



Pentapharm® kpVantage™

Polyester films for pharmaceutical packaging



innovation. delivered.

Our films deliver

The pharmaceutical industry is constantly innovating, and so are we. With Pentapharm® kpVantage™, kp delivers the next generation of films for pharmaceutical blister packaging.

Now you can change to polyester without changing a thing. Pentapharm® kpVantage™ films are high-performance polyester films. You can process these films on your existing equipment maintaining all critical package components—no need to change tooling, lidding, or package design.

Pentapharm® kpVantage™ films incorporate a wide range of structures to meet your pharmaceutical packaging needs. They can be used as a mono film or integrated into barrier structures for products that require more protection from moisture and gas. Use Pentapharm® kpVantage™ for solid oral-dose packaging, ethical drugs, OTC, generics, physician samples, veterinary medicine, and nutraceuticals.

The films meet FDA and EU regulatory requirements for primary contact. They are offered globally and manufactured throughout kp's worldwide network.



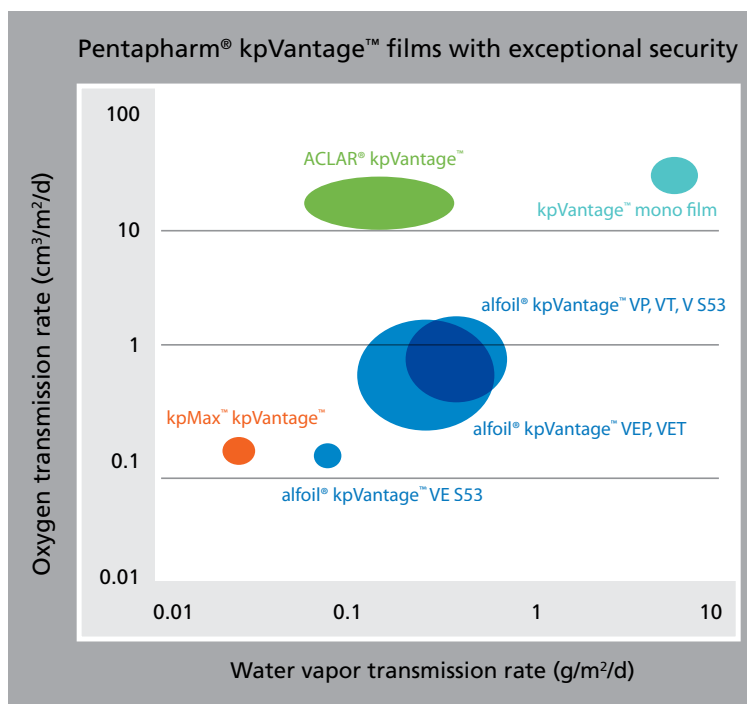


solutions.
delivered.

Innovative products that meet your needs

At kp, we're not just in the business of making films, we're in the business of delivering total solutions. That's why we developed Pentapharm® kpVantage™ films. This pioneering film gives you the option of using polyester-based materials without having to invest in costly package re-design or new machinery.

Our 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
OTR: ASTM D 3985, 23°C/50% RH

Indicative values only 1/10



Pentapharm® kpVantage™ films overview

brand name & polymer		film structure				general properties					thickness range (microns)
		layer 1	layer 2	layer 3	layer 4	moisture barrier	oxygen barrier	thermoformability	sealability side 1 / side 2	sterilization	
Pentapharm® kpVantage™ mono films	Pentapharm® kpVantage™ polyester MG50/01 series	polyester	-	-	-	+	+	+++	++/++	Gamma, EtO	191-400
Pentapharm® kpVantage™ barrier films	Pentapharm® alfoil® kpVantage™ VP series	polyester	PVdC 40-90 g/m ²	-	-	++	+++	+++	++/+++	EtO	200-400*
	Pentapharm® alfoil® kpVantage™ VT series	polyester	PE	PVdC 90-120 g/m ²	-	+++	+++	+++	++/+++	EtO	200-400*
	Pentapharm® alfoil® kpVantage™ V S53 series	polyester	PVdC 40-90 g/m ²	polyester	-	++	+++	+++	++/++	EtO	127-191*
	Pentapharm® alfoil® kpVantage™ VEP series	polyester	PVdC 25-90 g/m ²	polyester	-	+++	++++	+++	++/+++	EtO	200-400*
	Pentapharm® alfoil® kpVantage™ VET series	polyester	PE	PVdC 90-120 g/m ²	-	++++	++++	+++	++/+++	EtO	200-400*
	Pentapharm® alfoil® kpVantage™ VE S53 series	polyester	PVdC 120-180 g/m ²	polyester	-	++++	+++++	+++	++/++	EtO	127*
	Pentapharm® ACLAR® kpVantage™ 52 series	polyester	ACLAR®	-	-	++++	+	++	++/-	Gamma, EtO	191-381*
	Pentapharm® ACLAR® kpVantage™ S53 series	polyester	ACLAR®	polyester	-	++++	+	+++	++/++	Gamma, EtO	127*
	Pentapharm® kpMax™ kpVantage™ S54 series	polyester	ACLAR®	PVdC 90-180 g/m ²	polyester	+++++	+++++	++	++/++	EtO	100-127*
* Polyester skin thickness		- None + Low ++ Mid +++ High				++++ Ultra High		+++++ Ultra, Ultra High			



