

DuPont™ Active Layer

A RECYCLABLE* WATERPROOF, BREATHABLE TECHNOLOGY FROM DUPONT

DuPont™ Active Layer provides high-performance, breathable protection for a wide variety of outdoor garments and gear. Plus a little something extra—recyclability. That’s why leading manufacturers are choosing DuPont™ Active Layer over polyurethane. When used with 100% polyester fabrics, DuPont™ Active Layer can be recycled to reduce waste and support sustainable manufacturing practices.

DuPont™ Active Layer when used as a component of apparel and other textile products prevents external moisture and wind from penetrating through the fabric while allowing excess moisture to escape from the inside. DuPont™ Active Layer is a monolithic film and works on the principle of moisture movement through it by absorption into the film on the inside face, transport through the film by water vapor diffusion, and finally, evaporation from the outside face of the fabric.

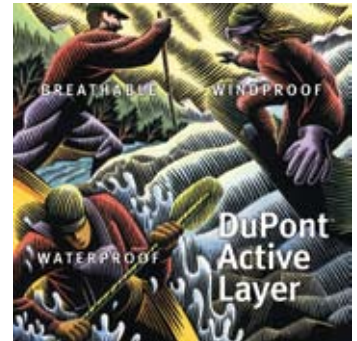
In contrast to microporous structures, DuPont™ Active Layer has no pores that can become clogged, which could compromise moisture vapor transmission. Hence, moisture vapor transmission rates remain high during end use, and garment comfort is not compromised. DuPont™ Active Layer also exhibits

good stretch and recovery qualities, which greatly reduces potential tears. For typical properties of DuPont™ Active Layer see **Table 1**.

DuPont™ Active Layer/Fabric Laminates

For applications such as outdoor apparel, durability in use and in laundering are important criteria. For these, DuPont™ Active Layer needs to be laminated to one or more fabric layers with either hot melt, aqueous- or solvent-based adhesives.

DuPont™ Active Layer lends itself to lamination to various fabrics containing stretch fibers, such as Lycra®, due to its excellent stretch and recovery characteristics. Use of stretchable fabrics improves comfort in use.



* The film used in DuPont™ Active Layer is recyclable if used with 100 percent polyester fabrics. Currently, there is not a recycling program in place.

Table 1
DuPont™ Active Layer Properties (preliminary)

Property	Test Method	Units	Grade/Typical Value	
			APA60020NC000	APA60015NC000
Physical				
Film Thickness	ISO 536	micron	20	15
Film Unit Weight	ISO 536	g/m ²	24	18
Mechanical				
Hydrostatic Resistance,	Mullen Burst	ASTM D 751-95	m	>10
Tensile Strength at Break,	Machine direction, film	ASTM D 882	MPa (kpsi)	15 (2.2)
	Transverse direction, film			14 (2)
Elongation at Break,	Machine direction, film	ASTM D 882	%	15 (2.2)
	Transverse direction, film			460
Initial Tear Resistance,	Machine direction, film	ASTM D 1004	N/mm (lb/in)	640
	Transverse direction, film			65 (370)
				75 (425)
Permeability				
Water Vapor Transmission Rate	ISO 15496	g/m ² /day	13,500	16,000
Water Vapor Transmission Rate, 24°C, 55% RH	ASTM E 96BW	g/m ² /day	13,000	15,000
Water Vapor Transmission Rate, 24°C, 55% RH	ASTM E 96B	g/m ² /day	850	900



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Typical Applications

Film/fabric laminates of DuPont™ Active Layer are finding increasing acceptance in many end uses requiring waterproof, breathable, and windproof characteristics. Disposable applications include operating room Level 4 gowns and personal protective apparel. Reusable end uses include activewear, winter sportswear, and hunting apparel.

DuPont™ Active Layer is also utilized in home furnishing applications such as carpet cushioning and upholstery.

Case Histories

Major Brand Houses Select DuPont™ Active Layer For Their Lines

DuPont™ Active Layer is designed to be recyclable when used with 100% polyester fabrics, and that is the reason it is being selected by brand houses. (See **Figure 1**).



Figure 1.

Protective Apparel

Industrial workers stay cool in protective apparel made with a special grade of DuPont™ Active Layer. Its high permeability to moisture vapor allows rapid evaporation and evacuation of sweat moisture (see **Figure 2**).

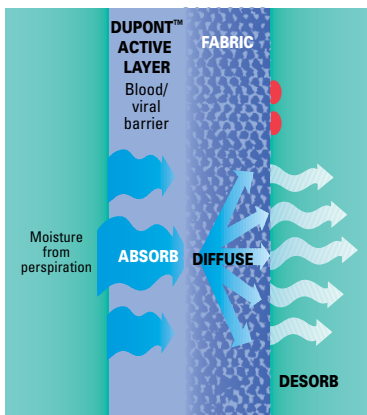


Figure 2.

Both single-use and reusable garments are available. Disposable garments consist of 25 µm (1 mil) of DuPont™ Active Layer extrusion-coated on DuPont™ Sontara® spunlaced fabric. Washable garments for use in clean rooms, etc., are a three-layer structure with a 25 µm (1 mil) DuPont™ Active Layer, a polyester copolymer substrate and a knit fabric which has excellent drape and hand.

Home Furnishings

From bedding to carpets, DuPont™ Active Layer breathable barrier can keep your home furnishings dry, comfortable and easier to care for. (See **Figure 3**).

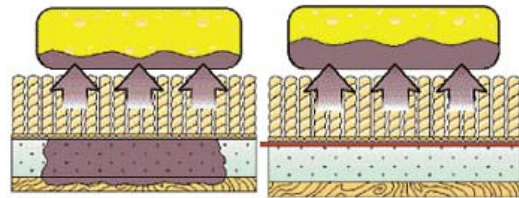


Figure 3.

Cushion without a moisture barrier (left) allows liquids to penetrate into its sponge-like structure. At right, DuPont moisture barrier film used by Carpenter Co. prevents liquid penetration of the cushioning allowing it to be blotted up from the carpet.



For further information please contact
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