EASTMAN EXR Color Print Film 5386™ / 7386™ / 2386™ /E / 3386™ /E

DESCRIPTION

EASTMAN EXR Color Print Film is designed for making projection-contrast prints from camera-original color negatives, duplicate negatives, and internegatives made from color-reversal originals. This film has extended range tone reproduction, excellent sharpness, fine-grain, superior color reproduction, and excellent dye stability. Advantages to the laboratory include significant improvements in latent-image keeping (less change in color balance if delays are encountered between printing and processing), reciprocity (better match between answer prints and high-speed released prints), and process sensitivity (better consistency, even with varying process conditions).

BASE

Color Print Films 5386 and 7386 have a clear triacetate safety base with rem-jet backing. Films 2386 and 3386 have an ESTAR safety base with rem-jet backing.

DARKROOM RECOMMENDATIONS

Carefully make safelight tests before proceeding with production work. Use low-intensity tungsten illumination or a sodium-vapor lamp with a KODAK 8 Safelight Filter / dark yellow. The sodium-vapor lamp provides the best visual efficiency with the least visual effect on the film. In the processing area, handle the film under safelight until after the stop bath.

STORAGE

Store *unexposed* film at 13˚C (55˚F) or below, or, for extended storage, at -18˚C (0˚F) or lower. Process *exposed* film promptly. Store *processed* film at 21 to 24˚C (70 to 75˚F) at 50 to 60 percent relative humidity for short-term or "active" storage. This recommendation refers more to optimizing handling than storage, and the films should be returned to the appropriate medium- or long-term storage after use. 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, store at 2˚C (35˚F) or lower at a relative humidity of 20 to 30 percent.

For more information about long-term storage, see ANSI IT9.11-1992, and KODAK Publications H-1, *KODAK Motion Picture Film,* and H-23, *The Book of Film Care.*

COLOR BALANCE

This film is balanced for exposure with tungsten illumination. You can use additive or subtractive printing methods with preprint materials that have colored-coupler masking.

RECIPROCITY

You do not need to make any exposure or filter adjustments for exposure times from 1/2500 to 1 second.

PROCESSING

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 Publication No. H-24, *Manual for Processing KODAK Motion Picture Films,* Module 9, Process ECP-2B Specifications for more information on the solution formulas and the procedures for machine processing these films.

IDENTIFICATION

After processing, the words "EASTMAN 386 Safety Film" are visible along the length of the film.

LABORATORY AIM DENSITY (LAD) CONTROL METHOD

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 the Laboratory Aim Density (LAD) Control Film supplied by Eastman Kodak Company. 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,* the electronic color anlyzer 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.

---

* 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. Also refer to KODAK Publication No. H-61, *LAD—Laboratory Aim Density.*

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 (1.0 Equivalent Neutral Density) for viewing the illuminant for which the print is intended. The Status A density aim for each color using a Xenon-Arc Balance is:

Red	Green	Blue
1.10	1.06	1.03

For duplicating films, the specified aims are at the center of the usable straight-line portion of the sensitometric curve of the film.

FILM-TO-VIDEO TRANSFER

When you transfer the film directly to video, you can set up the telecine with a Telecine Analysis Film produced on EASTMAN Color Print Film. The Telecine Analysis Film (TAF) consists of a neutral density scale and an eight-bar color test pattern with an LAD 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, see KODAK Publication No. H-822, *KODAK Telecine Analysis Film User's Guide.*

PRINTING CONDITIONS

Pictorial Printing: If you use an additive-type printer, such as a Bell and Howell Printer, Model C, to print originals made on EASTMAN Color Negative Films, use the following: a 1000-watt lamp (80 V dc), a KODAK WRATTEN Gelatin Filter No. 2B (mounted between clear glass), a KODAK Heat Absorbing Glass, No. 2043, a printer speed of 180 feet (54.9 metres) per minute, and the printer settings in the table below.

Beam	Trim	Neutral-Density Filter	Tape
Red	15	0.20	25
Green	15	0.50	25
Blue	15	0.60	25

You can also expose this film with a subtractive printer such as a Bell and Howell Printer, Model J, with a KODAK WRATTEN Gelatin Filter No. 2B, a KODAK Heat Absorbing Glass, No. 2043, and suitable color-balancing filters.

Sound-Track Printing: You can obtain a variable-area positive sound track of silver plus dye on this film from a negative sound track made on EASTMAN EXR Sound Recording Film 2378 / 3378 / 5378 / 7378 and KODAK Panchromatic Sound Recording Film 2374. Expose only the top two emulsion layers by inserting KODAK WRATTEN Gelatin Filters No. 2B* and No. 12 in the light beam. The optimum variable-area sound-track density for the print is between 1.1 and 1.8 (read at 800 nm). You can achieve excellent frequency response and a high signal-to-noise ratio in this density range. Use cross-modulation test procedures† to determine the density of the sound-track negative required to produce minimum cross-modulation distortion at the optimum print density.

