

KODAK VISION3 250D Color Negative Film 5207 / 7207 / SO-207

Kodak

TECHNICAL DATA / COLOR NEGATIVE FILM

April 2009 • H-1-5207t

KODAK VISION3 250D Color Negative Film 5207/7207 incorporates the attributes of the VISION3 technology into a medium-speed, daylight-balanced emulsion. VISION3 250D Color Negative Film retains the overall look of KODAK VISION2 Films with proprietary advanced Dye Layering Technology (DLT) which provides a grain reduction in the shadow regions.

VISION3 250D Film also features extended highlight latitude, in excess of two stops, enabled by the use of sub-micron imaging sensors. When the film is scanned and digitized, you will discover an increased ability to recover detail from highlight regions.

VISION3 250D Film fits seamlessly into a digital workflow. When scanning low-light scenes, VISION3 250D Film yields higher signal-to-noise ratios. This is due to the under-exposure grain improvement in the red and green color records. In the under-exposure region, this translates to cleaner blacks and cleaner shadows with less noise in the shadows.

BASE

KODAK VISION3 250D Color Negative Films 5207 and 7207 have an acetate safety base with rem-jet backing.

KODAK VISION3 250D Color Negative Film SO-207 has an ESTAR Safety Base with rem-jet backing

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* and No. H-23, *The Book of Film Care*.

EXPOSURE INDEXES

Daylight (5500K): 250

Tungsten (3200K): 64 (with KODAK WRATTEN2 Gelatin Filter 80A)

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.

EXPOSURE TABLE - DAYLIGHT ILLUMINATION

At 24 frames per second (fps), 180-degree shutter opening:

Lens Aperture	f/1.4	f/2	f/2.8	f/4	f/5.6	f/8	f/11	f/16
Footcandles Required	10	20	40	80	160	320	640	1250

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 1/2 stop less exposure; dark colors require 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

You do not need to make any filter corrections or exposure adjustments for exposure times from 1/1000 of a second to 1 second. If your exposure is in the 10-second range, it is recommended that you increase your exposure by a stop and use a KODAK Color Compensating Filter CC10R.

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 *	Exposure Index
Daylight (5500 K)	None	250
Tungsten (3000 K)	WRATTEN Gelatin No. 80A	64
Tungsten (3200 K)	WRATTEN Gelatin No. 80A	64
Tungsten photoflood (3400 K)	WRATTEN Gelatin No. 80B	80
White-Flame Arcs	Color Compensating CC30Y + CC05C	200
Yellow-Flame Arcs	Color Compensating CC10B + CC20C	160
OPTIMA 32	WRATTEN Gelatin No. 80A	64
VITALITE	None	250
Fluorescent, Cool White †	Color Compensating CC30M + CC10Y	125
Fluorescent, Deluxe Cool White †	Color Compensating CC20B	160
Metal Halide	None	250

* These are approximate corrections only. Make final corrections during printing.

† These are starting-point recommendations for trial exposures. If the kind of lamp is unknown, a KODAK Color Compensating Filter CC20M + CC10B can be used with an exposure index (EI) of 125.

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

DARKROOM RECOMMENDATIONS

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

PROCESSING

Process in Process ECN-2.

Most commercial motion-picture laboratories provide a processing service for these films. See KODAK Publication No. H-24.07, *Processing KODAK Color Negative Motion Picture Films, Module 7* available online at www.kodak.com/go/h24, for more information on the solution formulas and the procedure for machine processing these films. There are also pre-packaged kits available for preparing the processing solutions. For more information, see KODAK Publication No. H-333, *Using KODAK Kit Chemicals in Motion Picture Film Laboratories*, available online at www.kodak.com/go/h333.

IDENTIFICATION

After processing, the product code numbers 5207 (35 mm), 7207 (16 mm), or SO-207 (16, 35, and 65 mm; edgeprint shows 0207) emulsion, roll, and strip number identification, KEYCODE Numbers, and manufacturer/film identification code (EN) are visible along the length of the film.

FILM-TO-TAPE TRANSFERS

When transferring the film directly to tape, in order to capture the proper dynamic range, it is highly recommended that the telecine is setup utilizing Kodak VISION3 Telecine Analysis Film, 5219 (TAF) available through Eastman Kodak Company. The TAF consists of a neutral density scale and an eight-bar color test pattern with a 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-tape transfer. For more information regarding TAF, see KODAK Publication No. H-9, *TAF User's Guide*.

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 available through Eastman Kodak Company.¹ 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,² 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

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

2. Use 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.

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://motion.kodak.com/US/en/motion/Support/Technical_Information/Lab_Tools_And_Techniques/lad.htm.

