



## High-Tech Hybrids

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**By whatever name you call them, composites are proving that innovative substrate and fiber combinations are an increasingly beneficial option for new product developers**

**E**ver heard of hybrid fabrics? How about multiaxial fabrics? Compound fabrics? Well, these are the terms roll goods producers are using lately to market composites as the high-tech textiles of the future. These multilayered combination fabrics target diverse market segments ranging from filtration, aerospace and medical end uses to wiping, automotive and protective applications. By combining the characteristics and performance features of different fibers and/or substrates, composite nonwovens are putting a new twist on the versatility, high

performance and quality that have come to be expected from nonwovens.

One company leading development efforts for new hybrid fabrics is roll goods producer eswegee Vliesstoff GmbH—part of Textilgruppe Hof AG, Hof/Saale, Germany. Eswegee has unveiled several new composite products in its multiaxial fabrics department, including advanced materials for roto blade construction. The cost-effective hybrid fabrics are manufactured from E-glass and carbon (heavy tow) rovings and are finding application as reinforcement materials.

A pioneer product in the wind generator sector is the Multibrid 500-5 MW offshore-wind turbine with a roto blade diameter of 116 meters. According to Helmut Röthel, sales manager at eswegee, “The M 5000 is the world’s first wind turbine exclusively developed for large offshore parks. As a result of consequent development work, new technical solutions are being created for windmills. This product is setting a new standard,” he said.

DelStar Technologies, Middletown, DE, is another manufacturer making the most of fabric combinations. By utilizing two of its product ranges—DelPore meltblown media and Delnet apertured film—the company has developed products with unique characteristics including pleatability, enhanced dust release characteristics, extremely high tensile strength and the possibility of adding antimicrobial features. The products are available as double (DelPore/Delnet) or triple (Delnet/DelPore/Delnet) layered com-

posites. The meltblown can be adjusted to meet a variety of efficiency/resistance targets and any of the current Delnet films can be applied for varying degrees of stiffness.

DelPore has also been calendered together with another DelStar product range, Naltex extruded netting. The resulting composite is pleatable and has excellent resistance/efficiency performance. Both composites can be used in air and liquid filtration applications.

For its part, Colbond BV, Arnhem, The Netherlands, supplies three-dimensional, open filament composite mats, which are used as spacers in PUR molding and resin infusion processes. In the flooring area, Colbond has unveiled new composite backing materials while in the civil engineering segment, this year

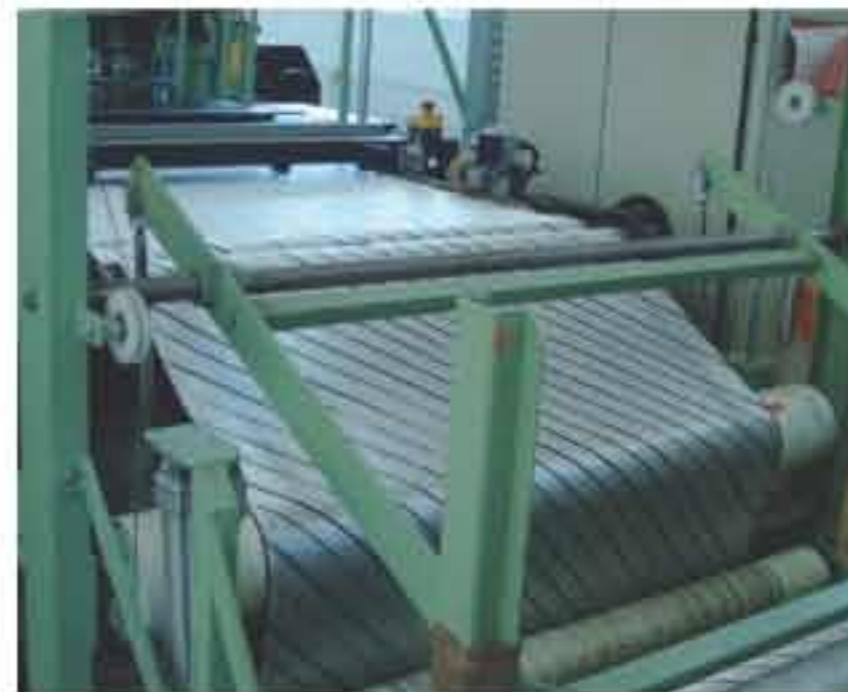
Colbond plans to launch a patented soil consolidation product. The new composite product, which will replace Colbondrain, its current prefabricated vertical drain, is based on an innovative extrusion and shaping technology that allows the use of various types of polymers and nonwoven filters.

