EASTMAN Color High Speed Daylight Negative Film 5297, 7297

1) Description

EASTMAN Color High Speed Daylight Negative Film 5297 (35 mm) and 7297 (16 mm) is a high-speed color-negative camera film that yields accurate tone reproduction. Its wide latitude makes it suitable for photography under very low-level illumination.

You can expose this film without filters both indoors and outdoors by using daylight illumination, HMI lights, and mixtures of natural and artificial light. You can also expose it to tungsten light with filters. The emulsion contains a colored-coupler mask to achieve good color reproduction in release prints. This film has very high sharpness, fine grain, and high resolving power.

2) Base

EASTMAN Color High Speed Daylight Negative Films 5297 and 7297 have a clear acetate safety base with rem-jet backing.

3) Darkroom Recommendations

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

4) 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 according to the recommendations in NAPM IT9.11-1992. For short-term or "active" storage, room temperature of 70 to 75 F (21 to 24 C) at 50 to 60 percent relative humidity is adequate. This recommendation relates more to optimizing handling rather than storage, and the film should be returned to appropriate medium or long term storage after usage. For medium-term storage (minimum of ten years), store at 50 F (10 C) or lower at a relative humidity of 20 to 30 percent. For extended-term storage (for preservation of material having permanent value), store at 35 F (2 C) or lower at a relative humidity of 20 to 30 percent.


5) Exposure Indexes

Daylight (5500K) - 250/25 Tungsten (3200 K) - 64/19

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.

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1With a KODAK WRATTEN Gelatin Filter No. 80A.
6) **Color Balance**

These films are balanced for daylight. Use the correction filters in the table below if you use other light sources.

<table>
<thead>
<tr>
<th>Light Source</th>
<th>KODAK Filters on Camera ¹</th>
<th>Exposure Index/DIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tungsten (3000 K)</td>
<td>WRATTEN Gelatin No. 80A</td>
<td>64/19</td>
</tr>
<tr>
<td>Tungsten (3200 K)</td>
<td>WRATTEN Gelatin No. 80A</td>
<td>64/19</td>
</tr>
<tr>
<td>Tungsten photoflood (3400 K)</td>
<td>WRATTEN Gelatin No. 80A</td>
<td>64/19</td>
</tr>
<tr>
<td>Daylight (5500 K)</td>
<td>None</td>
<td>250/25</td>
</tr>
<tr>
<td>White-Flame Arcs</td>
<td>Color Compensating20Y +10C</td>
<td>160/23</td>
</tr>
<tr>
<td>Yellow-Flame Arcs</td>
<td>WRATTEN Gelatin No. 80C</td>
<td>80/20</td>
</tr>
<tr>
<td>Optima 32</td>
<td>WRATTEN Gelatin No.80A</td>
<td>64/19</td>
</tr>
<tr>
<td>Vitalite</td>
<td>None</td>
<td>250/25</td>
</tr>
<tr>
<td>Fluorescent, Cool White ²</td>
<td>Color Compensating20M</td>
<td>200/24</td>
</tr>
<tr>
<td>Fluorescent, Deluxe Cool White ²</td>
<td>WRATTEN Gelatin No. 82C</td>
<td>200/24</td>
</tr>
<tr>
<td>Metal Halide</td>
<td>None</td>
<td>250/25</td>
</tr>
</tbody>
</table>

¹ These are approximate corrections only. Make final corrections during printing.

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 160/23.

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

7) **Exposure Table—Daylight Illumination**

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

<table>
<thead>
<tr>
<th>Lens Aperture</th>
<th>f/1.4</th>
<th>f/2</th>
<th>f/2.8</th>
<th>f/4</th>
<th>f/5.6</th>
<th>f/8</th>
<th>f/11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Footcandles Required</td>
<td>10</td>
<td>20</td>
<td>40</td>
<td>80</td>
<td>160</td>
<td>320</td>
<td>630</td>
</tr>
</tbody>
</table>

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.

8) Reciprocity Characteristics
You do not need to make any filter corrections or exposure adjustments for exposure times from 1/10,000 to 1/10 second. At an exposure time of 1 second, use a KODAK Color Compensating Filter CC10Y and increase the exposure by 1/2 stop.

9) Processing
Most commercial motion-picture laboratories provide a processing service for these films. See KODAK Publication No. H-24, Manual for Processing EASTMAN Color Films, Process ECN-2 Specifications, Module 7, for more information on the solution formulas and the procedures for machine processing these films. There are also pre-packaged kits available for preparing the processing solutions. For more information on the EASTMAN ECN-2 Kit Chemicals, check Kodak’s Motion Picture Films for Professional Use price catalog.

10) Identification
After processing, the product code numbers 5297 (35 mm) or 7297 (16 mm), emulsion and roll number identification, KEYKODE numbers, and internal product symbol (C) are visible along the length of the film.

11) Laboratory Aim Density (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. 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 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.

12) Film-To-Video Transfers
When you transfer the film directly to video, you can set up the telecine using the negative 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

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2 Direct any inquiries to one of the regional sales offices.
3 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.
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.

13) Image Structure

The modulation-transfer curves, the diffuse rms granularity, and the resolving-power data were generated from samples of 5297 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-1, EASTMAN Professional Motion Picture Films.

**rms Granularity**

Less than 5

**Resolving Power**

<table>
<thead>
<tr>
<th>ISO RPL</th>
<th>50 lines/mm</th>
<th>(TOC 1.6:1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISO RP</td>
<td>100 lines/mm</td>
<td>(TOC 1000:1)</td>
</tr>
</tbody>
</table>

14) Available Roll Lengths

For information on film roll lengths, check Kodak's Motion Picture Films for Professional Use price catalog or see a Kodak sales representative in your country.

15) Graphs

MTF

a) (6-86)

**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, 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.

**Characteristic**

b) (6-86)

**Spectral Sensitivity**

c) (6-86)

**Spectral Dye Density**

d) (6-86)

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4 Read with a microdensitometer, (red, green, blue) using a 48-micrometre aperture.
5 Determined according to a method similar to the one described in ISO 6328-1982, Photography—Photographic Materials—Determination of ISO Resolving Power.
6 NOTICE: While the data presented are typical of production coatings, they do not represent standards that 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.
NOTE: The Kodak materials described in this publication for use with EASTMAN Color High Speed Daylight Negative Film 5297 and 7297 are available from dealers who supply Kodak products. You can use other materials, but you may not obtain similar results.

The contents of this publication are subject to change without notice.

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Professional Motion Imaging
EASTMAN KODAK COMPANY - Rochester, NY 14650

End of Data Sheet
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No ink. While the data presented are typical of production samples, they do not represent standards which must be met by Eastman Kodak Company. Varying storage, exposure and processing conditions will affect results. The company reserves the right to change and improve product characteristics at any time.
EASTMAN Color High Speed Daylight Negative Film 5297/2297
Typical densities for a Midscale Neutral Subject and D min;
Process EON-2

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