



EASTMAN Fine Grain Release Positive Film 5302™ / 7302™

DESCRIPTION

EASTMAN Fine Grain Release Positive Film 5302 (35 mm) and 7302 (16 mm) is a low-speed, high-resolution print film. This blue-sensitive black-and-white film is designed for general release printing. It is also useful for making both positive and negative titles, and dubbing prints for sound.

BASE

This film has a clear acetate safety base with anti-static protection, and a base thickness of 5.6 mils. In addition, 7302 Film has an anti-curl layer applied to the base.

DARKROOM RECOMMENDATIONS

Use a KODAK OA Safelight Filter / greenish yellow, with a 15-watt bulb, no closer to the film than 1.2 metres (4 feet).

STORAGE

Store *unexposed film* at 13°C (55°F) or lower. For extended storage, store at -18°C (0°F) or below. Process exposed film promptly. Store *processed film* according to the recommendations in NAPM IT9.11-1992: for medium-term storage (minimum of ten years), store at 25°C (77°F) or lower at a relative humidity of 20 to 50 percent; for extended-term storage (for preservation of material having permanent value), store at 21°C (77°F) or lower at a relative humidity of 20 to 50 percent; for extended-term storage (for preservation of material having permanent value), store at 21°C (70°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 NAPM IT9.11-1992, and KODAK Publications H-1, *KODAK Motion Picture Film*, and H-23, *The Book of Film Care*.

PRINTING CONDITIONS

You can make satisfactory prints using negatives of average density if run on a continuous additive printer (such as a Bell & Howell Model C) at 180 feet per minute, equipped with a 1000-watt lamp at 80 volts dc (85 volts for 35 mm) and a ground glass in the beam. Typical starting-point printer settings are as follows:

Beam	Trim Setting		Tape Setting	
	16 mm	35 mm	16 mm	35 mm
Red	17	21	32	24
Green	17	21	32	24
Blue	17	21	32	24

For laboratories with subtractive printers, such as a Bell & Howell Model J, use the following starting-point recommendations for 16 mm film: 1000-watt lamp at 55 volts dc and a printer speed of 62 feet per minute. For 35 mm films with a Bell & Howell Model D Printer, use these starting-point recommendations: 500-watt lamp at 75 volts dc and 90 feet per minute. For both 16 and 35 mm setups, use a neutral density filter (such as the KODAK WRATTEN Neutral Density Filter, No. 96) with a density of 0.50 in the beam and a diaphragm setting of 13.

SOUND-TRACK PRINTING

A variable-area positive silver sound track can be printed on 5302 / 7302 Film from a negative sound record on EASTMAN EXR Sound Recording Film 5378™ / 7378™. The optimum variable-area sound-track density for the print lies between 1.2 and 1.4, measured visually for both 16 and 35 mm films. This print density is chosen to provide a good compromise between signal-to-noise ratio and frequency response. The densities of the sound-track negatives required to produce optimal print densities are determined by using recognized cross-modulation test procedures.

PROCESSING

Use the following process recommendations as starting points for a typical continuous-immersion processor 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 °C (°F)	Time (min:sec)	Replenishment Rate (mL per 100 ft)	
			35 mm	16 mm
KODAK Developer D-97*	21 ± 0.3 (70 ± 0.5)	†	650 (D-97R)	325 (D-97R)
Stop Rinse‡	21 ± 1 (70 ± 2)	0:50	12,000	6,000
KODAK Fixing Bath F-5*	21 ± 1 (70 ± 2)	6:00	600	300
Wash (countercurrent)	21 ± 1 (70 ± 2)	10:00	12,000	6,000
Dry	35 (95)	§	—	—

* Agitation in the developer and in the fixing bath should be by recirculation through submerged spray jets that impinge on the film strands.

† Develop to the recommended control gamma of 2.4 to 2.6 Status M Densitometry (Blue).

‡ Fixer-laden water overflow from the first wash tank (pH approximately 6.0).

§ Drying depends on many factors such as air temperature, relative humidity (RH), volume, rate and distribution of the air flow, final squeezeing, etc. In a conventional convectional-type drying cabinet with air at about 35°F (95°C) and 40- to 50-percent RH, drying will take 15 to 20 minutes. In 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 $\frac{1}{2}$ to $\frac{2}{3}$ of the way through. Upon cooling to room temperature after leaving the dryer, the film should be at equilibrium with the room air at approximately 50-percent RH.

Notice: Observe precautionary information on product labels and on Material Safety Data Sheets.

LUBRICATION

All films destined for projection require some lubrication to prevent problems during early projection life. Edge waxing with a paraffin wax solvent solution provides a simple, inexpensive, and adequate lubrication for 35 and 70 mm projection prints. For 8 and 16 mm prints, an overall lubricant may be required.

