exposure for Airborne Subject -

A trial exposure based on an exposure index of 640 should be made if this film is to be used to photograph objects such as missiles or aircraft against a sky background. First, take a reading with the meter pointed at the portion of the sky to be photographed. Then, set the sky reading on the calculator dial and read the appropriate combination of shutter and *f*-number. For critical work, a series of test exposures should be made with the meter and camera equipment that will be used in photographing the airborne subjects.

EXPOSURE TABLE - DAYLIGHT ILLUMINATION

At 24 frames per second (fps), 170-degree shutter opening:

Lens Aperture	f/1.4	f/2	f/2.8	f/4	f/5.6	f/8	f/11	f/16	f/22
Footcandles Required	6.3	12.5	25	50	100	200	400	800	1600

At 18 fps, use $\frac{3}{4}$ of footcandle values.

Use this table for average subjects that contain a combination of light, medium, and dark colors. When a subject includes only pastels, use at least $\frac{1}{2}$ stop less exposure; dark colors require $\frac{1}{2}$ stop more exposure.

Lighting Contrast -

The recommended ratio of key-light-plus-fill-light to fill light is 2:1 or 3:1. However, you may use 4:1 or greater when a particular look is desired.

RECIPROCITY CHARACTERISTICS

For an exposure time of 1/10,000 second, increase exposure by $\frac{1}{3}$ stop. You do not need to make any filter corrections or exposure adjustments for exposure times from 1/1,000 to 1/10 second. At an exposure of 1 second, increase exposure by $\frac{1}{2}$ stop.

PROCESSING

Process in Process VNF-1 or Process RVNP.

Most commercial motion-picture laboratories provide a processing service for these films. There are no packaged chemicals available for preparing the processing solutions. See KODAK Publications No. H-24, *Processing KODAK Color Print Films*, *Process VNF-1 Specifications*, *Module 11*, and *Process RVNP Specifications*, *Module 13*, for more information on the solution formulas and the procedures for machine processing these films. Forced processing beyond 2 stops is not recommended.

IDENTIFICATION

After processing, the product code numbers 7251 or 2253, emulsion, and roll number identification are visible along the length of the film.

LABORATORY AIM DENSITIES (LAD)

To maintain optimum quality and consistency in the final prints, the laboratory must carefully control the color timing, printing, and duplicating procedures. To aid in color timing and curve placement, negative originals should be timed relative to Laboratory Aim Density (LAD) Control Film supplied by Eastman Kodak Company.² The LAD Control Film provides both objective sensitometric control and subjective verification of the duplicating procedures used by the laboratory.

In the LAD Control Method,³ the electronic color analyzer used for color timing is set-up with the LAD Control Film to produce a gray video display of the LAD patch, corresponding to 1.0 neutral density (gray) on the print. The negative printing original is then scene-to-scene timed. There are specific LAD values for each type of print or duplicating film that the original can be printed on. For print films, the LAD patch is printed to a neutral gray of 1.0 visual density. For duplicating films, the specified aims are at the center of the usable straight-line portion of the sensitometric curve of the film.

Due to normal variations in exposure and processing of color negative films, particular scenes may not print exactly at the same printer lights as the LAD Control Film. The LAD Control Film is intended as a set-up tool for electronic color analyzers and printers. It is NOT a reference that every scene must match. Normal film-to-film and scene-to-scene exposure variability is accommodated by the color timing (grading) process, on an electronic color analyzer set up with the LAD Control Film. Normally exposed and processed color negatives will typically print well within the range of an additive printer setup with the LAD Control Film, although SIGNIFICANT or UNEXPECTED departures from this center point balance may indicate an exposure/filtration problem with the cinematography or with the process control. Some specialized films and/or specialized negative processing techniques (push-processing, pull-processing, "skip-bleach" processing, etc.) may require more extreme adjustment from the LAD printing condition to attain desired results.

More information is contained in KODAK Publication H-61, *Laboratory Aim Density*, available online at: <http://www.kodak.com/US/en/motion/support/h61/>.

FILM-TO-VIDEO TRANSFERS

When you transfer the film directly to video, you can set up the telecine using KODAK Telecine Analysis Film (TAF) supplied by Eastman Kodak Company. The TAF consists of a neutral density scale and an eight-bar color test pattern with a LAD gray surround.

The TAF gray scale provides the telecine operator (colorist) with an effective way to adjust subcarrier balance and to center the telecine controls before timing and transferring a film. The TAF color bars provide the utility of electronic color bars, even though they do not precisely match the electronically generated color bars. Using the TAF will help obtain optimum quality and consistency in the film-to-video transfer. For more information regarding TAF, see KODAK Publication No. H-9, *TAF User's Guide*.