This film is also designed for a variable area positive sound track of silver plus magenta dye only, printed from a negative sound track on EASTMAN EXR Sound Recording Film 2378 / 3378 / 5378 / 7378 and KODAK Panchromatic Sound Recording Film 2374. Expose only the top emulsion layer by using a filter pack in the light beam comprised of KODAK WRATTEN Gelatin Filter No.12 plus KODAK Color Compensating Filter 110 Cyan, or by using a filter pack in the light beam comprised of a green dichroic filter (500 nm to 600 nm). The optimum variable area sound track density for the print lies between 0.8 and 1.1 (read at 800 nm). This print density will provide a good compromise between signal-to-noise ratio and frequency response. Determine the density of the sound track negative required to produce optimum print density by using recognized cross-modulation test procedures. This silver plus magenta dye only sound track can be read by both an infrared reader, and a red LED reader, with about the same cross-modulation distortion.

IMAGE STRUCTURE

The modulation-transfer curve, the diffuse rms granularity, and the resolving power data were generated from samples of 5386 Film exposed with tungsten light and processed as recommended in Process ECP-2B chemicals. For more information on image-structure characteristics, see KODAK Publication No. H-1, *KODAK Motion Picture Film.*

Diffuse RMS Granularity* 6

Resolving	TOC 1.6:1	250 lines/mm
Power†	TOC 1000:1	630 lines/mm

* Read at a net diffuse visual density of 1.0, using a 48-micrometre aperture.

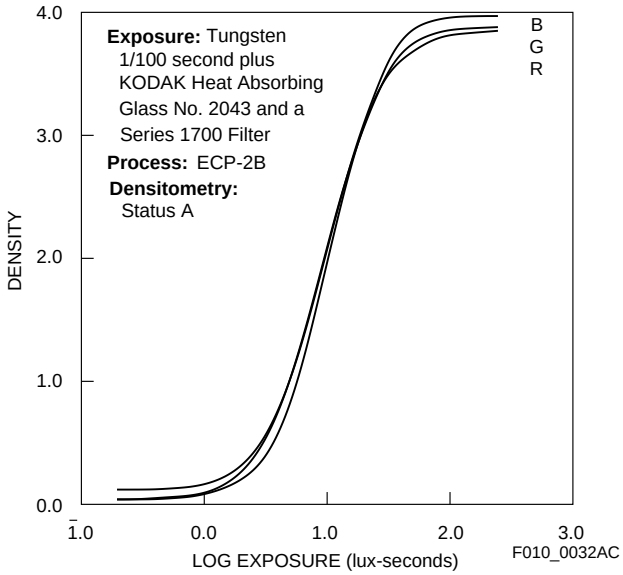
† Determined according to a method similar to the one described in ISO 6328-1982, *Photography—Photographic Materials—Determination of ISO Resolving Power.*

---

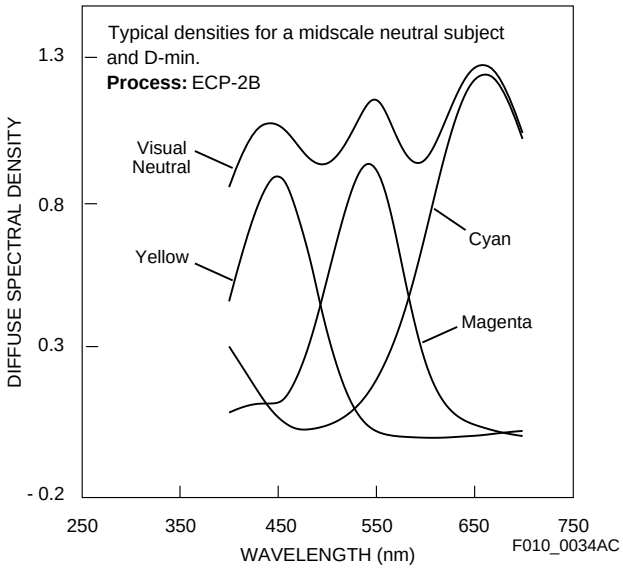
* You can omit the No. 2B Filter without affecting the sound quality. Using this filter is an operational convenience to conform with printer setups for other products that require it.

† J.O. Baker and D.H. Robinson, "Modulated High-Frequency Recording as a Means of Determining Condiitons for Optimal Processing," SMPE Journal, 30:3-17, January 1938, or RP 104, "Cross-Modulation Tests for Variable-Area Photographic Sound Tracks," SMPTE Journal, January 1981.

