



# Pentapharm®

Films for pharmaceutical packaging



# innovation. delivered.

## Our films deliver

The world's most innovative pharmaceutical companies demand the world's most innovative packaging films. With Pentapharm®, a full range of films for blister packaging, kp delivers.



Do you sell prescription drugs? OTC, generics, physician samples, nutraceuticals, or veterinary medicine? Blister packs made with kp films give you a competitive advantage. Our specially formulated films protect products against moisture, gas, oxygen, and UV rays, providing maximum efficacy and increased shelf life. Blister packs made from kp films are convenient and easy to use increasing compliance and ensuring your product is effective.

The pharmaceutical industry is constantly changing. But your needs power our innovation: challenge us with a new product or idea, and we will develop the optimal film. At kp, we're not just innovating, we're innovating for you—and the opportunities are endless.

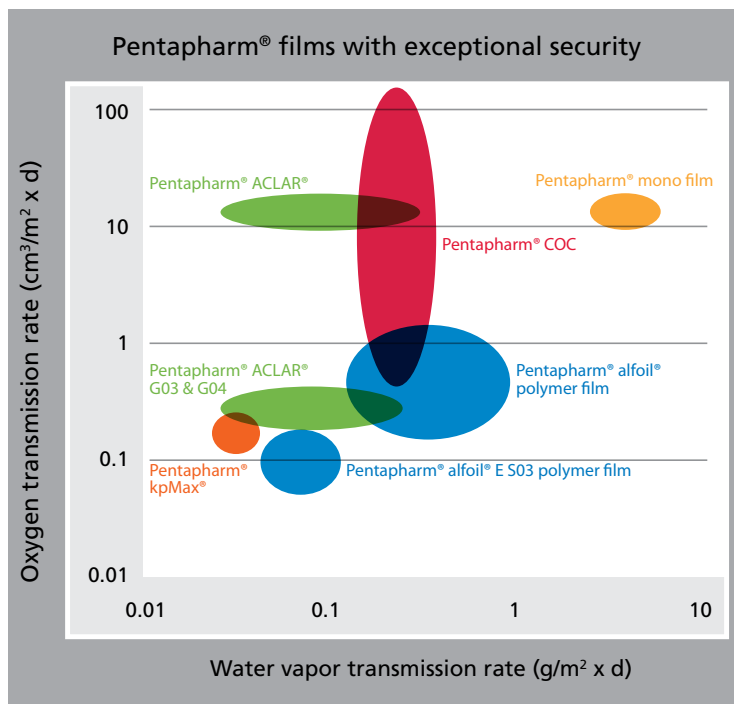




# solutions. delivered.

## Innovative products that meet your needs

kp's line of pharmaceutical films is the most comprehensive in the industry. And if we do not have the film you need, our engineers will design a custom formulation. Our goal is to deliver the optimal solution for every application.



Typical values. measuring methods  
 WVTR: ASTM F1249, 38°C/90% RH  
 O<sub>2</sub>TR: ASTM D 3985, 23°C/50% RH

Indicative values only 02/14



## Pentapharm® films overview

brand name & polymer		film structure				general properties					thickness range (microns)
						moisture barrier	oxygen barrier	thermoformability	sealability side 1 / side 2	sterilization	
		layer 1	layer 2	layer 3	layer 4						
Pentapharm® mono films	Pentapharm® PVC 570, 576, 170 series	PVC	-	-	-	+	++	++	++/++	EtO	150-300
	Pentapharm® PVC 577, 177 series	PVC	-	-	-	+	++	+++	++/++	EtO	150-500
	Pentapharm® PVC 578, 178 series	PVC	-	-	-	+	++	++++	++/++	EtO	250-600
	Pentapharm® APET E600 series	polyester	-	-	-	-	+	+	++/++	Gamma, EtO	100-1200
	Pentapharm® A/MA/B B10R00 series	A/MA/B	-	-	-	-	+++	+++	++/++	Gamma, EtO	37-75
	Pentapharm® PETG EG00 series	polyester	-	-	-	-	+	+	+++	++/++	Gamma, EtO
Pentapharm® barrier films	Pentapharm® alfoil® P series	PVC	PVdC 40-80 g/m <sup>2</sup>	-	-	++	+++	+++	++/+++	EtO	200-500*
	Pentapharm® alfoil® P S03 series	PVC	PVdC 90-120 g/m <sup>2</sup>	-	-	+++	+++	+++	++/+++	EtO	100-127*
	Pentapharm® alfoil® X series	PVC	PVdC 90-120 g/m <sup>2</sup>	-	-	+++	+++	+++	++/+++	EtO	200-500*
	Pentapharm® alfoil® T series	PVC	PE	PVdC 40-120 g/m <sup>2</sup>	-	+++	+++	+++	++/+++	EtO	200-500*
	Pentapharm® alfoil® TS	PVC	PVdC 40 g/m <sup>2</sup>	PE	-	++	+++	+++	++/+++	EtO	100-400*
	Pentapharm® alfoil® FS	PVC/PE	PVdC 180 g/m <sup>2</sup>	PE/PVC	-	++++	++++	++	++/++	EtO	100*
	Pentapharm® alfoil® E S03 series	PVC	PVdC 120-210 g/m <sup>2</sup>	PVC	-	++++	++++	+++	++/++	EtO	100-127*
	Pentapharm® ACLAR® 02 series	PVC	ACLAR® 15-152 μ	-	-	++++	++	++	++/-	EtO	191-500*
	Pentapharm® ACLAR® 03 series	PVC	PE	ACLAR® 15-76 μ	-	++++	++	++	++/-	EtO	191-500*
	Pentapharm® ACLAR® S03 series	PVC	ACLAR® 15-102 μ	PVC	-	++++	++	+++	++/++	EtO	127*
	Pentapharm® ACLAR® G03 series	PVC	PE-EVOH-PE	ACLAR® 51-102 μ	-	++++	++++	++	++	EtO	60-127*
	Pentapharm® ACLAR® G04 series	PVC	ACLAR® 51-152 μ	PE-EVOH-PE	PVC	++++	++++	++	++	EtO	60-127*
	Pentapharm® COC SD/03	PVC	COC 240 μ	PVdC 90 g/m <sup>2</sup>	-	++++	+++	+++	++/+++	EtO	60*
	Pentapharm® kpMax® S04 series	PVC	ACLAR® 102 μ	PVdC 150 g/m <sup>2</sup>	PVC	++++	++++	++	++/++	EtO	100-127*
	Pentapharm® kpSeal™ S series	PVC	PE	-	-	+	+	+++	++/+++	EtO	100*