IMAGE STRUCTURE

The modulation-transfer and diffuse rms granularity curves were generated from samples of 5207 Film exposed with daylight illumination and processed as recommended in Process ECN-2 chemicals. For more information on image-structure characteristics, see KODAK Publication No. H-845, *The Essential Reference Guide for Filmmakers*, available online at http://motion.kodak.com/US/en/motion/Support/Technical_Information/Essential_reference_guide/index.htm.

Modulation Transfer Function

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

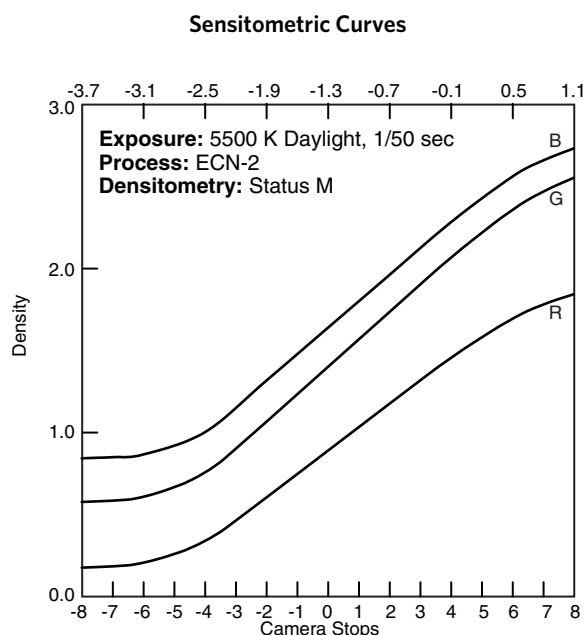
rms Granularity:

Refer to curve.

Read with a microdensitometer, (red, green, blue) using a 48-micrometer aperture.

The "perception" of the graininess of any film is highly dependent on scene content, complexity, color, and density. Other factors, such as film age, processing, exposure conditions, and telecine transfer may also have significant effects.

CURVES

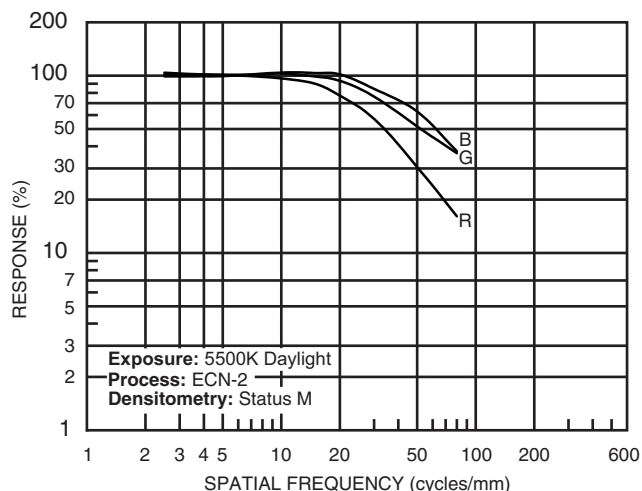


The curves describe this film's response to red, green, and blue light. Sensitometric curves determine the change in density on the film for a given change in log exposure.³

Note: The exposure scale for VISION3 250D Film is longer than previous VISION and VISION2 Films. Because of the extended highlight latitude, we expanded the exposure scale from a zero to four increment to a zero to five scale. In addition to the longer exposure scale, we are plotting twenty-one steps instead of twenty.

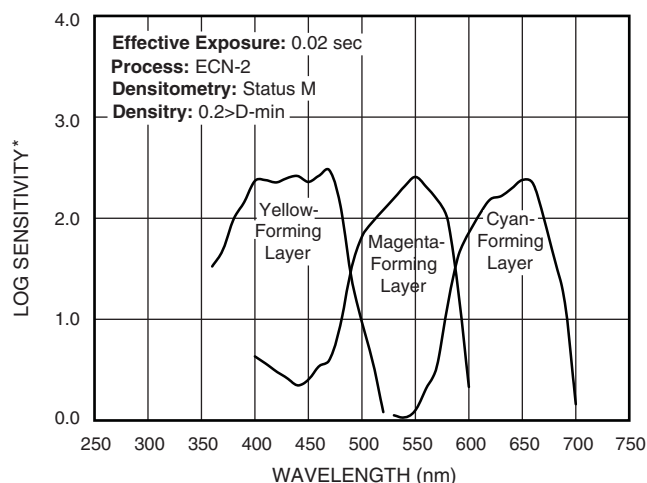
NOTICE: The sensitometric curves and data in this publication represent product tested under the conditions of exposure and processing specified. They are representative of production coatings, and therefore do not apply directly to a particular box or roll of photographic material. They do not represent 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.

