



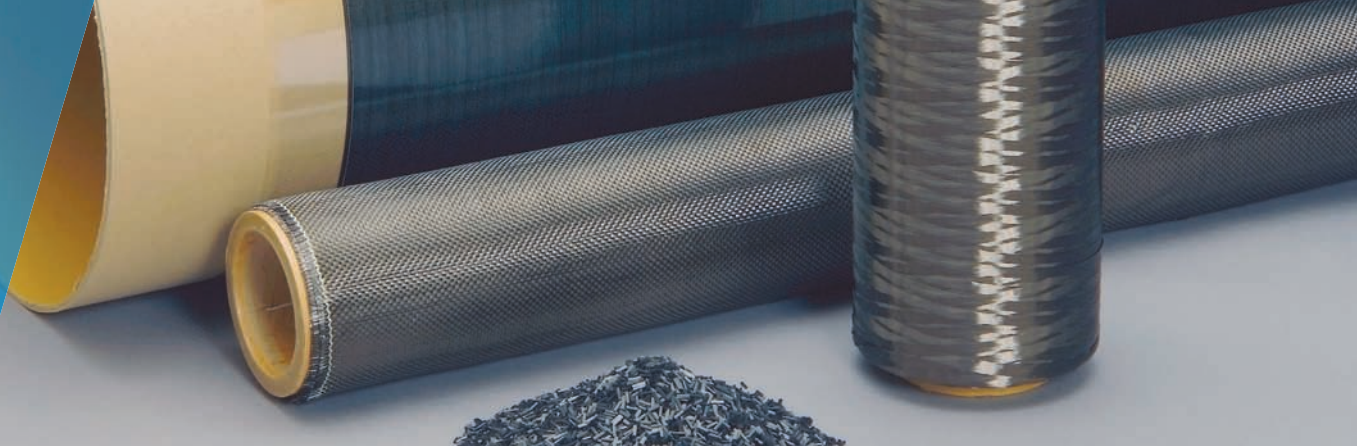
TEXTURES

2019

AMERICAN
TEXTILES

WE MAKE AMAZING™

Teijin Carbon
Fibers Inc. is
building a
carbon fiber
production plant
in Greenwood,
South Carolina
(see page 10).



Dear Readers,

Today, American textiles are more than basic fibers, yarns and fabrics. From highly engineered fabrics that keep our warfighters safe to high-strength carbon fibers that fortify aircraft to advanced medical products that help patients heal, textiles are quietly sustaining and improving everyday life. As companies who innovate and manufacture these amazing products, members of the National Council of Textile Organizations (NCTO) are proud to be part of an industry that gives people better, healthier and more fulfilling lives.

Our fourth annual edition of **TEXTURES** will take you on a journey that illustrates American textiles' contemporary renaissance. You'll get firsthand perspectives and insights from thought leaders and change makers on the groundbreaking developments, as well as real-life stories that personify the textile industry's impact on our nation and the globe.

Through the various stories included in this publication, you'll gain insight into the modern U.S. textile sector and the bright, resilient, talented people who make our industry the global leader in product innovation and quality. People who are creatively reshaping the norm. People who aren't afraid to take risks. People whose inventive strategies and smart, efficient processes are making the world a greener, smarter, healthier and safer place.

NCTO is pleased to share this inside look into a truly amazing industry. We hope this edition of **TEXTURES** gives you a deeper appreciation for a great American industry that makes an incredibly important and positive impact on each of our daily lives.

Sincerely,



Marty Moran
Chairman, NCTO
CEO, Buhler Quality Yarns Corp.
(a Samil Spinning Co.)



Augustine D. Tantillo
President & CEO, NCTO

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TSG Finishing LLC's DEFEND®
protective finish adds water-
and stain-repellent properties
to a variety of fabric types.

Cover image courtesy of
TSG Finishing LLC

COMMUNICATE

Send comments and story ideas to
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For more information about NCTO
and its mission, contact us at
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NCTO COMMITTEES

HARNESSING EXPERTISE

TO BUILD A STRONG U.S. TEXTILE INDUSTRY

Washington, D.C., is a busy place. Every day, Congress and dozens of federal entities are making, implementing and enforcing policies on innumerable matters that affect U.S. textile jobs and trade. While some issues are broad and easy to understand, others are highly technical, if not arcane.

The National Council of Textile Organizations (NCTO) is structured into four governing councils — Fiber, Yarn, Fabric & Home Furnishings, and Industry Support — to help the U.S. textile supply chain form a consensus and speak with one voice on policy matters affecting the sector.

When the United States enacts new laws or federal agencies make administrative rule changes, some issues recur so often or are so complex that NCTO has formed special standing committees to comple-

ment its four-council structure. These committees inspire vibrant inter-council exchanges of expertise and ideas that enable member companies to better understand and influence policies affecting everything from cotton consumption to government procurement and flammability standards to customs rules.

With technical input from all sectors of the supply chain, NCTO's committees can vet policies even more rigorously than NCTO's councils. By harnessing expertise and fostering more robust policy deliberations, NCTO's committee systems helps NCTO's four councils make better-informed decisions, while serving as a unifying force for the U.S. textile industry.

