

KODAK PROFESSIONAL POLYMAX Fine-Art Paper



Discontinuance of KODAK PROFESSIONAL Black & White Photographic Papers

Due to the ongoing transition to digital output technologies in both professional and educational markets, Kodak has announced manufacturing discontinuance of Black & White Photographic Papers. Sales will cease by the end of 2005.

KODAK Black & White Films and Black & White Processing Chemicals will continue to be produced.

The final availability of specific Black & White papers will vary based on type, size, configuration and surface. Please contact your normal supplier of KODAK PROFESSIONAL Products for the latest information.

KODAK PROFESSIONAL POLYMAX Fine-Art Paper is a high-speed, single- (SW) and double-weight (DW) black-and-white, enlarging paper with a fiber base. It is available in F and N surfaces with a brilliant white support. Able to accommodate an extended range of negative contrasts and exhibiting excellent tone reproduction, this paper is ideal for commercial, advertising, display, fine-art, education, hand coloring, industrial, photo hobbyist, portrait, and restoration applications.

This selective-contrast paper has a wide contrast range that you can control with filters such as KODAK POLYMAX Filters. The paper yields exceptional highlight detail and shadow separation. It is a projection-speed paper suitable for enlarging or contact printing, and is intended primarily for tray processing.

FEATURES	BENEFITS
• Good highlight tone reproduction	• More detail highlights
• Good separation among shadow tones	• More detail in shadows
• Enhances performance of KODAK PROFESSIONAL T-MAX Films	• Film and paper combination capable of handling higher original-scene luminance ratios
	• Optimized for tone reproduction
	• Increased latitude
• Accurate low-contrast tone reproduction	• Better prints from contrasty negatives
• Very wide contrast range with KODAK POLYMAX Filters	• Accommodates much wider range of negatives with POLYMAX -1 and 5+ Filters
• Optical brighteners in the emulsion and base	• Crisp, bright whites and neutral image tone
• Tolerant of processing variations	• Less control needed during tray processing

Base and Surface Characteristics

Symbol	Texture	Surface	Base Tint	Base Weight
F	Smooth	Glossy*	White	DW, SW
N		Semi-matt		

*When ferrotyped. This paper dries with a smooth lustre when dried on screens, blotter, or non-ferrotyping dryers.

STORAGE AND HANDLING

Store paper in a cool, dry place (preferably at or below 21°C [70°F] and at a relative humidity of 30 to 50 percent). High temperature or high humidity may produce undesirable changes. Always rewrap unused paper in its original packaging (the outer box as well as the bag) to protect it from light and moisture. Avoid or shield the paper from exposure to radioactivity or x-rays.

DARKROOM RECOMMENDATIONS

Use a KODAK OC Safelight Filter (light amber) in a suitable safelight lamp with a bulb of 15 watts or less at least 1.2 metres (4 feet) from the paper. Minimize safelight exposure to avoid unwanted quality changes. **Be especially careful** if you use other types of safelights.

See KODAK Publication No. K-4, *How Safe is Your Safelight?*, for information on safelight testing.

Note: Do not use a KODAK OA Safelight Filter (greenish yellow).

EXPOSURE

Light Source

Expose this paper with tungsten or tungsten-halogen enlarger lamps, and automatic printers. You can use other light sources, such as cool-white fluorescent lamps or mercury-vapor lamps, or cathode-ray tubes, but you may need to use correction filters in *addition* to the filters for contrast control. For best results, make test prints to determine the optimum filtration for each light source.

If you use a subtractive color-head enlarger with dichroic filters, magenta and yellow filtration may not be sufficient to achieve the highest and lowest contrast the paper can deliver. In this circumstance, if the white light mode is available, use POLYMAX 5+ and -1 Filters.

Filters

To achieve the widest possible contrast range with this paper, use KODAK POLYMAX Filters. These filters provide twelve contrast increments with improved contrast spacing with this paper.

You can use the POLYMAX Filter *Set* in the enlarger condenser above the lens (light path). The POLYMAX Filter *Kit* is similar to the set except it's mounted in plastic filter mounts. You can use these filters below the enlarger lens (optical path). They are supplied in a hinged plastic box with a filter holder and adapters to fasten the holder to the red filter post or to the lens.

