

KODAK 401 Film / ESTAR Base KODAK 402 Film / ESTAR Base KODAK 450 Film / ESTAR Base

—Put a century of science in your hands—

June 2014



PET Films

KODAK 401 Film ESTAR Base, KODAK 402 Film/ESTAR Base and KODAK 450 Film/ESTAR Base are polyester (PET) films with a high clarity, optical-grade surface quality for use in specialized industrial applications. These films are manufactured with in-line process to control shrinkage. KODAK 401 Film/ESTAR Base has a gel coating on one side and no coatings on the other side. KODAK 402 Film/ESTAR Base has a gel coating on both sides of the film. KODAK 450 Film/ESTAR Base has a gel coating on one side and an adhesion promoting coating designed for solvent material on the other side.

The cost-effective, consistent quality of KODAK 401, 402 and 450 Films is the result of 50 years of experience in manufacturing polyester film base. Stringent workforce standards and our Six Sigma Black Belt strategy standards include statistical modeling and design, rigorous change management and unsurpassed manufacturing process control.

One example of how that knowledge has led to innovation, a cushion of air is used to transport these films throughout the entire stretching section of the manufacturing process. This virtually eliminates contact that can compromise quality by creating micro scratches on the film.

Features:

- Optical-grade surface quality — products are manufactured with minimal surface contact, then scanned to meet the stringent requirements for optical applications
- Shrinkage in both the machine direction (MD) and transverse direction (TD) of $\leq 3\%$

Uses:

- Where aqueous based emulsion coating systems are used
- Where aqueous based inks are applied to minimize adhesion (write-on wipe-off)
- To improve adhesion of photographic emulsions to the film base

Physical Condition

Roll Integrity

- The edge of the roll will be free of nicks, cuts or visible telescoping greater than ± 6.3 mm (0.25 inches)
- The roll will not contain gauge bands which visibly distort the film surface
- There are no splices or cutouts in the roll

Product Quality

- Kodak inspects material during the manufacturing process using in-line scanners to detect, correct, and deliver material that meets or exceeds specifications. Kodak quality technicians consistently evaluate sample product quality using internal and external standards to confirm quality standards are met.

Packaging

- Standard core; inside diameter 152mm \pm 3mm (6 inches \pm 0.04 inch)
- Each roll is suitably wrapped to seal the product.
- Each roll is horizontal, supported on core ends.
- Each container is labeled with product and roll identification.

KODAK 400 Films / ESTAR Base

Typical Properties	Value	Test Method
Physical		
Width Tolerance	± 3 mm	Kodak Inline Scanner
Length Tolerance	± 30 m	Kodak Inline Scanner
Knurls — each side	12.5 mm wide	
Mechanical		
Tensile Strength	> 25,000 psi	ASTM D 882
Break Elongation	> 70%	ASTM D 882
Young's Modulus	> 500,000 psi	ASTM D 882
Thermal		
Heat Shrinkage — Machine (MD)	≤ 3.0%	Kodak Method (30 min @ 150°C)
Heat Shrinkage — Transverse (TD)	≤ 3.0%	
Optical		
VLT — with primer	> 90%*	ASTM D 1003
Haze — with primer	≤ 1.5%*	ASTM D 1003

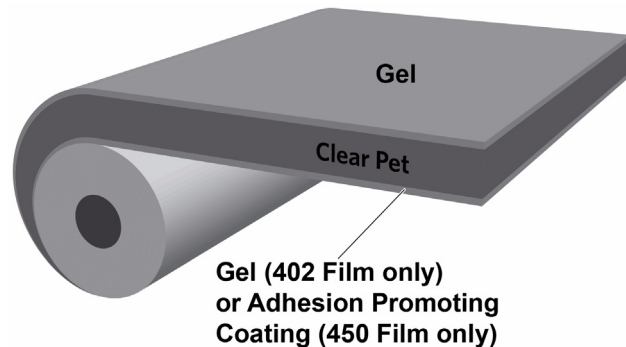
* Does not apply to 6RB6-433.

SIZES AVAILABLE

The table below shows catalog numbers available at the time of publication. It is by no means inclusive, please contact us regarding your specific needs.

CAT No.	Class	Thickness	Width (mm)	Length (m)	Shrink (%)
KODAK 401 Film / ESTAR BASE (gel on one side, bare other side)					
141 4267	6RF1-771E	178	1372	1311	3.0
KODAK 402 Film / ESTAR BASE (gel on both sides)					
815 5194	6RF1-240	100	1372	2456	3.0
109 1479	6RB6-433R*	102	1372	3505	3.0
KODAK 450 Film / ESTAR BASE (gel on one side, adhesion promotion other side)					
145 4958	6RF1-570R	127	1384	1524	3.0
134 0066	6RB6-772E	178	1372	1311	3.0

* Class 6RB6-433 is blue, not clear.



MORE INFORMATION

Kodak has many publications to assist you with information about KODAK Products, Equipment, and Materials.

For the latest version of technical support publications for KODAK Industrial Materials Group, please visit Kodak online at <http://www.kodak.com/go/img>.

To find out what PET Films can do for your business, please send us an email at PETproducts@kodak.com.

NOTICE: While the data in this publication are typical of production coatings, they do not represent standards which must be met by Kodak. Varying storage, exposure, and processing conditions will affect results. Kodak makes no guarantee of results and assumes no obligation or liability whatsoever in connection with this information. The company reserves the right to change and improve product characteristics at any time.

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EASTMAN KODAK COMPANY • ROCHESTER, NY 14650-0505