# KODAK PROFESSIONAL ENDURA Transparency and Clear Digital Display Materials

*The Attraction is Undeniable.*

KODAK PROFESSIONAL ENDURA Transparency Digital Display Material and KODAK PROFESSIONAL ENDURA Clear Digital Display Material are designed for making large backlit display transparencies from color negatives or internegatives. They are ideal for producing tradeshow displays, point of purchase materials, and indoor transit displays for airports and subways.

Both materials feature a strong, tear-resistant 7-mil ESTAR Thick Base with good splicing characteristics. KODAK PROFESSIONAL ENDURA Transparency Digital Display Material has a white-pigmented base, which provides built-in diffusion for use on illuminators without built-in diffusers. KODAK PROFESSIONAL ENDURA Clear Digital Display Material is a clear-base material designed for use on illuminators that have built-in diffusers.

These products are intended for digital exposure devices. For optical exposure, use KODAK PROFESSIONAL ENDURA Transparency Optical Display Material or KODAK PROFESSIONAL ENDURA Clear Optical Display Material and refer to KODAK Publication E-4030.

Use KODAK EKTACOLOR RA Chemicals for Process RA-4 to process this material. With appropriate changes in transport speed and solution replenishment rates, this product can be intermixed with other KODAK PROFESSIONAL ENDURA Papers and Display Materials.

| FEATURES | BENEFITS |
|---|---|
| • Ease of use | • Fewer calibration cycles |
| • New emulsion technology | • High quality prints and high productivity<br>• Excellent latent image keeping from 5 seconds to 24 hours<br>• Consistent results and easier print matching across digital and optical systems |
| • Reduced text fringing | • Sharper text that remains neutral regardless of D-max |
| • Advanced color coupler technology | • Brighter, more saturated colors, especially blues, cyans, purples, yellows and greens<br>• Wider color gamut<br>• Accurate color reproduction, consistent results<br>• Deep, rich blacks; uniform high D-max<br>• Higher contrast for more vibrant prints |
| • Separate optical and digital products | • Optimized performance for each application |
| • Robust processing characteristics | • Less sensitivity to process variations caused by image-density variations, bleach-fix contamination, and changes in product mix or processor utilization<br>• Simplified calibration<br>• Clean process; reduced processor maintenance<br>• Less sensitivity to bleach-fix pH<br>• Reduced operating costs<br>• True 110-second development time |
| • Reduced developer replenishment rates | • Less effluent<br>• Less frequent mixing<br>• Lower processing costs<br>• Lower environmental impact |
| • State-of-the-art image stability | • Improved permanence for both light and heat exposure<br>• Long-lasting image performance |
| • Antihalation coating on non-emulsion side | • Improved sharpness<br>• Higher readability |
| • Improved post-process robustness | • No color shift with overlaminates and adhesives |

## SIZES AVAILABLE

### KODAK PROFESSIONAL ENDURA Transparency Digital Display Material

| CAT No. | Rolls cm x m (in. x ft.) | Spec No. |
|---|---|---|
| 869 6270 | 50.8 x 30.5 (20 x 100) | 901 |
| 184 1832 | 50.8 x 30.5 (20 x 100) | 902 |
| 807 2878 | 76.2 x 30.5 (30 x 100) | 901 |
| 882 3106 | 81.3 x 30.5 (32 x 100) | 901 |
| 850 9846 | 101.6 x 30.5 (40 x 100) | 901 |
| 827 6370 | 106.7 x 30.5 (42 x 100) | 901 |
| 824 3909 | 127.0 x 30.5 (50 x 100) | 901 |
| 148 5622 | 127.0 x 50.0 (50 x 164) | 901 |
| 811 7657 | 182.9 x 30.5 (72 x 100) | 901 |

### KODAK PROFESSIONAL ENDURA Clear Digital Display Material

| CAT No. | Rolls cm x m (in. x ft.) | Spec No. |
|---|---|---|
| 898 6861 | 76.2 x 30.5 (30 x 100) | 901 |
| 865 6274 | 101.6 x 30.5 (40 x 100) | 901 |
| 184 6088 | 127.0 x 30.5 (50 x 100) | 901 |

## STORAGE AND HANDLING

Store unprocessed materials at 13°C (55°F) or lower in the original sealed package. High temperatures or high humidity may produce unwanted print quality changes.