You can also use other manufacturers' filters with this paper, but results may not be the same. For critical applications, make tests to determine the paper contrast.

The filter kit, filter sets, and filter upgrade sets are now distributed by Tiffen Co. L.L.C. In the U.S. call 800-368-6257 or view their website at www.tiffen.com.

ISO Paper Speed and Range

Processed in KODAK PROFESSIONAL DEKTOL Developer at 20°C (68 °F) for 90 Seconds

POLYMAX Filter	No Filter	-1	0	1/2	1	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5+
Paper Speed (F and N Surfaces)	P500	P200	P250	P250	P250	P250	P250	P250	P250	P200	P125	P100	P100
Paper Range F Surface N Surface	R100 R90	R180 R160	R130 R130	R130 R120	R120 R110	R120 R110	R110 R110	R110 R100	R100 R90	R90 R80	R80 R70	R70 R60	R50 R50

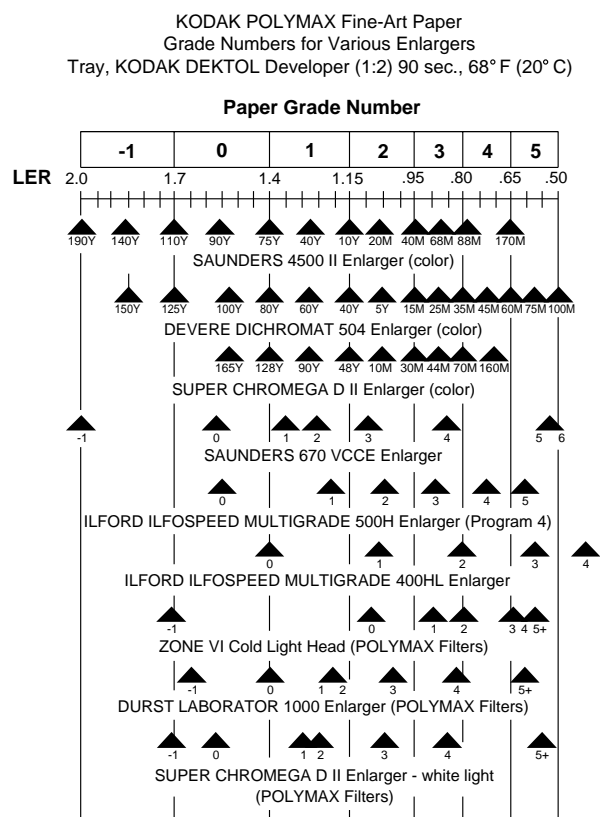
Filtration Values for Common Black-and-White and Color Enlargers

The contrast of selective grade papers is adjustable through changes in the color of the light exposing the paper. Because enlarger lamps and filters can vary from one manufacturer or model to the next, the contrast performance of POLYMAX Fine-Art Paper can also vary depending upon the equipment used.

ANSI standards define a contrast method called "Log Exposure Range" (LER). Kodak relates LER to paper grade numbers to classify seven degrees of contrast. You can use the information in the following chart as a guide for selecting the filtration required to achieve a desired paper grade when printing with some commonly available color and black-and-white enlargers.

The age of the lamp and the condition of the filters can affect the contrast you will actually achieve. Use the data in the chart as a starting point only. If you cannot obtain as high a contrast as indicated in the chart, you may have to replace the magenta filter. Compared to yellow filters, magenta filters are more susceptible to fading caused by heat.

The data for the chart was generated by placing a step tablet in contact with the paper on the easel. Slightly different results are obtained using a step tablet at the negative gate.



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Examples: With a SUPER CHROMEGA D Enlarger (color head), you can obtain paper grade 1 with 90Y dichroic filtration. To obtain paper grade 0, dial in 165Y filtration.

With the same enlarger, if you dial out all filtration to give white light, using a POLYMAX 5+ Filter will yield paper grade 5.

PROCESSING

This paper is intended primarily for tray processing. **Do not process this paper in mechanized processors designed for processing resin-coated papers.** You can machine-process roll formats of this paper in continuous-type processors if the wash cycles are adequate for double-weight, fiber-base papers.

Tray Processing

Tray process with continuous agitation at 20°C (68°F), using the appropriate dilution and development time recommended in the table.