For more information on how NCTO's four standing committees benefit the industry and consumers, check out the following **TEXTURES'** profiles.

Government Textiles Committee:

ENCOURAGING UNCLE SAM TO BUY “MADE IN THE USA”



As a U.S. Army Ranger, I know when equipment fails in action, lives can be endangered.

Nick Pence

NCTO Government Textiles Committee
Chairman; Director of Materials and
Trims, Under Armour

The single biggest customer for the U.S. textile and apparel supply chain is the U.S. government. The Department of Defense (DOD) alone purchases more than 8,000 different textile items for use by the U.S. military and other allied organizations, and this figure rises to more than 31,000 line items when individual sizes are factored into the item mix. Including DOD purchases, the U.S. government routinely spends more than \$2 billion annually on textiles and clothing.

NCTO's Government Textiles Committee, chaired by Nick Pence, director of Materials and Trims for Baltimore, Maryland-based Under Armour, connects member companies from all points in the U.S. textile supply chain. Together, these companies oversee issues related to all facets of government procurement, including

preservation and expansion of the Berry Amendment, contracting matters, and liaison with other organizations and government contracting agencies.

“As a U.S. Army Ranger, I know when equipment fails in action, lives can be endangered,” Pence said. “American-made military textiles and clothing are world-class. Knowing that gives warfighters added confidence going into a mission. ... America's security depends on our military having guaranteed access to high-quality, innovative textile materials, apparel, and personal equipment made at home.”

Under the law known as the Berry Amendment (10 USC 2533a), most textiles and clothing purchased by the U.S. military are required to contain 100 percent U.S.-made fibers, yarns, and fabrics. Additionally, those textile and clothing goods must be cut and assembled in the United States.

In recent years, attempts have been made during consideration of the annual National Defense Authorization Act (NDAA) to weaken sourcing requirements for some products — including textiles, apparel, and footwear — covered under the Berry Amendment. NCTO has strongly opposed efforts to undermine the integrity of Berry and other “buy American” preference laws.

Besides supporting domestic preferences, NCTO's Government Textiles Committee works closely with the Defense Logistics Agency, the U.S. Army Natick Soldier Systems Center, Program Executive Office (PEO) Soldier and other entities to proactively anticipate the services' future textile and clothing needs and develop the next generation of military textiles.

“Still, meeting those needs requires careful planning,” Pence said. “For example, if the services say they require 200,000 ballistic-resistant armor plate vests next year, some-

one must produce the fiber and/or yarn, weave the fabric, dye and finish the fabric, and finally cut and sew it before a finished product can be shipped to the troops.”

“NCTO wants to make sure upstream suppliers are making today what the military's downstream customers will be needing tomorrow; if a key input is out of stock, production can be delayed for weeks,” Pence said.

NCTO also coordinated closely with the Department of Defense in organizing Advanced Functional Fabrics of America (AFFOA). This Cambridge, Massachusetts, innovation center managed by the Massachusetts Institute of Technology is tasked with developing next-generation textile fibers that can harvest energy, facilitate data transmission and more.

PERFORMANCE CHARACTERISTICS of Military Fabrics

- Camouflage
- Flame-retardant
- Water-repellent
- Ballistic-resistant
- Insect-repellent
- Odor-masking
- Anti-static
- Abrasion-resistant
- Wound-treating
- Load-bearing

Upholstery Fabrics Committee: SHOWCASING YOUR STYLE, WHILE KEEPING YOU SAFE

Lounging in your favorite recliner? Sporting a vibrant hue on your living room chairs? Curling up with a book on your favorite sofa? Upholstery fabrics not only showcase living spaces, they also must withstand the rigors of everyday use. In addition to abrasion resistance and repelling water and stains, upholstery fabrics also are made with fire safety in mind to protect their users.

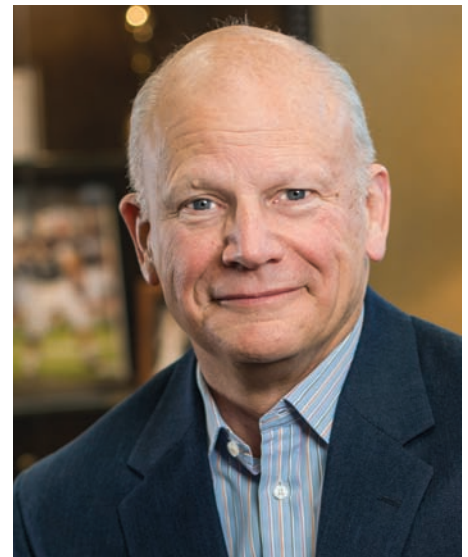
Chaired by Michael Shelton, president and CEO, Valdese Weavers LLC, in Valdese, North Carolina, NCTO's Upholstery Fabrics Committee oversees all upholstered furniture flammability issues at federal and state levels. It also addresses performance standards, chemical regulations, intellectual property rights and other matters affecting the upholstery fabrics industry sector.

