Diversity of development

IFAI Expo '09 highlighted the outstanding innovation that continues to thrive at the heart of the technical and industrial fabrics industry, with a host of new products on offer. Kathlyn Swantko reports from San Diego

If there was a concern that product development is being downplayed or overlooked during the tough economy, it was dispelled at this year's IFAI Expo. An estimated 6,000 attendees were encouraged by the technological advances presented, and sat in on a broad array of seminars at the show, which took place from September 23-25 at the San Diego Convention Center.

Although exhibitor space was down about 20% from last year, the focus was on recent bright spots in the recovering economy. Jeff Rasmussen, market research manager for IFAI, reported: "We're seeing that the overall economic conditions are getting better and the attitudes of our membership are reflecting this as well." IFAI projects a turnaround to begin in the fourth quarter of 2009 and extend through the fourth quarter of 2010.

The mood on the exhibition floor was optimistic as attendees looked for new technologies and shopped for the latest trends and applications. Many suppliers reported an upbeat response to the features and benefits of their latest product offerings. According to Julie Case, technical services manager for IFAI, there are several fabric categories that IFAI members consider to be particularly important for the industry at present, including shade cloth, rubber coated fabrics, nonwovens, metalised fabrics and composites.

There were also seminars presented in IFAI's 2009 Innovation Theatre that featured interesting niche products and technologies, involving smart / e-textiles, safety and protective fabrics for chemical and biological defence, and durable nonwovens.

View of the San Diego Convention Center fabric roof.

View of the IFAI Expo trade show floor at the San Diego Convention Center.

Cheryl Gomes, senior engineer, QinetiQ North America / Foster-Miller Inc, USA, presented research being done by Foster-Miller on self-decontaminating fabrics for chemical and biological defence.

Gomes explained that fabrics for this market need to be resistant against multiple effects and agents (such as nerve agents, choking agents and blister agents), and cannot have heat-stress

problems. In addition, the fabrics must be fast-acting, breathable, launderable, and cost-effective. Examples include activated carbon that is in use today and catalytic polymer substrates.

Chip Langon, communications director for Minnesota Wire, gave a presentation on Stretchy Wire, a new, patented elastomeric conductor wire targeted towards the e-garment industry. This new wire product is made by wrapping an elastomeric core yarn with braided wires. Minnesota Wire's research on Stretchy Wire for the military involves wire that can stretch 5% to 30% and return to its original length, demonstrates no degradation, and maintains a 5lb break strength. Minnesota Wire is currently testing 140 stretchy materials for e-garment applications.

ChroMyx is a patented line of temperature sensitive colour-changing fabrics, a flexible film sheet material innovation by Chameleon International. The company offers fabrics with colour-changing properties that can't be washed off, marred or scuffed off. According to Debra Aperfine, president of Chameleon International, the company is working with its partners to develop proprietary applications that are endless and span multiple markets, including medical, industrial, apparel, novelty, sports and furniture.

In addition to these developmental products, there were also several commercially available products that were causing a stir on the tradeshow floor:

Bondcote Corporation

This producer of performance engineered coated and laminated fabrics for the single-ply roofing, transportation, military, environmental, medical, agricultural, recreational, and athletic industries featured a variety of new fabrics at the show. Included in this season's new offerings were Tufmesh, a PVC-coated woven polyester mesh for the truck cover and tarp industry; Tufmesh Plus, the coated Tufmesh product with flame retardancy for the recreational/athletic, marine, screen, and shade applications; CPSIA 18 oz. VCP, a new vinyl-coated polyester fabric that is compliant to the new Consumer Product Safety Improvement Act of 2008 for children's toys and childcare articles; Dragontuf, a flame retardant laminated PVC/polyester fabric for general purpose covers, recreational/ athletic, and pool cover applications; MarineOne, a four-season cover for the boating industry; and EL-Lighting, an ultra-flexible, durable, and lightweight composite technology, based on electoactive polymers for uses such as tent lighting, displays or vehicle interiors.