\* PVC skin thickness

- None + Low ++ Mid +++ High ++++ Ultra High +++++ Ultra, Ultra High



## mono & barrier films

### kp mono films

Use kp mono films for pharmaceuticals requiring low moisture barrier. These plasticizer-free films work with a wide range of blister packaging equipment.

All kp mono films are available as homopolymer, copolymer, and high copolymer films. They deliver:

- Superior clarity, chemical resistance, thermoformability, and dimensional stability
- An excellent base for laminates and coatings
- Numerous thicknesses, colors, and grades designed to optimize your production line's performance

### kp barrier films

kp developed Pentapharm® barrier films for pharmaceuticals that require more stringent moisture and gas protection. These highly protective, plasticizer-free films ensure a long shelf life with optimal product integrity.

All kp barrier films deliver:

- Superior sealability to a full range of lidding materials
- Exceptional strength and dimensional stability; controlled shrinkage; minimal neck-down
- Precise index registration
- Greater rigidity for easier cartoning, handling, and enhanced aesthetics
- Excellent machinability, higher yields for more good parts per pound/kilogram

## kp mono films

Pentapharm® rigid vinyl films  
 Pentapharm® rigid PETG films  
 Pentapharm® rigid APET films

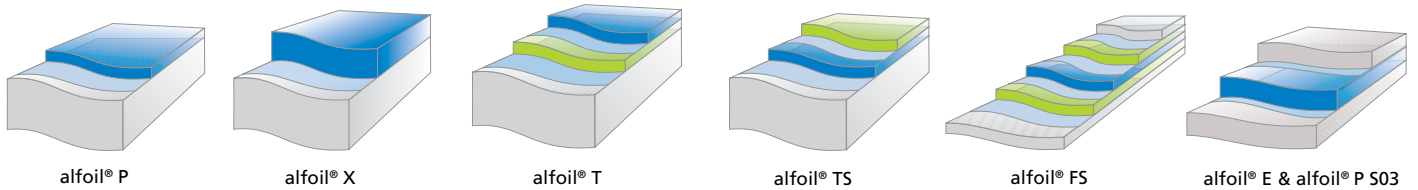
Pentapharm® rigid A/MA/B thin films  
 Pentapharm® rigid PP films



## kp barrier films

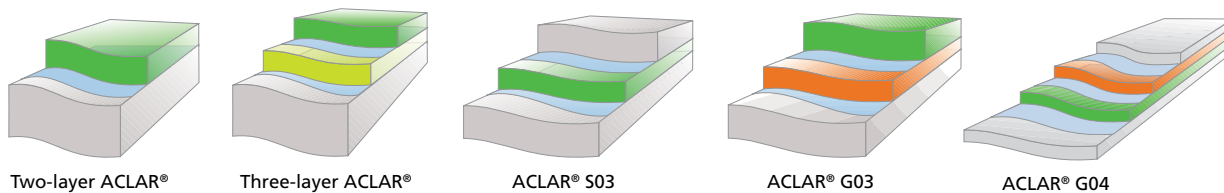
### Pentapharm® alfoil® rigid polymer barrier films

For mid- to ultra-high barrier protection, these films are available in a wide range of structures with customized coatings. Our films optimize your application's requirements and SG developments with an improved surface ensure higher line efficiency.



