

# KODAK ROYAL Digital Paper



## TECHNICAL DATA / COLOR PAPER

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KODAK ROYAL Digital Paper is an exceptional state-of-the-art, silver-halide paper for making direct digital prints from digital files, as well as optical prints from color negatives. This paper delivers bold, saturated colors, state-of-the-art image stability, and is optimized to work well in both digital and optical imaging systems.

ROYAL Digital Paper is easily identified by its thicker support, which provides durability in handling, and by its distinctive gold “KODAK ROYAL Digital Paper” watermark.

This paper is available in rolls in F (glossy) and N (matte) surfaces. It is designed for processing in KODAK EKTACOLOR RA, KODAK EKTACOLOR PRIME, and KODAK EKTACOLOR PRIME LORR Chemicals for Process RA-4 or KODAK EKTACOLOR SM Chemicals for Process RA-2SM.

FEATURES	BENEFITS
<ul style="list-style-type: none"> <li>Optimized for digital printing</li> </ul>	<ul style="list-style-type: none"> <li>Exceptional detail and crisp, clean text</li> <li>Robust calibration</li> </ul>
<ul style="list-style-type: none"> <li>Excellent flesh tone reproduction</li> </ul>	<ul style="list-style-type: none"> <li>Natural-looking skin tones</li> </ul>
<ul style="list-style-type: none"> <li>Enhanced tone scale</li> </ul>	<ul style="list-style-type: none"> <li>Excellent flesh to neutral; warm highlights</li> </ul>
<ul style="list-style-type: none"> <li>Increased color gamut; saturated colors</li> </ul>	<ul style="list-style-type: none"> <li>Rich, bright, compelling colors</li> <li>Vibrant greens and blues</li> </ul>
<ul style="list-style-type: none"> <li>State-of-the-art image stability</li> </ul>	<ul style="list-style-type: none"> <li>Bold, bright colors that last a lifetime before noticeable fading in typical home display conditions</li> <li>Over 200 years before noticeable fading in the most common home dark storage conditions</li> </ul>
<ul style="list-style-type: none"> <li>Robust process performance</li> </ul>	<ul style="list-style-type: none"> <li>Resistant to abrasion marks during processing</li> <li>Minimum waste</li> <li>Reduced process sensitivity to leuco cyan dye in the bleach-fix (&lt;pH 6.2)</li> </ul>
<ul style="list-style-type: none"> <li>Improved post-process finishing</li> </ul>	<ul style="list-style-type: none"> <li>Ideal for photo books, albums, wraps, cards</li> </ul>

## STORAGE AND HANDLING

For optimum results, store unexposed paper at 13°C (55°F) or lower in the original package. You can store unexposed paper at 24°C (75°F) for up to 6 months and still achieve high-quality results. High temperatures or high humidity may produce unwanted changes.

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

Handle paper carefully by the edges to avoid creases and fingerprints.

Minimum Warm-Up Time (Hours) at Ambient Temperature of 70°F (21°C)			
Size	From a Storage Temperature of		
	-18°C (0°F)	2°C (35°F)	13°C (55°F)
Rolls: cm x m (in. x ft)			
8.9 cm x 78 (3½ x 256)	5	4	3
8.9 cm x 156 (3½ x 511)	8	6	4
8.9 cm x 221 (3½ x 725)	10	8	6
10.2 cm x 78 (4 x 256)	6	4	3
10.2 cm x 156 (4 x 511)	8	6	4
10.2 cm x 221 (4 x 725)	10	8	6
12.7 cm x 78 (5 x 256)	6	4	3
12.7 cm x 156 (5 x 511)	8	6	4
12.7 cm x 221 (5 x 725)	10	8	6
15.2 cm x 78 (6 x 256)	6	5	3
15.2 cm x 156 (6 x 511)	8	6	4
20.3 cm x 78 (8 x 256) 25.4 cm x 78 (10 x 256)	7	5	4
27.9 cm x 78 (11 x 256) 30.5 cm x 78 (12 x 256)	8	6	4

## DARKROOM RECOMMENDATIONS

Handle unprocessed paper only in total darkness. KODAK ROYAL Digital Paper is sufficiently sensitive to photographic safelights that sensitometric shifts may occur before D-min (fog) changes are seen.