mono & barrier films

Pentapharm® kpVantage™ films

Using Pentapharm® kpVantage™ films is easy. There is no need to change packaging equipment or package design, and our outstanding technical service teams are available to support testing and line trials. Offered globally, we manufacture identical film at already-qualified kp production sites around the world.



All Pentapharm® kpVantage™ films:

- Can be processed on your existing packaging lines, without modification, new tooling, or need for specialized equipment
- Work with existing foil lidding materials and structures with universal heat-seal coatings and within normal sealing temperature ranges
- Offer a wide forming window for optimal thermoforming
- Form at lower temperatures, decreasing energy use and increasing line speed
- Punch and perforate cleanly, with no angel hair
- Offer a full range of barrier protection with common contact material
- Process consistently with no neck-in and good registration
- Cut easily for less knife wear
- Have increased yields due to lower specific gravity, more packages per pound/kilo
- Lay flat for improved performance on filling stations
- Have enhanced tensile properties for superior toughness
- Provide brilliant clarity and superior optical and surface qualities

kp mono films

Use Pentapharm® kpVantage™ mono films for pharmaceuticals requiring low moisture barrier. These films work with a wide range of blister packaging equipment.

All Pentapharm® kpVantage™ mono films deliver:

- Superior clarity and chemical resistance
- Excellent thermoformability & dimensional stability
- Various thicknesses, colors & grades designed to optimize your production line's performance

kp barrier films

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

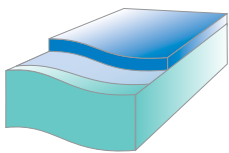
All Pentapharm® kpVantage™ barrier films deliver:

- Excellent sealability to a full range of lidding materials
- Exceptional strength & dimensional stability; controlled shrinkage; minimal neck-in
- Precise index registration
- Outstanding lay flat for easier cartoning and handling
- Excellent machinability, higher yields for more good parts per pound/kilo
- Superior trimming and perforating performance

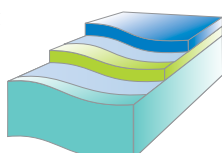
kp barrier films

Pentapharm® alfoil® kpVantage™ PVdC-coated polymer films

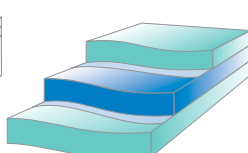
For mid- to ultra-high barrier protection, these films are available in a wide range of structures with customized coatings. Our films optimize your application's requirements with high-performance surface properties for low friction.



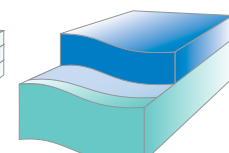
alfoil® kpVantage™ VP



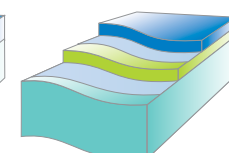
alfoil® kpVantage™ VT



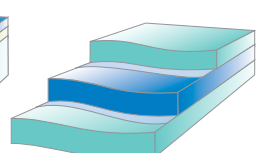
alfoil® kpVantage™ V S53



alfoil® kpVantage™ VEP



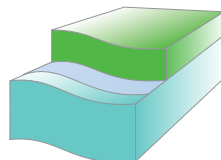
alfoil® kpVantage™ VET



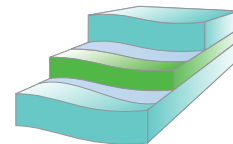
alfoil® kpVantage™ VE S53

Pentapharm® ACLAR® kpVantage™ films

For mid- to 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.



