KODAK PROFESSIONAL ENDURA
Premier Paper

Kodak

KODAK PROFESSIONAL ENDURA Premier Paper is a fast, resin-coated multilayer paper for making color prints from digital camera files, files from scanned negatives, and film negatives in both portrait and commercial applications.

KODAK PROFESSIONAL ENDURA Premier Paper features a larger color gamut, natural-looking flesh tones, improved D-min, a higher D-max capability, and improved fringing properties, providing improved workflow agility. Like other KODAK PROFESSIONAL ENDURA Papers and Materials, ENDURA Premier Paper features state-of-the-art image stability.

ENDURA Premier Paper is available in E (fine-grained, lustre), F (glossy), N (smooth matt), and Y (silk) surfaces in roll formats. E and Y surfaces are backprinted with "KODAK PROFESSIONAL ENDURA Do Not Copy" for visible copyright protection. F and N surfaces are available with and without backprint, varying by region. Surfaces, formats, and catalog numbers may differ from country to country.

Use KODAK EKTACOLOR Chemicals for Process RA-4 to process this paper.

FEATURES	BENEFITS
• Neutral tone scale—from highlights to shadows	• Accurate flesh tones
• Advanced color coupler technology	• Increased color gamut • Strong, vibrant colors: vibrant greens, blues, yellows and cyan
• Improved fringing properties	• Clean, sharp text
• Improved D-min	• Lighter in density • Clean-looking whites
• Improved D-max capability[*]	• Bold, rich blacks
• Improved latent-image keeping (for labs replacing KODAK PROFESSIONAL ULTRA ENDURA Paper)	• Commercial use now comparable to portrait/social performance
• Improved post-process finishing	• Ideal for photo books, albums, wraps, cards

FEATURES	BENEFITS
• State-of-the-art image stability[†]	• Over 100 years before noticeable fading in typical home display; over 200 years before noticeable fading in dark storage • 20 months for high-intensity commercial reflection display under 5000 lux

[*] Varies by printer manufacturer and model.
[†] Based on product application including specific light levels and temperature conditions; testing conducted as specified in ISO Publication 18909-2006, "Photography — Processed photographic colour films and paper prints — Methods for measuring image stability," including use of illustrative endpoint criteria of 30% dye fade.
In independent, long-term testing of KODAK PROFESSIONAL ENDURA Media against the previous generation of KODAK PROFESSIONAL Media, ENDURA Media was found to exhibit significantly improved image stability in terms of color balance and dye fade. These independent results confirmed the internal Kodak testing and, in fact, revealed that Kodak's published estimates concerning image longevity were conservative.[‡]
[‡] The Image Permanence Institute at the Rochester Institute of Technology.

STORAGE AND HANDLING

Store unprocessed paper between 40 and 75°F (4 and 24°C) in the original sealed package. High temperatures or high humidity may produce unwanted print quality changes.

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

Warp-Up Times (Hours) to Reach Room Temperature of 21°C (70°F)			
Size	From a Storage Temperature of		
	-18°C (0°F)	2°C (35°F)	13°C (55°F)
3 1/2-inch x 775-foot roll	8 hours	6 hours	4 hours
8-inch x 575-foot roll	10 hours	7 hours	4 hours
20-inch x 50-foot roll	6 hours	5 hours	3 hours
30-inch x 100-foot roll	8 hours	6 hours	4 hours
40-inch x 100-foot roll	9 hours	7 hours	5 hours

DARKROOM RECOMMENDATIONS

Handle unprocessed paper in total darkness. Be sure that your darkroom is lighttight. Eliminate stray light from timers, LEDs, etc.

Note: Using a safelight *will* affect your results. If *absolutely necessary*, you can use a safelight equipped with a KODAK 13 Safelight Filter (amber) with a 7 1/2-watt bulb. Keep the safelight at least 1.2 metres (4 feet) from the paper. Keep safelight exposure as short as possible. Run tests to determine that safelight use gives acceptable results for your application.