(Top) Vectran's new double knit interlock fabric; (centre) Vectran double knit interlock fabric bonded to the reverse side of Kuraray's Clarino leather; (bottom) the right side (the Kuraray Clarino leather side) of the Vectran interlock bonded fabric.

Kuraray America, Inc

A producer of a variety of speciality products contained in building and coating materials, adhesives, home textiles and man-made leather, dental materials, carpets, furniture finishes and laminated safety glass, Kuraray America is the maker of the Vectran fibre, a high-performance multifilament yarn, spun from liquid crystal polymer (LCP), which is the only commercially available melt spun LPC fibre in the world. Vectran is five times stronger than steel and ten times stronger than aluminium in terms of strength-to-weight ratios.

Forrest Sloan, manager of international marketing for the Vectran division, explained: "Our big news is that we've increased our production capacity for the Vectran fibre. In Saijyo, Japan, we went from 450 to 900T late last year, and the 100T US capacity at Fort Mill, SC, has just become operational. Of course we expanded both facilities in anticipation of increasing demand, some of which has been delayed because of the worldwide recession. But, we're optimistic that we can fill the capacity fairly quickly given the large number of opportunities for technical fibres that are on the horizon. Many applications for US military fabrics require US fibre content. So until our Fort Mill SC expansion, designers were not able to take advantage of Vectran's improved properties relative to aramid fibres."

Kuraray also used IFAI Expo to introduce a new double-knit interlock construction made with the Vectran fibre. The company featured the Vectran knit laminated to the back of its new Clarino microfibre leather and suede products, to provide extra performance qualities, strength, and add a soft touch to the insides of shoes and gloves made with its Clarino leather products.

Brookwood Companies Incorporated

This integrated textile and product company services a diverse worldwide marketplace with a wide variety of technically oriented products to support all market segments. Brookwood products provide solutions in dyeing, printing, coating and laminating for a wide range of consumer, industrial, medical, and military applications.

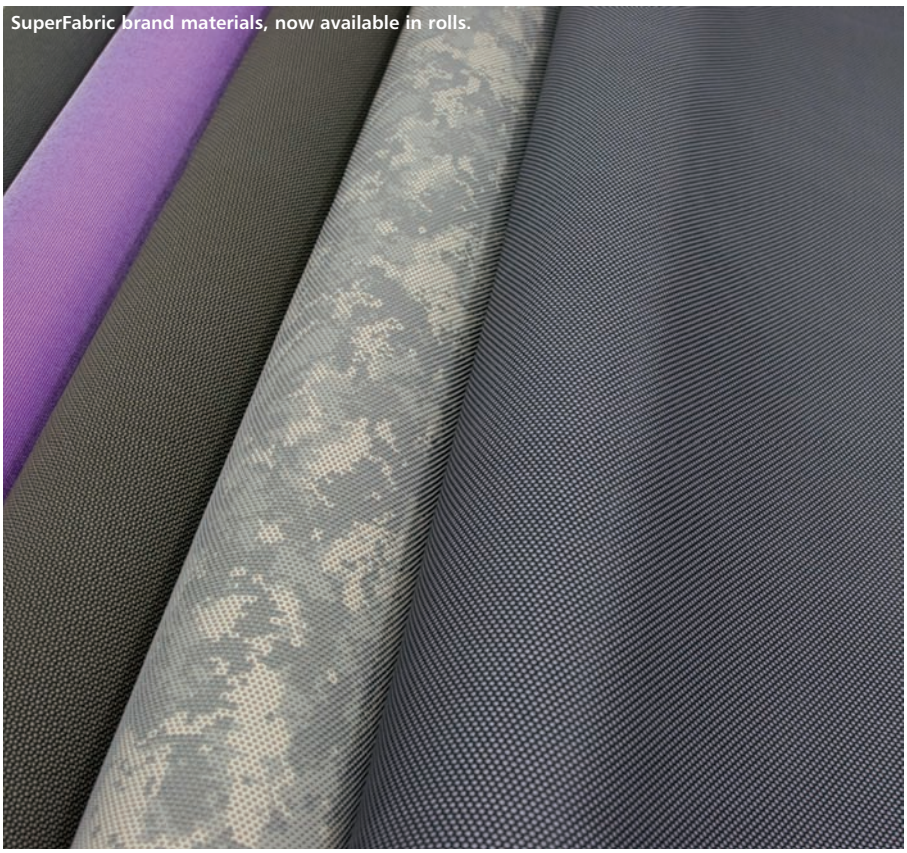
Creator of innovative synthetic fabrics and blends for performance apparel, backpacks, luggage and a wide range of military specification products, Brookwood used the IFAI Expo to announce its newest products - FRX by Brookwood and the Marathon H100 Finish.