IMAGE STRUCTURE

The modulation-transfer curves, the diffuse rms granularity, and the resolving power data were generated from samples of 5302 Film exposed with tungsten light and processed as recommended in KODAK Developer D-97 at 21°C (70°F) to the recommended control gamma. For more information on image-structure characteristics, see KODAK Publication No. H-1, *KODAK Motion Picture Film*.

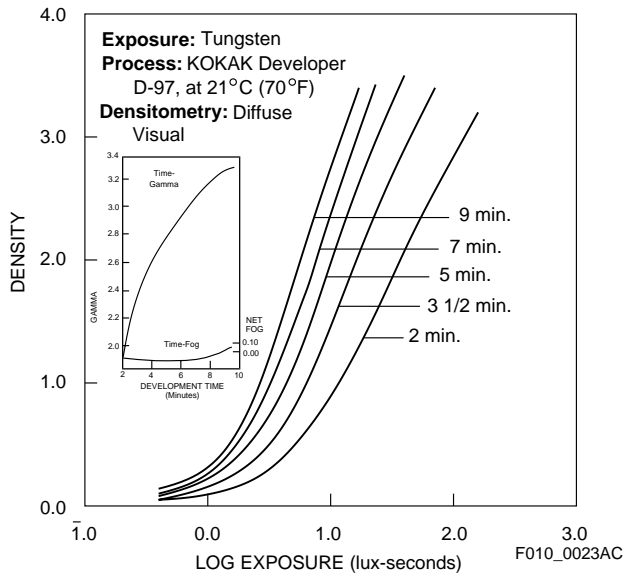
Diffuse RMS Granularity* 8

Resolving Power†	TOC 1.6:1	63 lines/mm
		TOC 1000:1

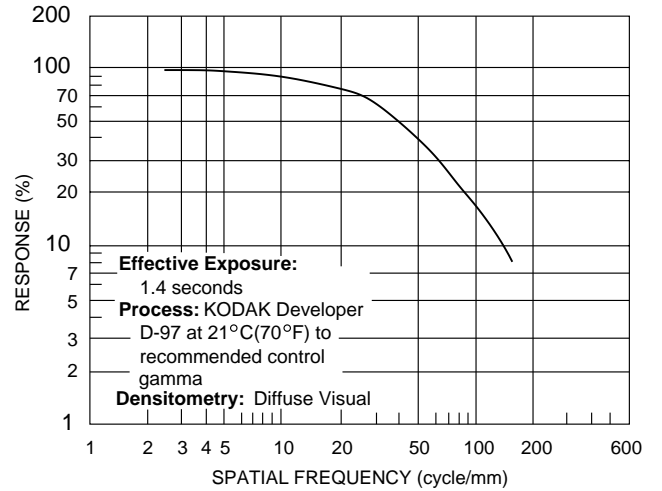
* Read at a net diffuse visual density of 1.0, using a 48-micrometre aperture.

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

Characteristic Curves



Modulation-Transfer Curve

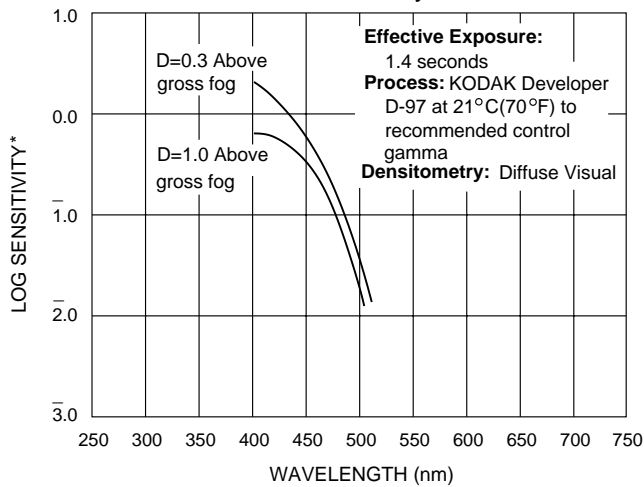


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Notice: While the data presented are typical of production coatings, they do not represent standards which must be met by Kodak. Varying storage, exposure, and processing conditions will affect results. The company reserves the right to change and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

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, 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.

Spectral-Sensitivity Curves



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

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KODAK LOCATIONS

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FOR DIRECT ORDERING IN CANADA:
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Kodak Canada Inc.
4 Place du Commerce, Suite 100
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Verdun, Quebec, Canada, H3E 1J4
Information: 514-761-7001

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

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Kodak Canada Inc.
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Burnaby, British Columbia, Canada, V5C 6G9
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