KODAK PROFESSIONAL Chemical	Dilution (chemical: water)	Time (min:sec)	Capacity (8 x 10-inch Prints per gal/L)
Developer— 20°C (68°F)			
DEKTOL (powder)	1:2	2:00 - 3:00	96/25
DEKTOL (liquid)*	1:9	1:30	120/32
POLYMAX T	1:9	1:30	120/32
SELECTOL-SOFT	1:1	1:30	100/26
Stop Bath—18 to 24°C (65 to 75°F)			
Indicator	1:63	0:15	80/20†
EKTAFLO	1:31	0:15	80/20†
Fixer/Replenisher (single bath)‡— 18 to 24°C (65 to 75°F)			
<i>Non-hardening fixer (for general printing and for toning):</i>			
Rapid Fixer, Solution A (do not use Solution B)	1:7	5:00	100/26
<i>Hardening fixers (for general printing and continuous-type processors)§</i>			
KODAK Fixer	—	10:00	100/26
POLYMAX T	1:7	5:00	100/26
Rapid Fixer (Solution A and B)	1:7	5:00	100/26
KODAFIX Solution	1:7	5:00	100/26
Wash—			
With Washing Aid— 18 to 24°C (65 to 75°F)			
Hypo Clearing Agent	stock solution 1:4	SW 2:00 DW 3:00	80/20 without pre-rinse; 200/50 with 1-minute pre-rinse
Wash	—	SW 10:00 DW 20:00	—
Without Washing Aid— 10 to 30°C (50 to 86°F)			
	—	60:00	—

*Not available in all countries.

†Discard the solution when color changes to a purplish blue.

‡To increase capacity, use two fixing baths.

§Using a hardening fixer makes toning less efficient. For the same amount of processing time, you'll see less of a toning effect.

Developing

Immerse prints face up, flexing the paper so the entire surface gets wet as it goes into the developer. Drain prints for the last 5 seconds before immersing in stop bath.

Stop Bath

Bathe prints for at least 10 seconds at 18 to 24°C (65 to 75°F) with continuous agitation in KODAK PROFESSIONAL EKTAFLO Stop Bath, KODAK PROFESSIONAL Indicator Stop Bath, or 48 mL KODAK 28% Acetic Acid and water to make 1 L.

With EKTAFLO or Indicator Stop Bath, discard the solution when the color changes to purplish blue. Change Acetic Acid and water stop bath after approximately twenty 8 x 10-inch prints per litre (eighty 8 x 10s per gallon).

Fixing

Fix prints at 18 to 24°C (65 to 75°F) with frequent agitation. With KODAK PROFESSIONAL POLYMAX T Fixer, KODAK PROFESSIONAL Rapid Fixer, or KODAFIX Solution, fix for 5 minutes if you use a single bath. If you use two fixing baths, fix prints for 2 1/2 minutes in each bath, draining for 5 seconds between baths.

Proper fixing is important. Underfixing will leave residual silver halide in the emulsion, which will darken or stain with exposure to light. Overfixing will make washing more difficult, and may slightly bleach the print.

Note: Using a hardening fixer will enhance surface durability. However, using a hardening fixer makes toning less efficient. For the same amount of processing time, you'll see less of a toning effect.

Washing

Wash for 1 hour in running water at 10 to 30°C (50 to 86°F), interleaving the prints carefully and frequently. The wash-water flow rate should provide at least one complete change of water in the container every 5 minutes.

Avoid prolonged washing or soaking times to minimize physical damage to the prints and to maintain the effect of the optical brightener in the paper.

To reduce time and save water, use KODAK Hypo Clearing Agent before washing (with or without a previous rinse). Use the Hypo Clearing Agent for 2 (for SW) or 3 (for DW) minutes, agitating continuously for the first 15 to 30 seconds and occasionally thereafter. Following the Hypo Clearing Agent, wash for 10 (for SW) or 20 minutes (for DW) with agitation and normal water flow.

Drying

Remove as much surface water as possible from prints, and dry prints in a dust-free place. Place prints face down on clean cheesecloth, fiberglass, or plastic screen racks; between photo blotters; or on a belt dryer.

For glossy prints made on F-surface paper, transfer the wet prints directly from the wash to a ferrotype dryer (glazing machine) or to clean, wet ferrotype plates. Squeegee the prints into close contact with the plates and allow them to dry.