FRX by Brookwood is a new line of flame-resistant synthetic fabrics, which provide a unique combination of flame-resistant characteristics that can be applied to a variety of fabrics in a variety of uses. FRX by Brookwood meets the requirements of the new Improved Outer Tactical Vest (IOTV) for the US Army.

Brookwood's Marathon H100 Finish has a durable water repellency, ideal for activewear and fitness apparel, is DWR through 100 washes, maintains a soft subtle hand, and is easy-care.

TechFiber

TechFiber, a market leader in high-tech ballistic and impact-resistant fabrics, uses its patented manufacturing process Flex-Tech to give its customers superior advantage in ballistic materials. Flex-Tech utilises high-performance thermoplastic polymer film to bond the fibre material


SuperFabric brand materials, now available in rolls.


(Top to bottom) TechFiber's K-Flex SH 1000 denier Kevlar; TechFiber's Unidirectional I-Flex® H; and TechFiber's 4D Aramid.

into a resilient fabric, which offers both impact and ballistic resistance.

TechFiber featured several fabrics at IFAI Expo. Its newest offerings include I-Flex H, 4D, and K-Flex SH. The patent pending design, 4D, provides the market with the most unique solution to reduce backface signature. Utilising its Flex-Tech Technology, the layout is extremely effective in capturing fragments upon impact. 4D works extremely well in hybrid configurations for soft armour applications, such as for law enforcement bulletproof vests, military soft body armour, and ballistic blankets.

The I-Flex H unidirectional fabric has ballistic performance with the advantage of a more affordable price, compared to alternative high-performance materials. It is lightweight, tough, and resists moisture and the elements. It possesses no shelf-life problems, has a fast cycle time, and is easy to cut and handle.

K-Flex SH is a product made using DuPont's Kevlar brand fibre and Tech Fiber's patented UD process, which gives aggressive performance designed to stop the world's most dangerous threats. K-Flex SH has no shelf life issues, has fast cycle times, and is lightweight and tough, with no ozone-depleting manufacturing processes or substances.

HDM Inc

HDM Inc, makers of SuperFabric, used IFAI Expo to announce that its line of SuperFabric brand materials are now available in rolls. The SuperFabric technology takes a base fabric, such as nylon, neoprene or crepe, and overlays it with tiny, hard 'guard plates' in a specific arrangement. The gaps between the 'guard plates' allow complete flexibility, and are small enough to keep sharp objects from penetrating. The geometry, thickness, size, as well as the base fabric, can be varied depending on the targeted attributes.

Marketing and sales manager Chris Kohn said: "HDM has expanded its rolled goods manufacturing capability with a new facility in Singapore. This combination of format, pricing and availability will create new opportunities with luggage, transportation, and other larger scale applications. And it enables us to meet volume / capacity issues, deliver product in industry standard widths and lengths, and provide better efficiency and less waste compared with sheets. Our customers also benefit from better pricing, making it a strong option in many more applications."

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