EASTMAN Fine Grain Duplicating Positive Film 2366 / 3366

Kodak

TECHNICAL DATA / **BLACK-AND-WHITE INTERMEDIATE FILM**

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EASTMAN Fine Grain Duplicating Positive Film 2366 (35mm) and 3366 (16mm)is a low-speed duplicating film intended for making master positives from black-and-white camera negatives which, when printed onto EASTMAN Fine Grain Duplicating Panchromatic Negative Film 5234 and 7234, produces duplicate negatives that are only distinguishable from the originals by skilled observers. This blue-sensitive black-and-white film has very high resolution and incorporates a yellow dye, which is removed during processing, to provide very high acutance.

BASE

2366 and 3366 Films have a clear ESTAR safety base. The back side of the base contains an anti-static layer with a carnauba wax lubricant.

DARKROOM RECOMMENDATIONS

Handle unprocessed film in total darkness. If necessary, you can examine the film for *less than one minute*, using the following safelight combination: a 15-watt bulb and KODAK OC Safelight Filter (greenish-yellow), no closer than 1.2 metres (4 feet) to the film.

STORAGE

Store unexposed film at 55°F (13°C) or lower. For extended storage, store it at 0°F (-18°C) or below. Process exposed film promptly. Store processed film at 70°F (21°C) or lower at a relative humidity of 40 to 50 percent for normal commercial storage; for long-term storage, store it at 35 to 50°F (2 to 10°C) at 15 to 30% relative humidity. For more information on long-term storage, see KODAK Publications No. H-845, *The Essential Reference Guide for Filmmakers*.

EXPOSURE

For laboratories with subtractive printers, such as a Bell & Howell Model D Printer, these recommendations should be helpful as a starting point. Use a 500-watt tungsten lamp operating with a diffuser at a lamp setting of 75 volts. With a printer speed of 90 feet per minute and a diaphragm setting of 15, satisfactory master positives should be produced from original negatives of average density. (The maximum density of the negative image should produce a density of about 0.6 to 0.8 in the master positive, i.e., just above the lower end of the straight-line portion of the characteristic curve.)

Recommended Control Gamma

2/3366 Film should be developed to a recommended control gamma of 1.20 to 1.60 (Status M Densitometry with a blue filter).

IDENTIFICATION

After processing, the product code number 2/3366, emulsion and roll number identification, and internal product symbol (D) are visible along the length of the film.

PROCESSING

The following process recommendations should be used as starting points for a typical continuous-immersion processing machine using formulas presented in KODAK Publication No.H-24.15, Manual for Processing EASTMAN Motion Picture Films, Module 15. The processing times may require modification for a particular machine.

Processing Step	Temperature	Time	Replenishment Rate (mL per 100 min)	
			35 mm	16 mm
KODAK Developer D-96*	70 +-1/2°F (21 +-0.3°C)	†	1,250 (D-96R)	625 (D-96R)
Stop Rinse‡	70 +-2°F (21 +-1°C)	50 sec	12,000	6,000
KODAK Fixing Bath F-5*	70 +-2°F (21 +-1°C)	11 min	850	425
Wash (counter - current)	70 +-2°F (21 +-1°C)	10 min	12,000	6,000
Dry	95°F(35°C)	§		

* Agitation in the developer and fixing bath should be by recirculation through submerged spray jets that impinge on the film strands.
† Develop to recommended control gamma of 1.2 to 1.6.
‡ Countercurrent flow of fixer-laden water overflow from the wash tank, pH about 6.
§ Many factors affect the drying: air temperature, relative humidity (RH); volume, rate and distribution of the air flow; final squeegeeing, etc.

In a conventional convection-type drying cabinet with air at about 95°F (35°C) and 40 to 50 percent RH, drying will take 15 to 20 minutes. With an impingement-type drying cabinet, however, with a higher temperature and lower RH, drying time is greatly reduced. With either type of dryer, the film should be dry without tackiness 1/2 to 2/3 of the way through. Upon cooling to room temperature after leaving the dryer, the film should be in equilibrium with the room air at approximately 50 percent RH.