POST-PROCESS TREATMENTS

Except for treatment with a toner solution, post-processing treatments generally don’t improve the image stability of prints on Kodak black-and-white papers. Some treatments—for example, laminating—provide physical protection. Some may actually have an adverse effect on prints. The effects of post-processing treatments on prints vary widely with the type of treatment and the manner in which the treatments are applied.

Toning

Treatment with a toner extends the life of prints that may be exposed to oxidizing gases or subjected to adverse storage or display conditions. KODAK PROFESSIONAL Toners will protect prints whether or not they produce a tone shift.

Processing	Tone Shift with KODAK PROFESSIONAL Toners			
	Full	Full to Moderate	Slight	None
Tray (DEKTOL Developer)	Sepia II Warm	Sepia	Brown	Rapid Selenium (1:3) (1:9) (1:20) (1:40)

For more information on toning, see KODAK Publication No. G-23, *Toning KODAK Black-and-White Materials*. It explains the technique of toning, and describes Kodak toners and their effects on Kodak black-and-white papers and films.

Retouching

You can use liquid dyes, colored or graphite pencils, dry dyes, and opaque to retouch prints on Kodak black-and-white papers. Use dry dyes, such as KODAK Retouching Colors, to make large-area corrections. Use liquid dyes, pencils, or opaque to make fine corrections—such as eliminating spots, scratches, and reflections—or to outline and accentuate details. Although KODAK Liquid Retouching Colors are intended primarily for color prints, you can use the neutral dye to retouch black-and-white prints, or mix the colored dyes to match toned black-and-white prints.

For more information on retouching, see KODAK Publication No. O-10, *Retouching Black-and-White Negatives and Prints*.

Lacquering and Laminating

Use lacquers with caution. If you choose to lacquer your prints, select a lacquer that is specifically intended for photographic applications. Apply multiple light coats rather than a single thick coat of lacquer. Never allow a lacquered print to come into contact with the glass in a picture frame, because it may stick to the glass. Laminating is really a variation on lacquering. Instead of a very thin polymer layer, laminating produces a much thicker layer. Laminates may contain UV absorbers, plasticizers, and matting agents. They provide protection against fungus and bacterial attack, moisture and dirt in the air, and physical abrasion.

