

KODAK PROFESSIONAL AZO 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 AZO Paper is a blue-sensitive, graded-contrast contact paper with a fiber base. It provides excellent tone reproduction for negatives of low to normal contrast ranges, and it is popular with large-format fine-art photographers. It is designed for commercial, contact printing, fine-art, and proof-printing applications. For use with a contact printer, not an enlarger.

FEATURES

BENEFITS

- | | |
|---|--|
| • Neutral-black image tone and bright, clean whites | • Exceptional print quality |
| • White fiber base | • Crisp, clean whites |
| • Available in single weight | • Suitable for various printing applications |
| • Graded paper | • Accommodates a range of negative contrasts |

Base and Surface Characteristics

Symbol	Texture	Surface	Base Tint	Base Weight
F	Smooth	Glossy*	White	SW

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

Contrast Grades

With this type of negative:	Use paper with this grade number:
Normal contrast	2
Low contrast	3

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 K-4, *How Safe is Your Safelight?* for information on safelight testing.

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

STORAGE AND HANDLING

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

EXPOSURE

Contact printers generally have a very high level of illumination. In order to keep exposure times within reason, contact printing papers, such as AZO Paper, are made with a relatively low speed. Therefore, it's not practical to use contact papers with an enlarger as a light source.

A contact printer is a glass-top box with exposing lights and a safelight inside, and hinged pressure cover over the glass. Switches control the lights that allow different intensities to various parts of the image.

ISO Paper Speed and Range

Tray Processing—Processed in KODAK PROFESSIONAL DEKTOL Developer (1:2) at 20°C (68°F) for 60 seconds.

Contrast	ISO Paper Speed	ISO Paper Range
2	P4	R110

PROCESSING

Tray

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	1:00	120/32
POLYMAX T	1:9	1:00	120/32
EKTAFLO, Type 2	1:9	2:00	100/26
SELECTOL-SOFT	1:1	2:00	80/21
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 (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)‡</i>			
KODAK Fixer	—	5:00	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 —			
<i>With Washing Aid</i> —10 to 30°C (50 to 86°F)			
Hypo Clearing Agent	stock solution 1:4	2:00	80/20 with pre-rinse; 200/50 with 1-minute pre-rinse
Wash	—	10:00	—
<i>Without Washing Aid</i> —10 to 30°C (50 to 86°F)			
	—	60:00	—

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

†To increase capacity, use two fixing baths.

‡A hardening fixer may improve release on ferrotyping drums.

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

A stop bath is recommended to rapidly terminate development and to preserve the fixing bath.

Bathe prints for at least 15 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 a purplish blue. Change Acetic Acid and water stop bath after approximately twenty 8 x 10-inch prints per litre (eighty 8 x 10-inch prints per gallon).

Fixing

Fix prints at 18 to 24°C (65 to 75°F) with frequent agitation using the times in the table. With KODAK PROFESSIONAL POLYMAX T Fixer, KODAK PROFESSIONAL Rapid Fixer, or KODAFIX Solution, fix for 5 minutes if you use a single bath. With KODAK Fixer, fix for 10 minutes if you use a single bath.

If you use two fixing baths, fix for half the time in each bath, draining for 5 seconds between baths. The two-bath method provides two advantages: increased fixer capacity and final fixing in a bath low in dissolved silver salts. This method is recommended when processing a large number of prints.

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

Washing

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

Or wash for one 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 and soaking times to minimize physical damage to the prints.

Drying

Remove as much surface water as possible from prints and dry the 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 treatments 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	Moderate to Full	Moderate	Slight
Tray (DEKTOL Developer)	Sepia II Warm	Sepia	Rapid Selenium (1:3)	Rapid Selenium (1:9) (1:20)
	Brown (1:19)			

For more information on toning prints, 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.