To avoid moisture condensation on material that has been refrigerated, allow it to warm up to room temperature before opening the package. For best results, remove the material from cold storage the day before you use it, or allow it to warm up for the appropriate time from the following table:

| Warm-Up Times (Hours) to Reach Room Temperature of 21°C (70°F) | | | |
|---|---|---|---|
| Size (in. x ft) | From a Storage Temperature of | | |
| | -18°C (0°F) | 2°C (35°F) | 13°C (55°F) |
| 20 x 100 | 8 hours | 7 hours | 4 hours |
| 30 x 100 | 10 hours | 8 hours | 5 hours |
| 20 x 100 | 11 hours | 9 hours | 6 hours |
| 50 x 100 | 12 hours | 10 hours | 7 hours |

## DARKROOM RECOMMENDATIONS

Handle these materials carefully to avoid kink marks and fingerprints.

Handle these materials in *total darkness*. Be sure that your printing and processing darkrooms are lighttight. Eliminate any stray light from equipment in the darkroom.

**Note:** Using a safelight *will* affect your results. These materials are very sensitive to safelights; sensitometric shifts can occur before you observe any changes in D-min.

## EXPOSURE

KODAK PROFESSIONAL ENDURA Transparency and Clear Digital Display Materials have been optimized to produce prints through digital exposing devices.

### Digital Exposing Equipment

These materials are optimized for the short exposure times used with digital writers.

This material may be exposed to the following types of digital printers (but not limited to):

- Durst Lambda and Epsilon Printers
- Oce Lightjet Printers
- Polieletronica LASERLab Printer
- ZBE Chromira Printer

**Durst Lambda Printer calibration data (at 200 dpi):**

| KODAK PROFESSIONAL ENDURA Digital Display Material | D-max | Basic Calibration (Starting Values) |
|---|---|---|
| Transparency | R = 320<br>G = 325<br>B = 325 | Y = 90.0<br>M = 58.0<br>C = 0.0<br>D = 89.0 |
| Clear | R = 275<br>G = 280<br>B = 275 | Y = 103.0<br>M = 53.0<br>C = 0.0<br>D = 60.0 |

**Durst Lambda Plus Printer calibration data (at 200 dpi):**

| KODAK PROFESSIONAL ENDURA Digital Display Material | D-max | Basic Calibration (Starting Values) |
|---|---|---|
| Transparency | R = 310<br>G = 315<br>B = 315 | Y = 81.25<br>M = 47.77<br>C = 0.0<br>D = 99.56 |
| Clear | R = 260<br>G = 270<br>B = 270 | Y = 106.0<br>M = 52.0<br>C = 0.0<br>D = 72.7 |

**Durst Epsilon Printer calibration data (at 200 dpi):**

| KODAK PROFESSIONAL ENDURA Digital Display Material | D-max | Basic Calibration (Starting Values) |
|---|---|---|
| Transparency | R = 295<br>G = 295<br>B = 295 | Y = 0.195<br>M = 0.224<br>C = 0.0<br>D = 0.722 |
| Clear | R = 250<br>G = 255<br>B = 250 | Y = 0.277<br>M = 0.350<br>C = 0.0<br>D = 0.398 |

**ZBE Chromira:**

| KODAK PROFESSIONAL ENDURA Digital Display Material | D-max | Basic Calibration (Starting Values) |
|---|---|---|
| Transparency | R = 3.10<br>G = 3.15<br>B = 3.30 | Y = -25<br>M = 46<br>C = 0<br>D = 0 |
| Clear | R = 2.60<br>G = 2.50<br>B = 2.70 | Y = 0<br>M = 81<br>C = 28<br>D = 13 |

**Oce Lightjet 5000, 430, and 500XL calibration data:**

Calibration targets must be downloaded from the Oce Imaging ftp site located at:**http://www.cymbolic.com**

## PROCESSING

KODAK EKTACOLOR Chemicals for Process RA-4 are required. Do not use chemicals designed for Process EP-2.

Process these materials in roller-transport processors capable of handling the ESTAR Thick Base. Processing recommendations are the same as for KODAK PROFESSIONAL Papers, however the speed must be adjusted to provide a 1 minute 50 second development time and a 1 minute 50 second bleach/fix time. Replenishment rates are higher for these materials than for KODAK PROFESSIONAL Papers.