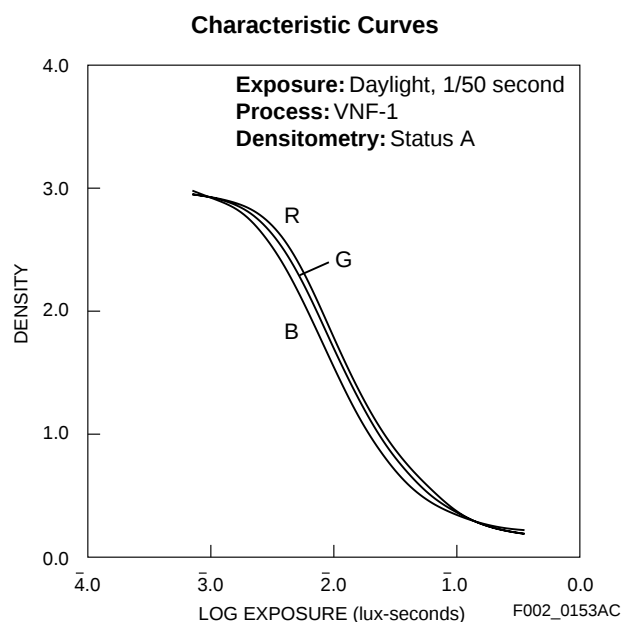
IMAGE STRUCTURE

The modulation-transfer and diffuse rms granularity curves were generated from samples of 7251 Film exposed with tungsten light and processed as recommended in Process VNF-1. For more information on image-structure characteristics, see KODAK Publication No. H-1, *KODAK Motion Picture Film* available on line at <http://www.kodak.com/US/en/motion/support/h1>

MTF

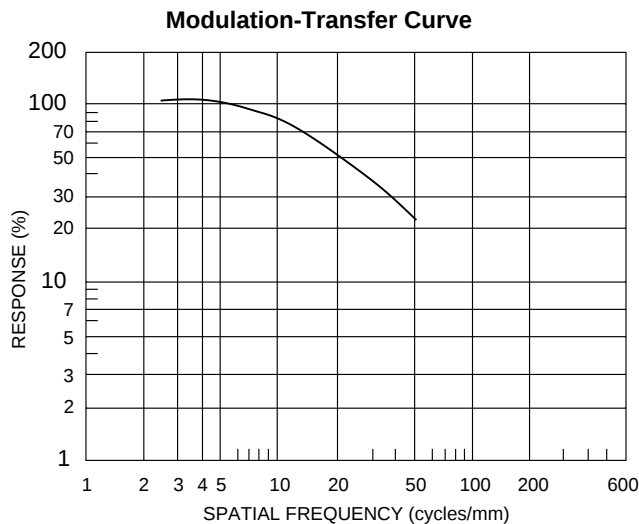
The "perceived" sharpness of any film depends on various components of the motion picture production system. The camera and projector lenses among other factors, all play a role. But the specific sharpness of a film can be measured and charted in the Modulation Transfer Curve.

CURVES



²Direct any inquiries to one of the regional sales offices.

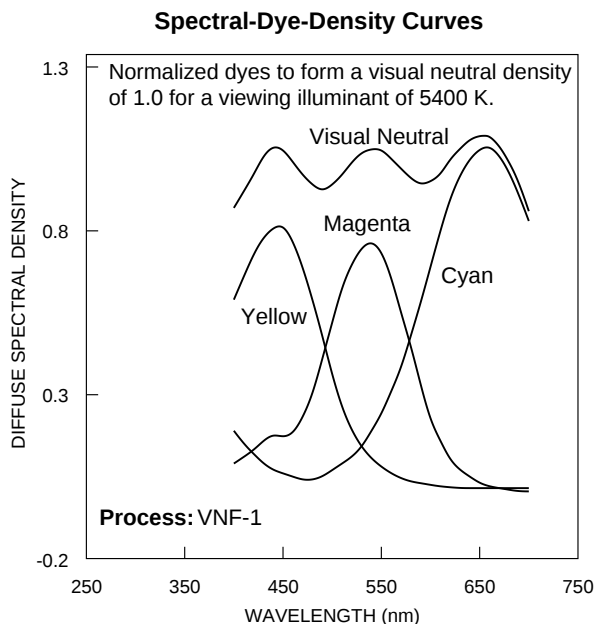
³Use of the LAD Control Method is described in the paper, "A Simplified Motion-Picture Laboratory Control Method for Improved Color Duplication," by John P. Pytlak and Alfred W. Fleischer in the October 1976 SMPTE Journal.