EXPOSURE

Digital Printing

You can expose KODAK PROFESSIONAL ENDURA Premier Paper with many types of digital printers. It performs well with the following Kodak digital printers:

- KODAK PROFESSIONAL LED Color Printer
- KODAK PROFESSIONAL LED II Printer 20P/20R
- KODAK PROFESSIONAL Digital Multiprinter
- KODAK PROFESSIONAL Digital Multiprinter II
- KODAK PROFESSIONAL LF CRT Color Printer
- KODAK PROFESSIONAL RP 30 Laser Printer
- KODAK PROFESSIONAL RR 30 Laser Printer
- KODAK PROFESSIONAL SRP 30 Laser Printer
- KODAK PROFESSIONAL RP 50 LED Printer

Initial conversion to this paper involves the recalibration of your printers. You will also need to download new aim files and ICC output profiles for this paper. For up-to-date starting values for Kodak digital printers and other manufacturers' equipment, refer to the following document (available at www.kodak.com/go/premier):

- Calibration Routines for KODAK PROFESSIONAL ENDURA Premier Paper, CIS-289

Color Management

ENDURA Premier Paper is optimized for printing in both internal and external color-managed, short exposure, digital workflows. Many digital printers have color-management capability built into their software. ENDURA Premier Paper is fully compatible with these printers.

Optical Printing

Expose KODAK PROFESSIONAL ENDURA Premier Paper in automatic printers and enlargers equipped with tungsten or tungsten-halogen light sources or photo enlarger lamps. Set up and balance the printer or enlarger according to manufacturer's instructions.

Do not use fluorescent lamps to expose this paper. Use a heat-absorbing glass to remove infrared radiation. Because voltage changes affect light output and color quality, use a voltage regulator.

Keep negatives and the equipment optical system clean. Mask negatives to eliminate stray light. You can use the white-light or tricolor exposure method.

Printer Setup

Update your printers by running your normal and slope printer control negatives to adjust printer slope. (See "Printer Control Tools.") This will optimize the print quality due to the improved reciprocity of these papers.

White-Light Exposure Method

Control color balance with dichroic filters built into the printer or enlarger, or with KODAK Color Printing (CP) Filters (Acetate) placed between the lamp and the negative. You can use any number of filters between the light source and the negative. If you use cyan filtration, use filters with the suffix "-2," (e.g. "CP10C-2"). Start with a filter pack of 40M + 50Y to make a test print

Tricolor Exposure Method

Use KODAK WRATTEN Gelatin Filters No. 25 (red), No. 99 (green), and No. 47B (blue) to give the paper three separate exposures. Do not move the paper or the enlarger until you have made all three exposures. Typical exposure times for making an enlargement from a normally exposed negative are given in the table below.

Filter	Times for an Aperture Setting of f/8[*] (8x Enlargement of a KODAK PROFESSIONAL PORTRA Film Negative)
Red	2.4 seconds
Green	3.3 seconds
Blue	4.9 seconds

[*] For an enlarger equipped with a Photo Enlarger Lamp No. 212 or No. 302; the setting may vary with other types of lamps.

LATENT-IMAGE KEEPING

Under normal conditions, you should not notice shifts in the latent image with keeping times from 5 seconds to 24 hours. Therefore, you do not need to change your printing procedures to compensate for latent-image shifts under normal temperature and handling conditions.

PROCESSING

Use KODAK EKTACOLOR RA Chemicals for Process RA-4, and use KODAK PROFESSIONAL Pro Strips Color Negative Paper Control Strips / for Process RA-4. (See "Process Control.")

Note: Although Kodak does not recommend Process RA-2SM for professional media, some customers may judge the results acceptable for certain applications. Customers should test the media to determine acceptability, as this process may provide warmer results than desired.

For detailed information on replenishment rates and processing this paper in continuous or roller-transport processors, see KODAK Publication No. Z-130, *Using KODAK EKTACOLOR RA Chemicals*. For information on processing this paper in trays or rotary-tube and drum processors, see KODAK Publication No. J-39, *Tray, Drum, and Rotary-Tube Processing with KODAK EKTACOLOR RA Chemicals*. Both publications are available through our website at www.kodak.com/go/photochemicalpubs.

Do not use drying temperatures above 93°C (200°F) to avoid damage to prints.

Underdrying can produce tackiness that tends to make paper stick when it is wound into rolls before cutting. *Overdrying* can cause curl and complicate transport in print finishing.

Do not ferrotype this paper—its surface dries to a natural gloss without ferrotyping.

PROCESS CONTROL

To produce high-quality color prints consistently and with a minimum of waste, you need to match your process to a standard for density, color, and contrast each time you process paper. In addition to monitoring process parameters such as solution times, temperature, replenishment rates, solution concentrations, etc., you should regularly run control strips to ensure best results.

KODAK PROFESSIONAL Pro Strips Color Negative Paper Control Strips / for Process RA-4 (CAT 129 8587) are designed specifically for use with KODAK PROFESSIONAL Papers and KODAK PROFESSIONAL Print and Display Materials in professional labs. These control strips are designed to detect process conditions that can degrade the quality of your finished prints. They are better able to track the papers that are processed in professional finishing laboratories.