Modulation-Transfer Function Curves



This graph shows a measure of the visual sharpness of this 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 a high degree of sharpness—and, the sharper the film.

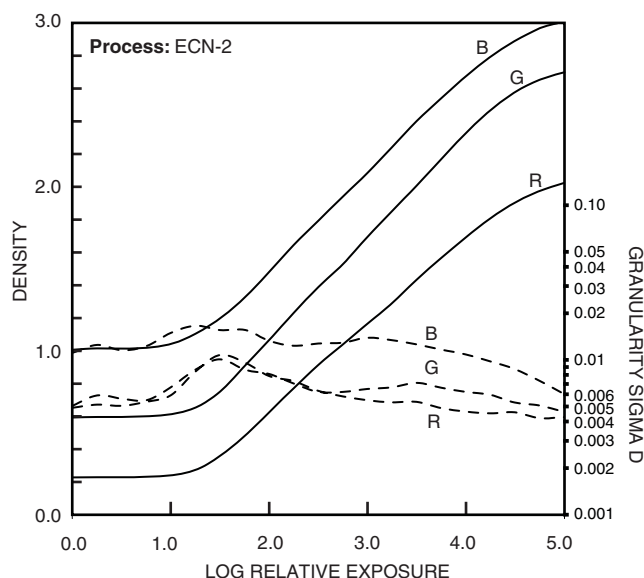
Spectral Sensitivity Curves



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

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

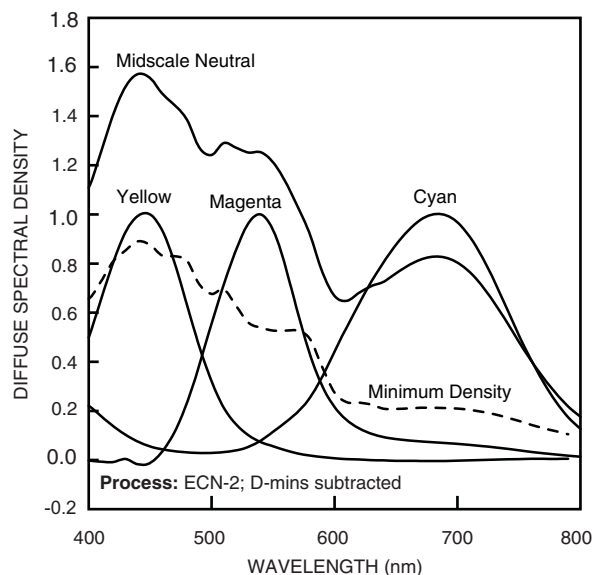
Diffuse rms Granularity Curves



To find the rms Granularity value for a given density, find the density on the left vertical scale and follow horizontally to the characteristic curve and then go vertically (up or down) to the granularity curve. At that point, follow horizontally to the Granularity Sigma D scale on the right. Read the number and multiply by 1000 for the rms value.

Note: This curve represents granularity based on modified measuring techniques.³

Spectral Dye Density Curves



These curves depict the spectral absorptions of the dyes formed when the film is processed. They are useful for adjusting or optimizing any device that scans or prints the film.

Note: Cyan, Magenta, and Yellow Dye Curves are peak-normalized.

3. Sensitometric and Diffuse RMS Granularity curves are produced on different equipment. A slight variation in curve shape may be noticed.

SIZES AVAILABLE

Standard Products Available

Identification No.	Length in Metres (Feet)	Core	Description	Perforations
65 mm SP332	305 (1000)	P	Emulsion In	KS-4740 (KS-1866)
35 mm SP718	61 (200)	U		BH-4740 (BH-1866)
35 mm SP718	122 (400)	U		BH-4740 (BH-1866)
35 mm SP718	305 (1000)	U		BH-4740 (BH-1866)
16 mm SP430	30 (100)	R-90		2R-7620 (2R-3000)
16 mm SP455	30 (100)	R-90	Winding B	1R-7605 (1R-2994)
16 mm SP445*	61 (200)	A-MINIMA	Emulsion out. See footnote.	1R-7605 (1R-2994)
16 mm SP434	122 (400)	S-153		2R-7620 (2R-3000)
16 mm SP457	122 (400)	T	Winding B	1R-7605 (1R-2994)
16 mm SP578	122 (400)	S-153		2R-7605 (2R-2994)
16 mm SP458	244 (800)	Z	Winding B	2R-7605 (2R-2994)

*for AATON A-MINIMA Cameras

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

KODAK SHOOTSAVER Film Delivery Service (U.S. only) 1-800-404-2016

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KODAK VISION3 250D Color
Negative Film 5207 / 7207 / SO-207
KODAK Publication No. H-1-5207t

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New 4-09
Printed in U.S.A.