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This graph shows a measure of the visual sharpness of the film. The x-axis, "Spatial Frequency", refers to the number of sine waves per millimeter that can be resolved. The y-axis, "Response", corresponds to film sharpness. The longer and flatter the line, the more sine waves per millimeter that can be resolved with high degree of sharpness, and the sharper the film is.

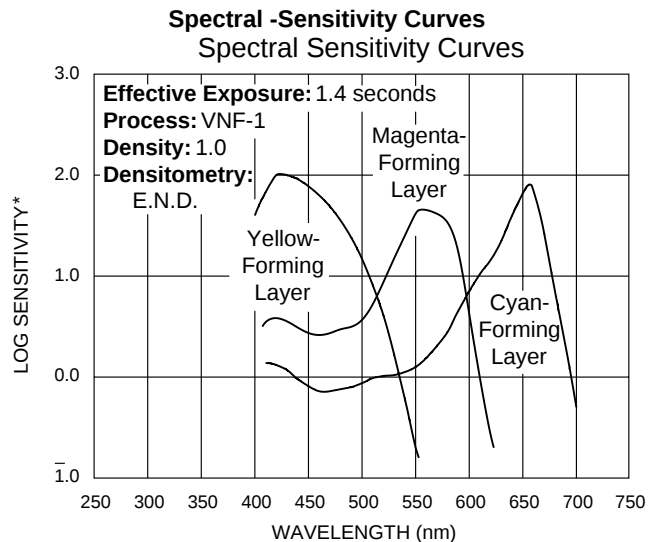
Note: These photographic modulation-transfer values were determined by using a method similar to the one described in ANSI/PIMA Standard IT9.39-1998. The film was exposed with the specified illuminant to spatially varying sinusoidal test patterns having an aerial image modulation of a nominal 35 percent at the image plane, with processing as indicated. In most cases, the photographic modulation-transfer values are influenced by development-adjacency effects and are not equivalent to the true optical modulation-transfer curve of the emulsion layer in the particular photographic product.



Processing exposed color film produces cyan, magenta, and yellow dye images in the three separate layers of the

film. The spectral dye density curves indicate the total absorption by each color dye measured at a particular wavelength of light and the visual neutral density at (1.0) of the combined layers measured at the same wavelengths.

The wavelengths of light, expressed in nanometers (nm) are plotted on the x-axis, and the corresponding diffuse spectral densities are plotted on the y-axis.



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

These curves depict the sensitivity of this film to the spectrum of light. They are useful for adjusting optical printers and film recorders, and for determining, modifying, and optimizing exposure for blue-and green-screen special-effects work.

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.

STANDARD PRODUCTS AVAILABLE

Format and Specification No.	Length Meters (Feet)	Core	Perforation/Pitch Metric (Imperial)
16 mm EVN434	137 (450)	S-153 400-ft. spool	2R-7620 (2R-3000)
16 mm VXD430	30 (100)	R-90 100-ft. spool	2R-7620 (2R-3000)
16 mm VXD434	122 (400)	S-153 400-ft. spool	2R-7620 (2R-3000)

MORE INFORMATION

Outside the United States and Canada, please contact your Kodak representative.

You can also visit our web site at www.kodak.com/go/motion for further information.

You may want to bookmark our location so you can find us easily the next time.

Films	<i>Cinematographer's Field Guide</i> KODAK Publication No. H-2
Image Structure	<i>KODAK Motion Picture Film</i> KODAK Publication No. H-1
Specification Numbers	<i>Cinematographer's Field Guide</i> KODAK Publication No. H-2
Storage	<i>KODAK Motion Picture Film</i> KODAK Publication No. H-1 <i>The Book of Film Care</i> KODAK Publication No. H-23
LAD	<i>LAD—Laboratory Aim Density</i> KODAK Publication No. H-61
Transfer	<i>KODAK Telecine Analysis Film User's Guide</i> KODAK Publication No. H-822 <i>KODAK Telecine Exposure Calibration Film User's Guide</i> KODAK Publication No. H-807

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Kodak Locations

FOR DIRECT ORDERING IN THE UNITED STATES
AND CANADA: **1-800-621-FILM**

CHICAGO, ILLINOIS

Information: 630-910-4929

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Information: 972-346-2979

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6700 Santa Monica Boulevard
Los Angeles, California
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