IMAGE STRUCTURE

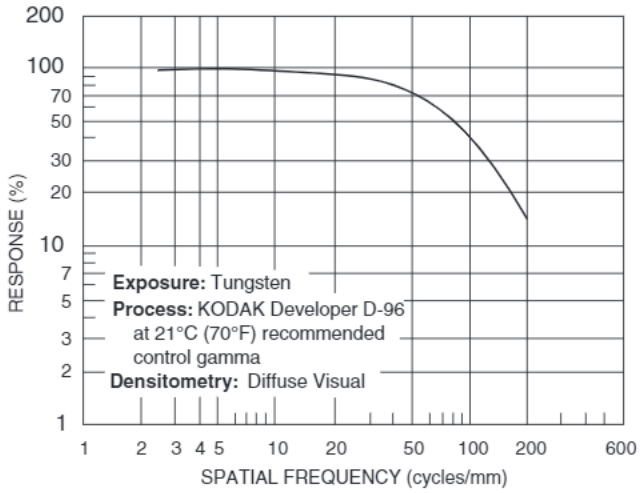
The modulation-transfer curves, the diffuse rms granularity, and the resolving-power data were generated from samples of 2/3366 Film exposed with tungsten light and processed as recommended in Process D-96 at 70°F (21°C) to the recommended control gamma. For more information on image-structure characteristics, see KODAK Publication No H-845, The Essential Reference Guide for Filmmakers.

Diffuse RMS Granularity	9
Resolving Power	100 lines/mm (TOC 1.6:1)
	200 lines/mm (TOC 1000:1)

* 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.

CURVES

Modulation Transfer Curve



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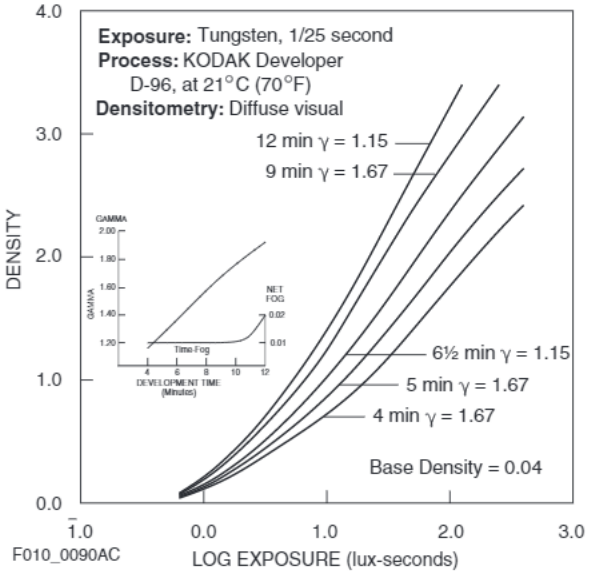
Note: These photographic modulation-transfer values were determined by using a method similar to the one described in ANSI Standard PH2.39-1977 (R1990). The film was exposed with the specified illuminant to spatially varying sinusoidal test patterns having an aerial image modulation of a nominal 60 percent 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.

Characteristic Curves



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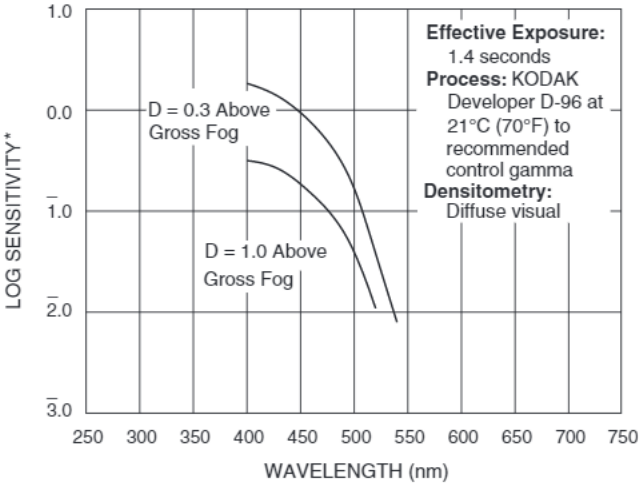
Spectral Sensitivity Curve



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

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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.

AVAILABLE ROLL LENGTHS

For information on film roll lengths, check Kodak's Professional Motion Imaging Price Catalog or see a Kodak sales representative in your country.

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.

H-2	*Cinematographer's Field Guide* www.kodak.com/go/fieldguide
H-845	*The Essential Reference Guide for Filmmakers* www.kodak.com/go/referenceguide
H-24	*Manual for Processing KODAK Motion Picture Films, Process ECP--2D Specifications, Module 9A* www.kodak.com/go/h24
H-606	*KODAK Telecine Tool Kit and Reference Manual* www.kodak.com/go/telecine

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