



BY KATHLYN SWANTKO

# light as a

≡ F E A T H E R

**U**NLESS YOU'VE BEEN LIVING IN A closet, you've probably noticed the trend toward lighter apparel and gear which means consumers can go faster, if they choose. Or, best of all, they can participate in the same outdoor activities as before—while carrying less weight. The focus on lighter gear has manufacturers continually looking for new ways to reduce the weight of their products while keeping them as functional as the older, heavier versions. All aspects of construction are being looked at, including the use of innovative construction techniques, streamlined seaming, lighter-weight fasteners and hardware, and lighter-weight fabrics.

Laminates, previously the stiff and heavy partners in an apparel lineup, are receiving renewed attention of late, especially for winter applications because new technologies have led to the creation of lighter and more supple laminates.

These “new” laminates are not only lighter, meaning less overall weight in the finished product, but they also add to the all important fashion-appeal and the versatility of the garment, without giving up a thing on the function and performance side of the technical equation.

## Evolution Of Laminates

Not exactly the new kid on the block, laminates have been around for 40 years or more, according to David Parkes, president of Concept III International, sales agent for Glenoit, Kingwhale, Rentex, Primaloft and Travis Textiles. Early laminate products were nothing like today's lightweight fabrications. The original products had a cotton or nylon face with a foam backing, and were stiff and boardy.

“The evolution of laminates over the years has been toward constructions that improve drape, reduce weight, and make the product appear that it is one fabric, not two materials laminated together,” Parkes told GearTrends. “Many years ago, the laminates tended to be heavy and stiff. In addition, the fabrics had a very synthetic character to them. It's been a gradual evolution away from that, which has resulted in the marriage of two or more fabrics into a perfect union of lighter, more drapeable, suppler fabrics. This growth has also produced fabrics that have a more natural look and feel.”

Today's laminate fabrics combine the performance qualities of various layers which are incorporated into one single fabric. Lightweight laminates are being used in most apparel applications in the outdoor and adventure markets, even in underwear. Laminates can also add enhanced aesthetics to the finished fabric.

Laminates are gaining new popularity thanks to improved technologies that are helping them to **BECOME “ONE”** with the fabric.

“The technology has moved along now where lightweight laminates will give even improved performance over the heavier products,” added Parkes. “Not only is the weight being reduced, the comfort of the product has also been improved, in terms of how it drapes and feels on the body. Heavyweight laminates tended to make you perspire, while the new lightweight versions will not do that to the same degree. The whole drive for these products is to maintain the performance, but provide lighter weights and greater aesthetics.”

## Components Of Lightweight Laminates

To produce lighter-weight laminate products, each component of the construction needs to be considered, as well as the technology used.

“The use of lighter-weight materials, particularly in knits, is very important,” said Parkes. “As the whole engineering technology in lamination has been improved, there continues to be the use of finer sub-straits. Now you can use extremely lightweight products with a thin film, and put them together into a gorgeous fabric. That was just

not feasible before. It wasn't possible to use airy products and lightweight film, and have it come together without it buckling or separating.”

David Nick, president of DPNA International, a consulting company involved in providing a global perspective in the coating, adhesive, sealing and specialty chemical industries, offered some observations regarding the bonding of laminate products, which affect the issue of weight.

“Generally, heat sealing offers the best alternative for joining textiles,” he said. “It does not add weight. However, some textile constructions use adhesives for more than just bonding, such as sealing seams for waterproofness or adding stiffness, and as a way of providing an extra measure of strength to a seam. Lightweight adhesives, in the form of ‘webs,’ are offering good bonds while reducing weight. These are in the form of ‘hot melts’ that flow at elevated temperatures and bond when cooled.”

Nick also mentioned that there is a trend away from solvent contact adhesives and toward the use of water-based products. He explained, “Multi-laminates are using more films, particularly those based on polyamide and polyurethane chemistry.”

## Lightweight Laminates Vs. Heavyweight Products

Lightweight laminates can provide the same level of performance as the heavier products. But, there needs to be a balance.

“Weight can be taken out of most structures while maintaining necessary performance. However there is a balance between cost, performance, weight and the end-user need, all of which must be considered,” said



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Scott Gillam, president and general manager for Glen Raven Technical Fabrics. "This is critical in the design effort."

Sharee Halleran, public relations director for Schoeller Textil USA Inc., agreed, but added that there's a limit to going lightweight in some applications while trying to maintain desired performance characteristics. "Schoeller-dryskin-extreme materials have been extremely successful throughout the U.S., offering enough protection against wind, but also providing air permeable and abrasion-resistant qualities, while also being lightweight," she said.

Significant weight reduction is therefore possible for most purposes; in fact, reducing weight in most cases from 15 percent to 30 percent is not unusual without sacrifices.

"It depends upon your starting point and the application needs. If the fabric is a throw away after a competitive event, then the weight reduction can be major," said Gillam. "A pack with four pounds of fabric can be reduced from two- to four-fold if it has limited future use. Apparel applications that are not subjected to significant abuse or require an extended life cycle can be reduced significantly. More traditional applications that are subjected to re-use and normal wear and tear, UV, wash or

laundry, etc., must be evaluated to determine the application values and use."

### The Fashion And The Future

After all of the functional qualities are engineered into a fabric, there is one more advantage to lightweight laminates—fashion. Who says it can't be functional and look good?

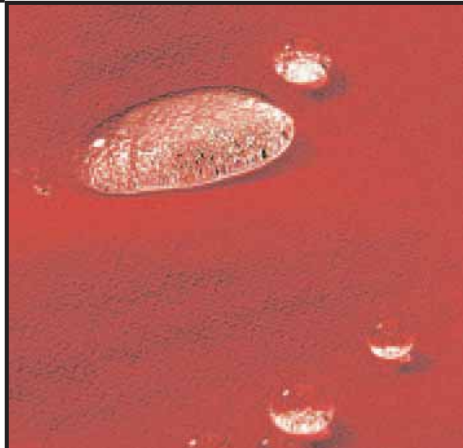
"The opportunity for really exciting reversible garments exists when you can use one fabric on one side, and one fabric on the other," said Parkes. "That is a fascinating fashion attribute, which will be happening more and more. It brings a fashion aspect that you couldn't get with a single material."

And it's not as if the developments in lightweight laminates are expected to stop anytime soon.

"Laminated fabrics have matured so much in the last few years that I anticipate that we will see some very interesting and dynamic fabrications coming out of the lamination industry over the next three years, particularly in the soft shell category," Parkes said. "I also think that with so much activity on

waterproof, breathable constructions and companies emulating what Gore has accomplished that this will result in a new era of performance waterproof-breathables."

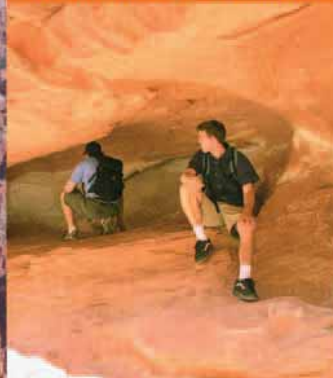
The progress of new developments fueled by more research is partly helped along by relationships with universities. Schoeller for example has been reinvesting 5 percent to 10 percent of its revenue to look at new technology and equipment as well as to fund research—all in search of the next pot of gold at the end of the rainbow: more new fabrics.



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