## POST-PROCESS TREATMENTS

### Retouching

KODAK PROFESSIONAL ENDURA Transparency and Clear Digital Display Materials are easily spotted or retouched using standard retouching techniques. Do not use opaque retouching materials. See KODAK Publication E-70, *Retouching Prints on KODAK EKTACOLOR and EKTACHROME Papers*.

## Laminating Prints

You can laminate prints made with KODAK PROFESSIONAL ENDURA Transparency and Clear Digital Display Materials.

**Note:** Many municipalities have adopted as part of their local fire codes the National Fire Protection Association (NFPA) 701-1999 *Standard Methods of Fire Tests for Flame Propagation of Textiles and Films*, which applies to plastic films used for decorative or other purposes inside buildings. To comply with this standard, you must protect displays using any of these plastic films.

We strongly recommend that you take one or both of the following measures to protect all large displays, especially if the material is displayed in a public area:

- Fully enclose the materials in a light box or an illuminator.
- Frame and laminate the materials to a non-combustible mounting board, wall, glass, or1/4-inch or thicker polycarbonate, e.g., Lexan, support.

Other standards covering the burning characteristics of these products may apply to markets outside the U.S. Check with the appropriate local agency. Do not use these materials as backdrop displays in theaters.

For more information, see CIS-37, *Combustion of KODAK Films, Resin-Coated Photographic Papers, and Print and Display Materials*.

## VIEWING

These materials are intended specifically for transmission viewing. When the transparency is viewed by reflected light, it should appear darker than a normal reflection print.

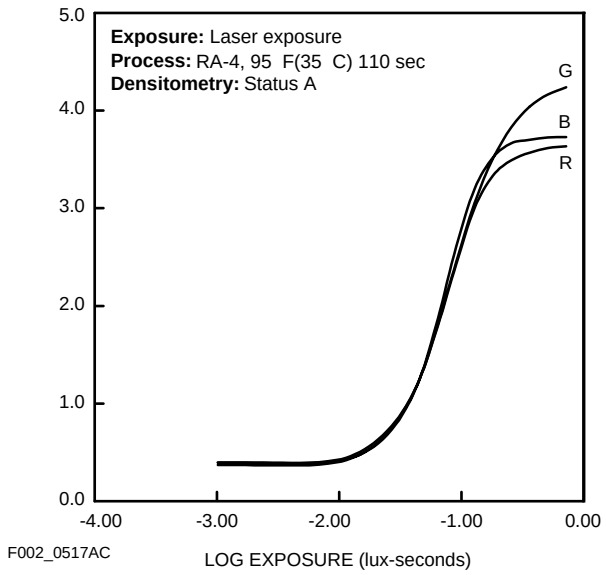
The degree of density will depend on the amount of light behind the transparency. Too much light will adversely affect the transparency quality by reducing the D-max and shadow densities excessively, resulting in a low-contrast image. With some illuminators, it may be necessary to use some neutral density or reduce the number of bulbs.

Color balance of the display transparency will depend on the color of the light source. A Color Rendering Index (CRI) of 90 or higher generally will give acceptable results. For best results, use cool white deluxe fluorescent bulbs.

For critical evaluation, use an illuminator that meets ANSI Standard PH2.30-1985.