Mounting

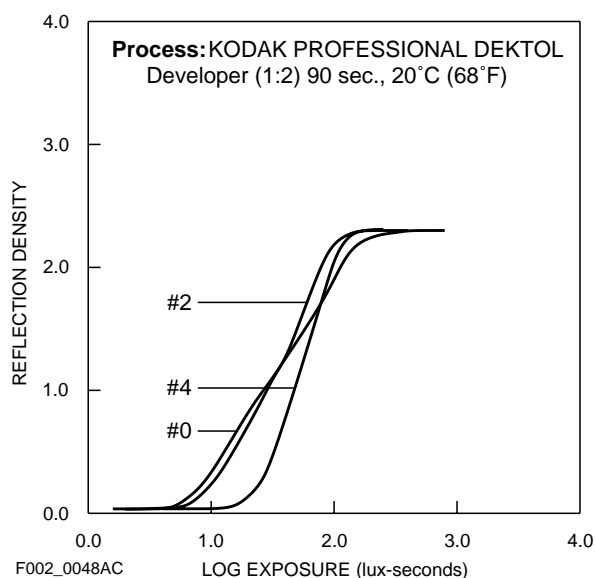
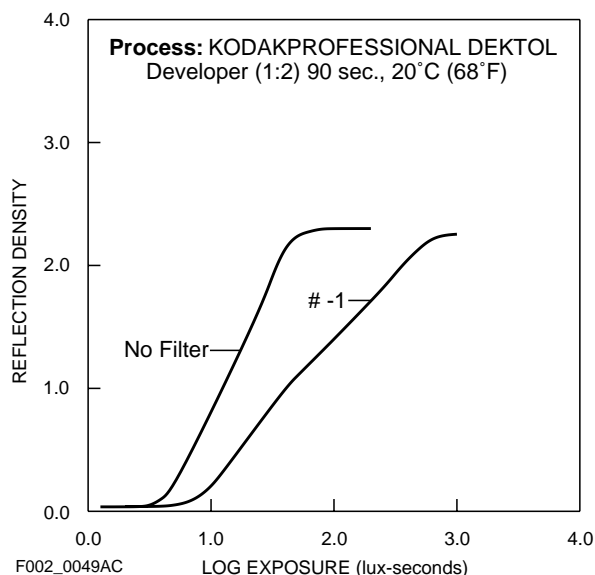
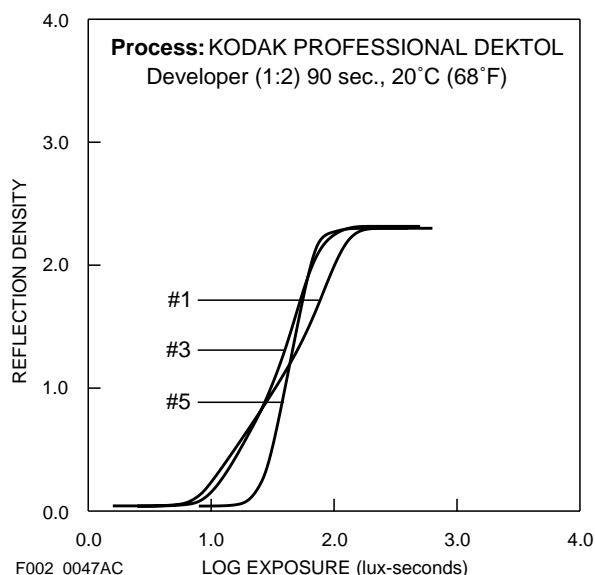
Mounting provides rigidity, helps prevent wrinkling, and gives some physical protection to prints. For long-term keeping, it is best not to use adhesives or dry-mounting tissue. The best mounting method is to use plastic corners or hinge the print by using Japanese rice paper and water-soluble wheat paste. Do not use rubber cement, contact cement, or animal glue. If you must use a liquid adhesive, use starch paste or polyvinyl chloride. If you choose to dry-mount your prints, use acid-free, pH-buffered, conservation-quality mounting board and conservation-quality mounting tissue. An overmat, or window mat, will help protect a print from abrasion, keep the emulsion away from the glass in a frame, and provide a neutral or complementary field. Be sure to use conservation-quality mat boards and backing and non-reactive framing materials.

For more information on laminating, lacquering, and mounting, see KODAK Publication No. E-67, *Finishing Prints on KODAK Water-Resistant Papers*, or No. F-35, *Protecting and Displaying Black-and-White Prints*.

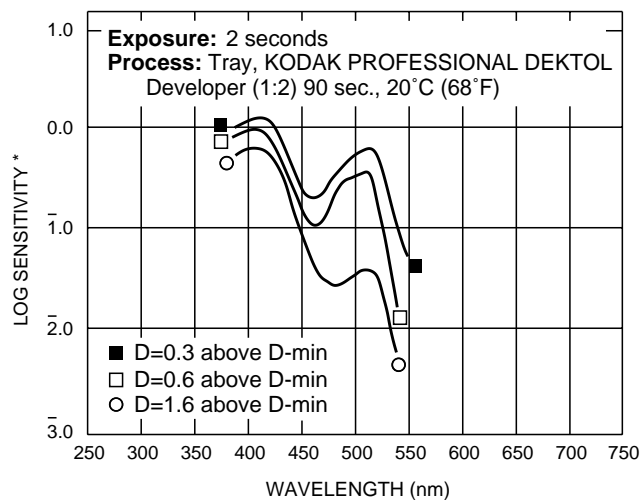
CURVES

KODAK PROFESSIONAL POLYMAX Fine-Art Paper, F Surface KODAK POLYMAX Filters

Characteristic Curves



Spectral-Sensitivity Curves



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

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.

KODAK PROFESSIONAL POLYMAX Fine-Art Paper

MORE INFORMATION

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

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

E-67	<i>Finishing Prints on KODAK Water-Resistant Papers,</i>
E103BP	<i>KODAK PROFESSIONAL Black-and-White Papers Matrix</i>
E103CP	<i>Chemicals for KODAK PROFESSIONAL Black-and-White Papers Matrix</i>
F-2	<i>Pathways to Black and White</i>
F-35	<i>Protecting and Displaying Black-and-White Prints</i>
G-23	<i>Toning KODAK Black-and-White Materials</i>

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 POLYMAX Fine-Art Paper 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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