If a safelight is absolutely necessary for a specific application, the effect of the safelight can be minimized by using a KODAK 13 Safelight Filter / amber with a 7 1/2-watt bulb no closer than 4 feet (1.2 metres) from the paper. Keep safelight exposure as short as possible. Test the safelight exposure to verify that safelight exposure intensities and/or times are not adversely affecting print quality. See Kodak Publication No. K- 4, How Safe is Your Safelight? for information on safelight testing.

Because KODAK ROYAL Digital Paper is very light sensitive, printing and processing darkrooms should be lighttight. In addition, ensure that sources of stray light within the darkroom, such as lamphouse heads, timer lights, LEDs, etc., are eliminated or shielded.

## EXPOSURE

You can expose this paper in automatic printers, such as KODAK Minilab Systems, KODAK 312 Color Printers, KODAK I.LAB Digital High-Speed Printers, AGFA High-Speed Printers, GRETAG High-Speed Printers, GRETAG Minilabs and Microlabs, NORITSU Minilabs and Microlabs, FUJI FRONTIER and other FUJI Minilabs, KONICA Minilabs, PHOTO-ME Minilabs, and more.

**Note:** Printer and balance slope changes may be necessary. Check production after final balance. You may want to make a color preference adjustment.

Because voltage changes affect the light output and color quality, use a voltage regulator. Use a tungsten-halogen lamp to expose the paper. Do not use a fluorescent lamp. If the printer has no means of removing infrared radiation, use a heat-absorbing glass.

Keep negatives and the optical system of your equipment clean. Mask negatives to eliminate stray light.

To control the color balance, use dichroic filters, KODAK Color Printing Filters (CP), or KODAK Color Compensating Filters (CC) placed between the lamp and the negative. You can also use CC filters between the lens and the paper if they are clean and unscratched. Use as few CC filters between the lens and the paper as possible—preferably not more than three. If you use cyan filtration, use filters with the suffix “-2,” such as CP10C-2.

Start with a filter pack of 40M + 40Y for the white-light method. Adjust filtration as necessary.

## LATENT-IMAGE KEEPING

For best results, process the paper on the same day that you expose it. (If latent-image shifts occur, minimize them by keeping the time between exposure and processing as consistent as possible.)

## PROCESSING

Use KODAK EKTACOLOR Chemicals for Process RA-4 or KODAK EKTACOLOR SM Chemicals for Process RA-2SM. For FUJI FRONTIER Processors, use KODAK EKTACOLOR Processing Cartridge 111 and KODAK Rinse Tablets. Use KODAK Control Strips, Process RA-4 to monitor your process.

For more information on processing chemicals, see [www.kodaksino.com/](http://www.kodaksino.com/).

Use a maximum drying temperature of 96°C (205°F).

## VIEWING

Evaluate prints under light of the same color and brightness that you will use to view the final prints. For an average condition, use a light source with a color temperature of 5000 ± 1000 K, a Color Rendering Index (CRI) of 85 to 100 (an index of 90 or higher is desirable), and an illuminance up to 500 lux. Fluorescent lamps such as a cool white deluxe lamp (made by several manufacturers) meet these conditions. You can also use a mixture of fluorescent and incandescent lamps. For each pair of 40-watt cool white deluxe lamps, use a 75-watt frosted tungsten bulb.

## RETOUCHING

Retouch this paper by following instructions in 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.

## STORAGE AND DISPLAY OF PRINTS

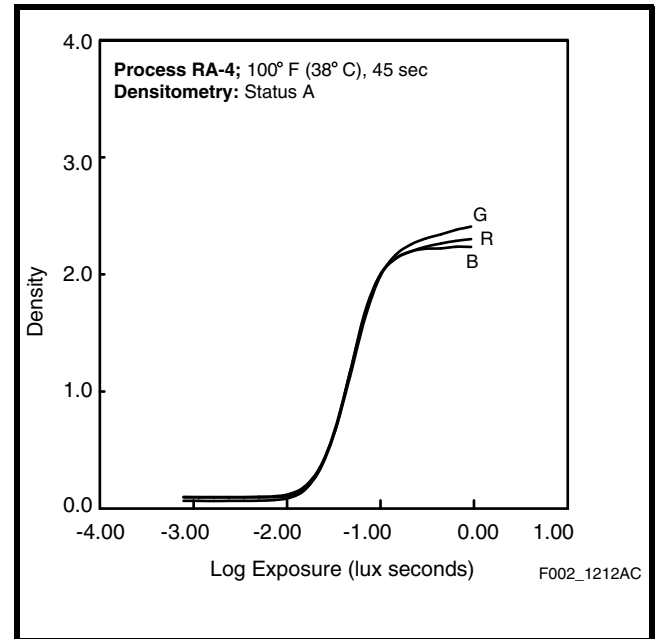
KODAK ROYAL Digital Paper has been formulated to provide improved dye stability and print longevity for prints displayed under typical home lighting conditions (i.e., 120 lux for 12 hours a day).