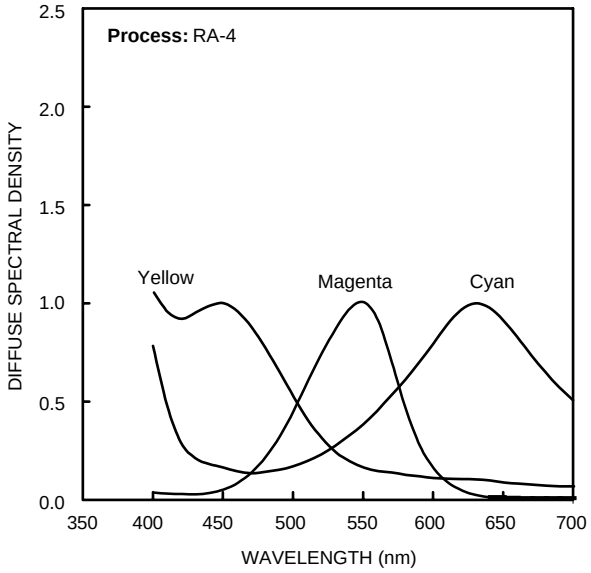
## CURVES

**Characteristic Curves:**
**KODAK PROFESSIONAL ENDURA Transparency Digital Display Material**

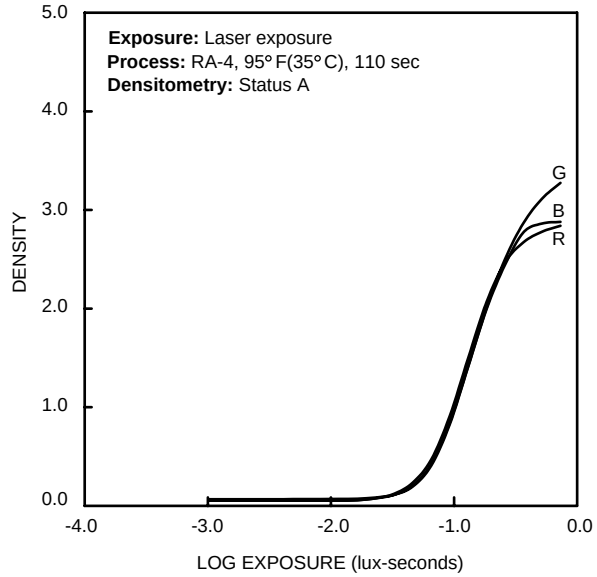



F002_0517AC

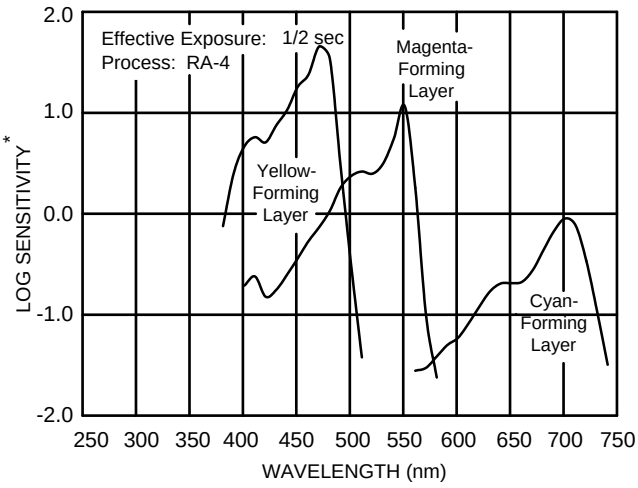
**Spectral-Dye-Density Curves**




**Characteristic Curves:**
**KODAK PROFESSIONAL ENDURA Clear Digital Display Material**




**Spectral-Sensitivity Curves**




*Sensitivity = reciprocal of exposure (erg/cm) required

F009_0518AC

**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.

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## MORE INFORMATION

Kodak has many publications to assist you with information on Kodak products, equipment, and materials.

Additional information is available on the Kodak website.

The following publications are available from dealers who sell Kodak products, or you can contact Kodak in your country from more information.

| | |
|---|---|
| E-30 | *Storage and Care of KODAK Photographic Materials—Before and After Processing* |
| E-70 | *Retouching Prints on KODAK EKTACOLOR and EKTACHROME Papers* |
| E-190 | *KODAK PROFESSIONAL PORTRA Films* |
| E-71 | *Retouching Color Negatives* |
| E-176 | *Post-Processing Treatment of Color Prints—Effects on Image Stability* |
| J-39 | *Tray, Drum, and Rotary-Tube Processing with KODAK EKTACOLOR RA Chemicals* |
| K-4 | *How Safe is Your Safelight?* |
| Z-130 | *Using KODAK EKTACOLOR RA Chemicals* |

For the latest version of technical support publications for KODAK PROFESSIONAL Products, visit Kodak on-line at:
**http://www.kodak.com/go/professional**

If you have questions about KODAK PROFESSIONAL Products, call Kodak.
In the U.S.A.:
1-800-242-2424, Ext. 19, Monday–Friday
9 a.m.–7 p.m. (Eastern time)
In Canada:
1-800-465-6325, Monday–Friday
8 a.m.–5 p.m. (Eastern time)

**Note:** The Kodak materials described in this publication for use with KODAK PROFESSIONAL ENDURA Transparencyand Clear Digital Display Materials are available from dealers who supply KODAK PROFESSIONAL Products. You can use other materials, but you may not obtain similar results.

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