For more information, see KODAK Publication No. Z-130, *Using KODAK EKTACOLOR RA Chemicals*, section 7a.

ILLUMINATION FOR EVALUATION OF PRINTS

Evaluation of prints for color and density requires higher illumination levels than those used in normal display conditions. A good average conditionfor evaluation is a light source with a color temperature of 5000 K ± 1000, a Color Rendering Index of 85 to 100, and an illuminance of at least 50 footcandles (538 lux). Fluorescent lamps such as cool white deluxe (made by several manufacturers) meet these conditions.

You can also use a mixture of incandescent and fluorescent lamps. For each pair of 40-watt cool white deluxe fluorescent lamps, use a 75-watt frosted, tungsten bulb.

Viewing conditions should meet ANSI Standard PH2.30-1989.

RETOUCHING

If possible, do any required retouching on color negatives before you make prints—especially if you plan to make more than one print from each negative. For information on retouching negatives, see KODAK Publication No. E-71, *Retouching Color Negatives*.

If the negative image is small, you can make corrections much more easily by applying dry or liquid dyes to small or large areas of the enlarged print. Although you'll probably do most retouching with dyes, you may sometimes want to use black lead, colored pencils, or opaque. Because color prints have separate dye layers, you can't use an etching knife to reduce density as you can with black-and-white materials. For information on retouching prints, see KODAK Publication No. E-70, *Retouching Prints on KODAK EKTACOLOR and EKTACHROME Papers*.

POST-PROCESS TREATMENTS

Mounting Prints

You can mount prints with dry mounting tissue. The temperature across the heating platen should be 82 to 93°C (180 to 200°F). Preheat the cover sheet that you use over the face of the print to remove moisture. Apply pressure for 30 seconds, or up to 3 minutes in the case of a thick mount.

Temperatures above 93°C (200°F) for long periods of time may cause physical and color changes in prints. Excessive moisture may also cause color shifts. Mounting at the lowest temperature at the shortest time will reduce these changes.

You can also use a contact-type adhesive or cement for cold-mounting.

For information on lacquering and other post-process treatments, see KODAK Publication No. E-176, *Post-Processing Treatment of Color Prints—Effects on Image Stability*.

SCANNER TOOLS

The KODAK Q-60 Color Input Targets are available on KODAK EKTACHROME Professional Film in both 35 mm and 4 x 5 inch formats and on KODAK EKTACOLOR Paper. Developed primarily for use by prepress houses in the printing industry, this target can also be used by professional photographers, desktop publishers, and in the emerging hybrid imaging area.

The target is designed for use in the commercial and desktop arenas as a comparative control tool to help customers calibrate their input product to the final output. This target maps the gamut of color space that KODAK EKTACHROME Film and EKTACOLOR Paper can reproduce.

When used properly, customers will be able to compare their output—whether it is separations for the printed page and four-color printing or second generation originals from a film recorder—to the original. This will help customers optimize the capabilities of their system for color reproduction of an extreme range of color gamut

Scanner color characterization targets produced in accordance with ANSI IT8.7/1 (transmission) and IT8.7/2 (reflection) Standards (or ISO 12641) are available from Kodak.