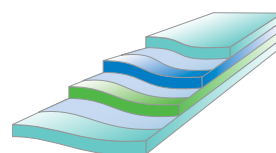
ACLAR® kpVantage™ 52



alfoil® kpVantage™ S53

Pentapharm® kpMax™ kpVantage™ 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.



kpMax™ kpVantage™ S54





performance. delivered.

Advanced technology, global sourcing

kp has been producing polyester packaging film for over 20 years and is a leading global producer of these films. We continually invest 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. And we are unique in backing every order with outstanding local technical and customer service.





kp plants are ISO 9001:2000 or 9001:2008 certified and we manufacture according to current GMP and HACCP standards. All Pentapharm® films meet or surpass FDA, HPB, European, and international regulatory standards.

Solutions for a changing world

As the global leader in pharmaceutical packaging films, kp offers a drop-in polyester-based solution designed to help you meet your social, economic, and environmental sustainability goals, while maintaining product integrity and production economies. Pentapharm® kpVantage™ films inherently provide high-performance properties that can support your sustainability efforts.

- Saves electricity due to shorter cycle times and lower temperatures
- Eliminates capital expense by utilizing existing packaging assets
- Reduces package weight through increased yield





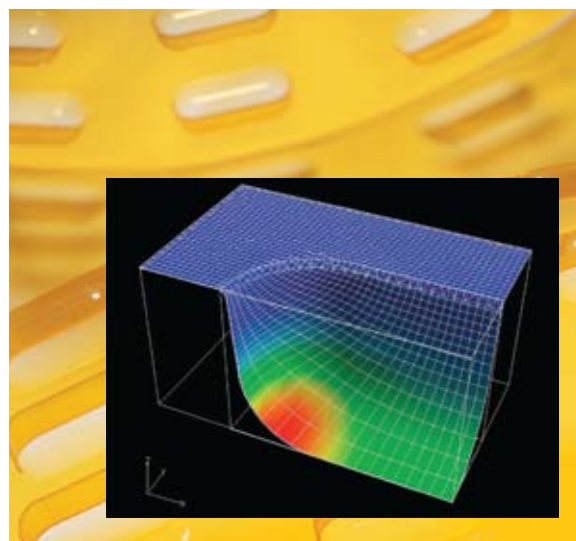
support.
delivered.

Our people stand behind our products

At kp, our people are there to help you make the most of Pentapharm® kpVantage™ 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 improving performance to get your product to market faster. At kp Packaging Technology Centers, the first of their kind in the industry, we internally develop new films and solve your issues. We evaluate blister materials, tooling and package design, and test your package under full production conditions.

Pentapharm® BlisterPro™, kp's innovative and proprietary software program, has introduced finite element modeling for thermoforming blister packages to the pharmaceutical industry. This engineering service helps you design more cost-effective packages that ensure product integrity by testing film formulations and tool geometry, calculating estimates of thermoformed cavities, and assessing process conditioning in a virtual environment. With kp support, you save time and expense on tooling and line trials.





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 structures
- Clear, tinted & opaque colors
- Customized film thicknesses
- Customized roll widths
- UV inhibitors

ACLAR® is a registered trademark of Honeywell International Inc.

© 2010 Klöckner Pentaplast. All rights reserved.

The statements contained herein are for informational purposes only and are true and accurate to the best of our scientific and technical knowledge. This information does not constitute a guarantee or warranty, express or implied, nor does it establish a legally valid contractual relationship. It is the customer's responsibility to determine the suitability of this product for the customer's intended use, and Klöckner Pentaplast does not assume any liability for the customer's use of this product or the information contained herein. (1/10)



Asia:
64/48 Moo. 4 T. Pluakdaeng,
A. Pluakdaeng
Rayong 21140
Thailand
Phone: +66 38 955460
Fax: +66 38 955462
kpsasia.sale-support@kpfilms.com

Europe:
P.O. Box 1165, 56401 Montabaur
Industriestr. 3-5, 56412 Heiligenroth
Germany
Phone: +49 2602 915-0
Fax: +49 2602 915-140
kpinfo@kpfilms.com

North America:
3585 Klöckner Road
P.O. Box 500
Gordonsville, VA 22942 USA
Phone: +1.540.832.3600
Fax: +1.540.832.5656
kpainfo@kpfilms.com

South America:
Rua dos Estudantes, s/n
Rodovia Raposo Tavares Km 28,3
Bairro Moinho Velho - CEP 06707-050
Cotia - São Paulo - Brazil
Phone: +55 11 4613 9999
Fax: +55 11 4613 9990
kpainfo@kpfilms.com

www.kpfilms.com



klöckner pentaplast