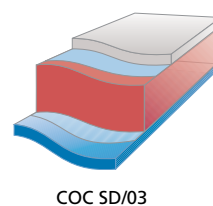
### Pentapharm® ACLAR® rigid barrier films

For mid- to ultra, ultra-high barrier protection, these multi-layer laminate films are highly transparent and clear. They offer excellent thermal stability and can be processed using standard equipment and tooling. ACLAR® film is chemically inert.



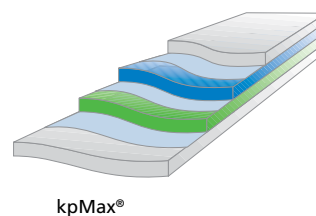
### Pentapharm® COC rigid barrier films

These films combine cyclic olefin copolymer with other standard polymers to offer high barrier protection. They can be processed using standard equipment and tooling to produce high yields and even wall thickness. The films are ideal for deep-draw packages.



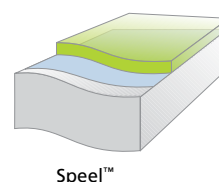
### Pentapharm® kpMax® rigid barrier films

For ultra, ultra high barrier protection, this film combines the best available properties of barrier materials into one multi-layer structure. Ideal for products that require these properties in a transparent, small footprint package.



### Pentapharm® Speel™ rigid barrier films

Designed specifically for suppository packaging applications, these films are peelable and offer customizable barrier properties.





performance.  
delivered.

### Advanced technology, global sourcing

Since the first film rolled off a kp calender line in 1966, we have continually invested in state-of-the-art calendering, extrusion, laminating, and coating technology and equipment. When you buy kp film, you know it will perform on your machinery. Our plants execute your orders consistently, meeting precise specifications for color, surface, thickness, formulation, and function every time. The tolerances are very narrow, you can write tighter specifications to yield considerable cost savings. Raw materials are fully traceable.

To meet the needs of global pharmaceutical companies, we use this advanced technology at manufacturing sites across the globe. Wherever you package pharmaceuticals, we can supply identical high-quality Pentapharm® film from our sites in Asia, Europe, North America, and South America. kp global sourcing ensures security of supply. Re-qualifications for product transfers are no longer needed, so you get quicker access to new markets. And we are unique in backing every order with outstanding local technical and customer service.







kp plants are ISO 9001, 15378, and/or 14001 certified and we manufacture according to current GMP and HACCP standards. Pentapharm® films meet or surpass FDA, HPB, European Pharmacopoeia, and international regulatory standards:

- FDA Drug Master Files #3764 (Global DMF), #1060, #784, and #952
- Canadian Drug Master File #1989-033
- European Pharmacopoeia
- EU Regulation 10/2011
- CFDA
- Russian Hygiene and GHOST
- Australian Therapeutic Goods Administration (TGA)

### Solutions for a changing world

kp's innovative portfolio of pharmaceutical films helps you to meet your social, economic, and environmental sustainability goals, while maintaining product integrity and production economies. We advise customers on the environmental aspects of our products and offer options such as light weighting and removal of excess packaging.





support.  
delivered.

### Our people stand behind our products

At kp, our people are there to help you make the most of Pentapharm® film. Our global sales force is the best trained in the industry. They work hand-in-hand with engineers to meet your needs. Our customer service teams, stationed across the globe, ensure on-time delivery wherever you need it. We also offer the industry's most comprehensive network of on-site, local technical support. Our technicians will visit your facility for consulting, troubleshooting, and training.

kp tech support is also about providing a competitive and cost-effective edge for your products. Our unique BlisterPro® services allow package designers, technicians, and engineers to explore the effects of tool geometry, film types, and process conditions as well as predict the protective barrier properties of a final package without running expensive and time consuming line trials. Your package development cycle can be expedited by combining BlisterPro® finite element analysis (FEA) simulations with actual tool design, fabrication, and package production.

At kp's Blister Technology Centers, state-of-the-art blister packaging machines and in-house CNC (computer numerical control) machines allow for rapid prototype package sample production. Designs are created, analyzed, and optimized by the BlisterPro® FEA simulation and the exact final design is directly transmitted to the CNC machine for tool fabrication. Added capabilities include rapid response to sample requirements; modeling and production of multiple cavity designs on a single tool for comparative analysis and testing; and evaluation of stability packaging components by analyzing the differences between stability and production tools including proper safety margins to account for differences among machinery and mold combinations. With kp support, you save time and expense.





# results. delivered.

## A world leader in film

At kp, we believe in meeting the needs of our pharmaceutical clients comprehensively, with the highest-quality films, the broadest range of formulations, and service and support from beginning to end. We offer the strength and stability of a global company, delivering results to you wherever you are.

*Innovation. Solutions. Performance. Support. Results.*  
**kp films deliver.**

## Film options

- Customized formulations
- Clear, tinted, and opaque colors
- Customized film thicknesses
- Customized roll widths
- UV inhibitors

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