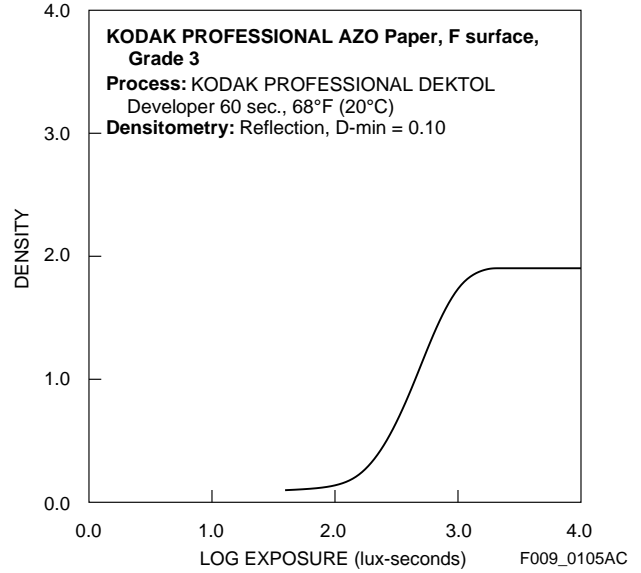
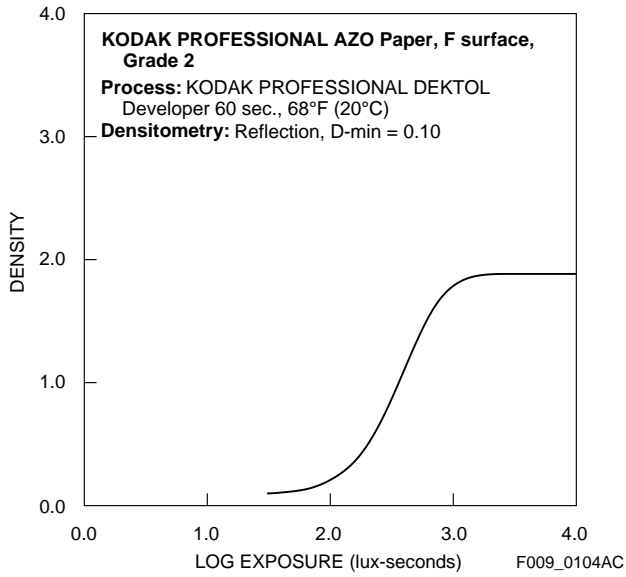
If you choose to dry-mount your prints, use acid-free, pH-buffered, conservation-quality mounting board and conservation-quality mounting tissue.

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.

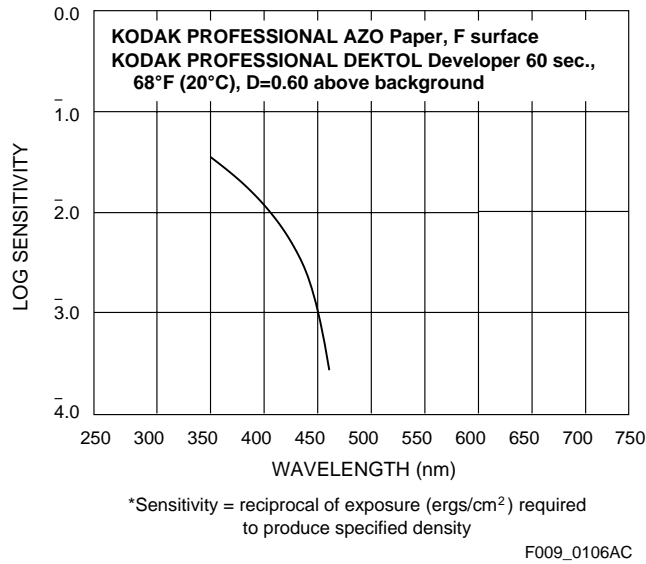
For more information on laminating, lacquering, and mounting, see KODAK Publication No. E-67, *Finishing Prints on KODAK Water-Resistant Papers*, or No. F-35, *Protecting and Displaying Black-and-White Prints*.

CURVES

Characteristic Curves



Spectral Sensitivity Curve



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.

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-30	<i>Storage and Care of KODAK Photographic Materials—Before and After Processing</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>
G-23	<i>Toning KODAK Black-and-White Materials</i>
J-5	<i>KODAK PROFESSIONAL POLYMAX T Developer and KODAK POLYMAX T Fixer</i>
K-4	<i>How Safe Is Your Safelight?</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 AZO 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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