The KODAK PROFESSIONAL Q-60 Color Input Target / Q-60R2 is manufactured on KODAK PROFESSIONAL ENDURA Paper, and is likewise identified by a watermark with a single grey dot under PAPER. This target can be used with both the newer ENDURA Papers and older papers. The older Q-60R1 target, which has the same two-dot watermark as the older papers, can be used with the newer papers.
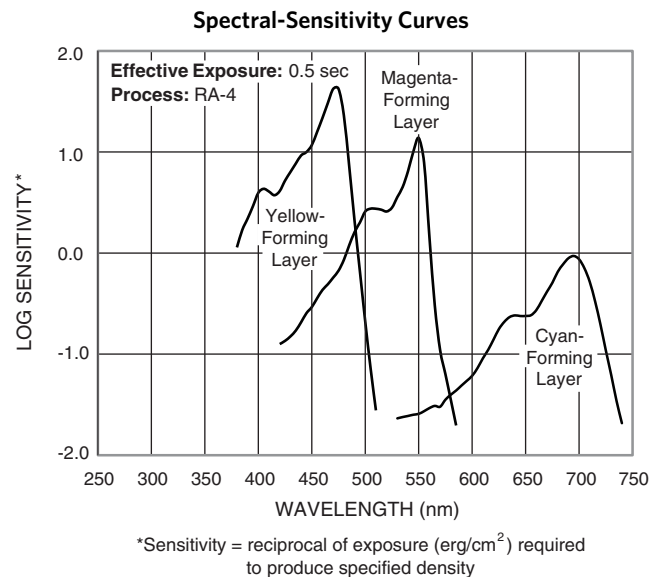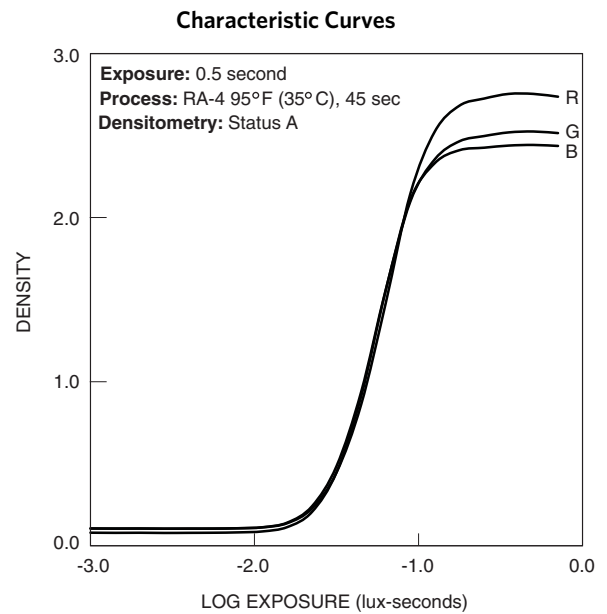
STORAGE AND DISPLAY OF PRINTS

KODAK PROFESSIONAL ENDURA Premier Paper has been formulated to provide excellent dye stability and print longevity for prints displayed under typical home lighting conditions, and typical home dark storage conditions.

Photographic dyes, like all dyes, can change with time and exposure to sunlight, ultraviolet radiation, excessive heat, and high humidity. To help prevent changes in photographic dyes, follow these guidelines:
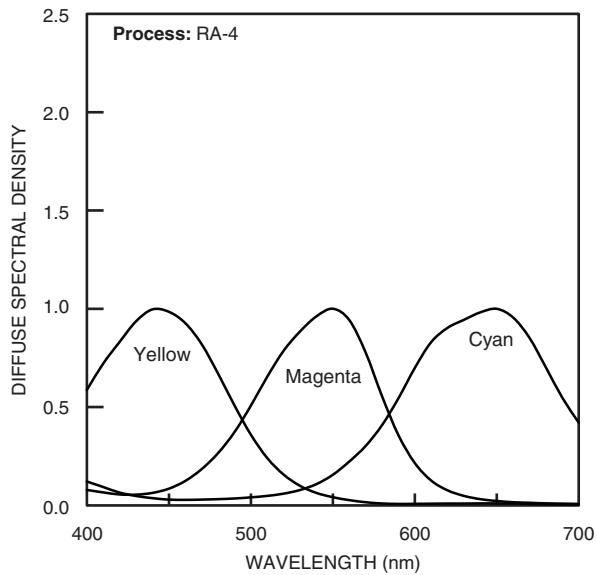
- Illuminate prints with tungsten light whenever possible.

- Display prints in the lowest light level consistent with your viewing needs.

- If a print is exposed to direct or indirect sunlight or fluorescent light, use an ultraviolet-absorbing filter (such as glass) between the light source and the print.

- If prints are displayed behind glass, maintain a slight separation between the print and the glass.

- Keep the temperature and humidity as low as possible.

- Use album materials described in KODAK Publication No. E-30, *Storage and Care of KODAK Photographic Materials—Before and After Processing*.

CURVES

Characteristic Curves

Exposure: 0.5 second
Process: RA-4 95°F (35°C), 45 sec
Densitometry: Status A

Spectral-Sensitivity Curves

Effective Exposure: 0.5 sec
Process: RA-4

Magenta-Forming Layer
Yellow-Forming Layer
Cyan-Forming Layer

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

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Spectral-Dye-Density Curves

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

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 and through the U.S.A./Canada faxback system.

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-4051	*KODAK PROFESSIONAL PORTRA 160 Film*
E-4050	*KODAK PROFESSIONAL PORTRA 400 Films*
E-4046	*KODAK PROFESSIONAL EKTAR 100 Film*
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*
Z-130	*Using KODAK EKTACOLOR RA Chemicals*

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

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 Premier Paper are available from dealers who supply KODAK PROFESSIONAL Products. You can use other materials, but you may not obtain similar results.

Paper and Output Systems
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Kodak