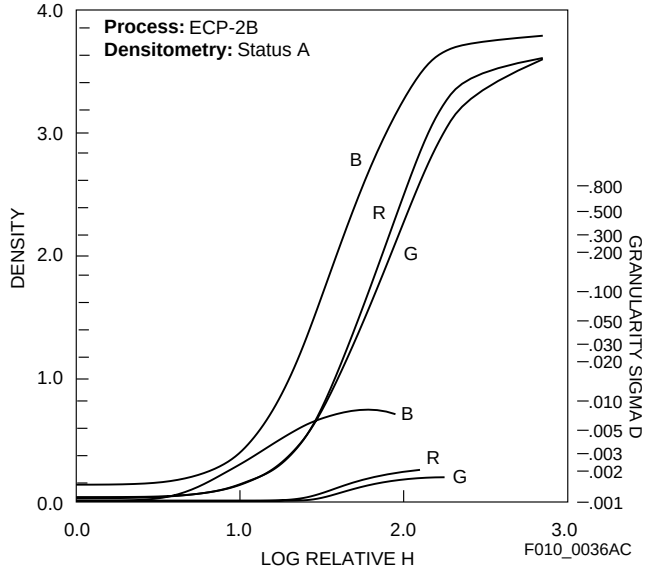
Characteristic Curves



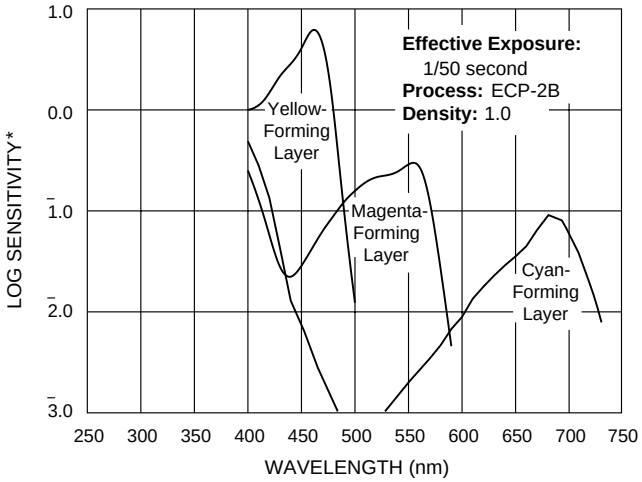
Spectral-Dye-Density Curves



Diffuse RMS Granularity Curves



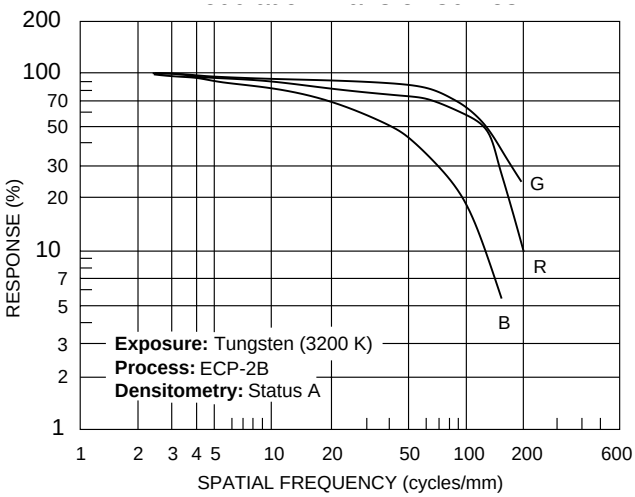
Spectral-Sensitivity Curves



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

F010_0033AC

Modulation-Transfer Curves



F010_0035AC

These photographic modulation-transfer values were determined by using a method similar to the one described in ANSI Standard PH2.39-1977(R1990). 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, these 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

Notice: While the data presented are typical of production coatings, they do not represent standards which must be met by Kodak. Varying storage, exposure, and processing conditions will affect results. The company reserves the right to change and improve product characteristics at any time.

AVAILABLE ROLL LENGTHS

For information on film roll lengths, check Kodak's *Professional Motion Imaging Price Catalog* or contact Kodak in your country.

KODAK LOCATIONS

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

ATLANTA, GEORGIA

4 Concourse Parkway
Suite 300
Atlanta, Georgia 30328-6105
Information: 800-800-8398

CHICAGO, ILLINOIS

815 West Van Buren, Suite 320
Chicago, Illinois 60607
Information: 312-492-1423

DALLAS, TEXAS

11337 Indian Trail
Dallas, Texas 75229
Information: 972-481-1170
312-492-1423

HOLLYWOOD, CALIFORNIA

6700 Santa Monica Boulevard
P. O. Box 38939
Hollywood, California 90038-1203
Information: 323-464-6131

NEW YORK, NEW YORK

360 West 31st Street
New York, New York 10001-2727
Information: 212-631-3450

LATIN AMERICAN REGION

8600 NW 17th Street, Suite 200
Miami, Florida 33126
Information: 305-507-5656

FOR DIRECT ORDERING IN CANADA:
1-800-621-FILM

MONTREAL, CANADA

Kodak Canada Inc.
4 Place du Commerce, Suite 100
1le des Soeurs
Verdun, Quebec, Canada, H3E 1J4
Information: 514-761-7001

TORONTO, CANADA

Kodak Canada Inc.
3500 Eglinton Avenue West
Toronto, Ontario, Canada, M6M 1V3
Information: 416-761-4922

VANCOUVER, CANADA

Kodak Canada Inc.
4185 Still Creek Drive, Suite C150
Burnaby, British Columbia, Canada, V5C 6G9
Information: 604-570-3526

KODAK On Line At:
http://www.kodak.com/go/motion

Professional
Motion Imaging

EASTMAN EXR Color Print Film
5386™ / 7386™ / 2386™ /E / 3386™ / E
KODAK Publication No. **H-1-5386**
CAT 876 2817

Minor Revision 2/99
Printed in U.S.A.