Despite the improvements in print longevity and fade neutrality, 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:

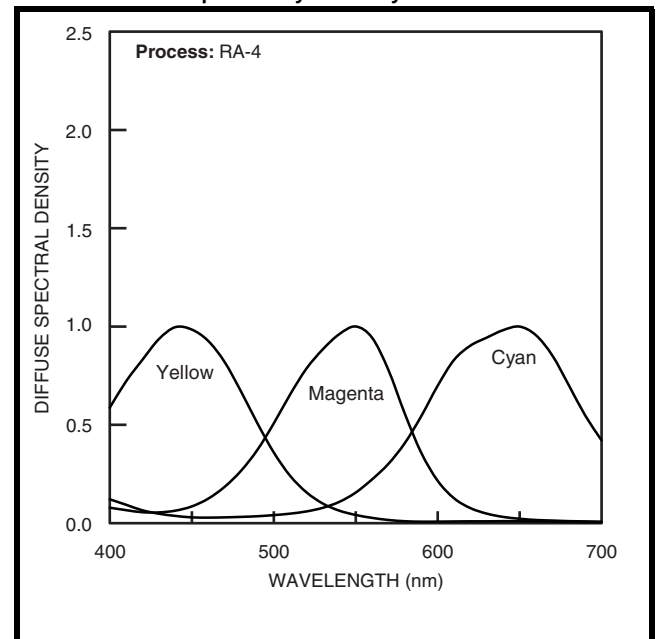
- Display prints in the lowest light level consistent with your viewing needs. Tungsten light is the preferred artificial light source.
- If a print is exposed to direct or indirect sunlight or fluorescent light, use an ultraviolet-absorbing filter (such as glass) between the light source and the print.
- 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

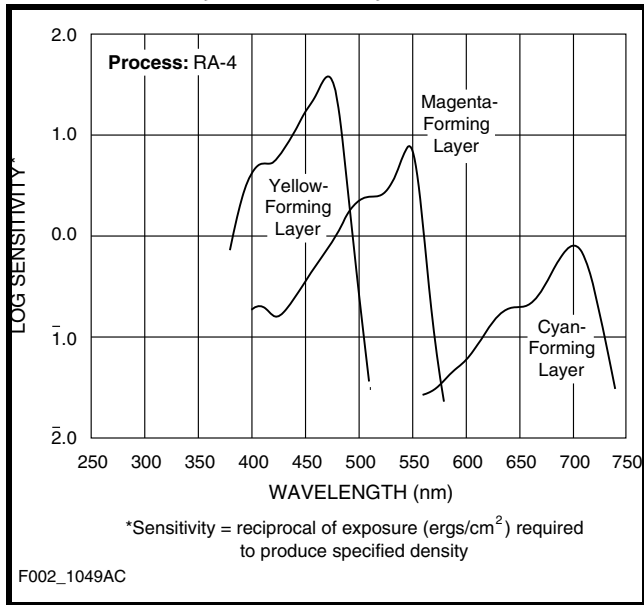
Characteristic Curves



Spectral Dye Density Curves



### Spectral Sensitivity Curves



### MORE INFORMATION

Kodak has many publications to assist you with information on Kodak Papers and Chemicals. Visit [www.kodaksino.com/](http://www.kodaksino.com/).

**Note:** The Kodak Materials described in this publication for use with KODAK ROYAL Digital Color Paper are available from dealers who supply Kodak Products to photofinishers. You can use other materials, but you may not obtain similar results.

**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 Kodak. The company reserves the right to change and improve product characteristics at any time.

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