The new Colbondrain consists of a plastic core fully bonded to nonwoven filters designed to provide extremely high discharge capacities and resulting in short settlement times. Installed up to 50 meters deep into soft soils, the drain creates a path for water to be drained off. This process reduces the consolidation time significantly and reduces the construction time of the final works.

Another focus for Colbond is the

further development of Enkamat-based products for leisure applications. In the Netherlands, the company has just completed a major development project in cooperation with Dutch consulting company Arcadis. While regu-

*eswegee Vliesstoff produces multiaxial fabrics on this production line.*



lations force builders of conventional artificial grass pitches to include rubber granular in the foundation layer or as infill in the artificial turf (shock absorption) and approximately half a meter of soil (foundation layer), the patented system developed by Colbond and Arcadis avoids the costly use of environmentally unfriendly rubber and reduces the thickness of the top layer by 50%. The main component of the new system is a two centimeter thick Colbond product that creates an air gap to drain shocks.

Additionally, Colbond is planning to increase its capacity considerably for 3-D mats and composites, both in the U.S. and Europe. Capacity increases are also being achieved through continuous debottlenecking and upgrades to existing production equipment. The company expects its Asheville, NC site alone to increase its nonwovens capacity by more than 10% in the third quarter of 2006 as a result of these efforts.

For Chattanooga, TN-based Propex Incorporated—which acquired SI Corporation in February—composite fabrics are created through nonwoven/woven combinations. Propex's varied capabilities span from weaving, embossing, fiber spinning and film coating to laminating. These processes can be combined with needlepunched fabrics to offer an innovative range of products including Matrix, a differentiated carpet backing designed for artificial turf requiring high tuft bind and made from a woven/nonwoven composite structure.

On the Far Eastern front, Toray Saehan Inc. (TSI), headquartered in Seoul, South Korea, is keeping busy creating new composite varieties that make the most of its portfolio of spunbond fabrics. The company supplies polypropylene spunbond, meltblown spunbond, SMS, SMMS, SSMMS, as well as polyester spunbond including embossed and needlepunched spunbond.

Through state-of-the-art SSMMS and bicomponent technology, TSI fab-

ricates spunbond products including lighter weight multilayered nonwoven bicomponent layers. All of TSI's spunbond facilities house Reifenhauser machines with S, SS, SMS and SSMMS capabilities. Additionally, TSI produces PP/PE bicomponent products on a PP-5 machine.

"Our polypropylene spunbond SMS is well suited for not only baby diapers and adult incontinence products but sanitary napkins and pads

as well," explained TSI president and CEO Y.K. Lee. "Since diapers come in contact with delicate skin, TSI's specially treated spunbond SMS makes products clean and safe." The company also supplies composite fabrics for other hygiene uses such as leg cuffs, backsheets, topsheet, core wrap and individual pouch wrap.

Beyond the hygiene sector, TSI's composite products also serve medical, protective apparel and agricultural markets. Its new line in Nantong, China will be equipped with state-of-the-art technology to meet recent standards for medical and protective garments.

Back in the U.S., Precision Custom Coatings (PCC), Tottowa, NJ, offers a variety of multilayered composites for applications ranging from bedding, adult incontinence, healthcare and wipes to nuclear waste transportation. PCC's hybrid offerings blend needlepunch, spunbond, superabsorbents and film in a plethora of combinations, providing features such as stretchability, breathability, water resistance, odor absorption, flame resistance, bleach resistance and antimicrobial properties.

In the wipes area, PCC supplies a variety of custom-designed wipes for household, personal care and industrial uses, featuring a range of abrasive and absorbent characteristics. With applications from cosmetic to automotive care, these wipes can be applied to an additional absorbent layer and/or impregnated with surfactants or other dry solutions prior to leaving the manufacturing line for final cutting and packaging.

For the household segment, PCC manufactures Brillo Scrub'n'Toss reusable multipurpose pads. This dual sided multi-use product has a soft side for delicate surfaces and for wiping away everyday spills, as well as a scrubber side for fast, effective scouring that is flexible and will not scratch. ❖



Top to bottom: A variety of custom-designed wipes manufactured by PCC for household, personal care and industrial uses; a composites line in action at eswegee Vliestoffe's production facility; a roll of PCC's Brillo Scrub'n'Toss composite wipes material ready for final cutting and packaging.