"The Upholstery Fabrics Committee has had a full plate in recent years," Shelton said. "Tracking flammability standards

and ensuring that they are reasonable, effective, realistic and affordable is a large part of the work of our committee."

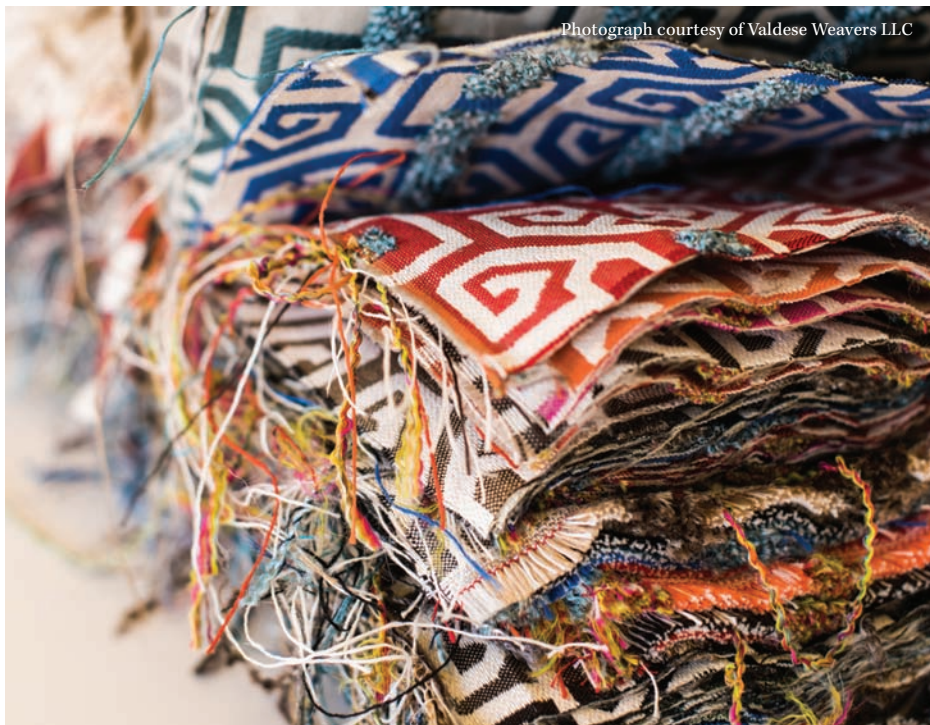
The committee also works to help make sure fabrics meet consumer expectations, which include strength and colorfastness, as well as protection from accidental spills such as coffee, ketchup and mustard. Spill protection is achieved using finishes that repel dirt, water and oily substances, and the latest generation of performance fabric finishes are the result of numerous technical advancements that meet regulatory standards designed to protect health and the environment.

The committee also has filed public comments with the United States Trade Representative about imported upholstery fabrics, particularly certain products from China, that violate copyright laws and infringe on intellectual property protections in the United States.



Tracking flammability standards and ensuring that they are reasonable, effective, realistic and affordable is a large part of the work of our committee.

Michael Shelton
NCTO Upholstery Fabrics
Committee Chairman;
President and CEO, Valdese Weavers



Photograph courtesy of Valdese Weavers LLC

"What sets American upholstery manufacturers apart is our proven track record of continually producing new fabrics with the most fashionable colors and designs anywhere in the world," Shelton said. "But if overseas competitors can illegally knock off the product, U.S. manufacturers are denied the rewards of their unique styling and design, research and development, disincentivizing domestic investment. That's why the Upholstery Fabrics Committee has been fighting so hard to make sure U.S. Customs and American courts rigorously enforce intellectual property rights."

Cotton Committee:

INFLUENCING POLICY FROM FARM TO FABRIC

The most commonly used natural fiber in textiles is cotton, a highly preferred fiber choice for jeans, shirts, bedding and other products because it is soft, absorbent, breathable and does not retain odors.

According to the National Cotton Council of America (NCC), U.S. farmers grew 20.9 million bales of cotton in 2017. Net domestic consumption of the fiber totaled an estimated 17.7 million bales, including 3.2 million bales by domestic yarn spinners.

“NCTO’s Cotton Committee brings together cooperatives, brokers, shippers, yarn spinners, and fabric knitters and weavers to oversee all policy matters pertaining to the cotton textile supply chain,” said Cotton Committee chairman Anderson D. Warlick, chairman and CEO of Gastonia, North Carolina-based Parkdale.

These issues include the Farm Bill, fiber quality, contamination, manufacturing, trade agreements, and relations with U.S. Department of Agriculture and cotton organizations like the NCC and the American Cotton Shippers Association.



Photograph courtesy of Tricia Downing/Pixabay

“The Farm Bill is especially important,” Warlick said.

Normally passed by Congress every five years, the Farm Bill sets policy impacting the prices of all farm commodities. Whenever the bill comes up for reauthorization, NCTO’s Cotton Committee teams with NCC to press for common sense provisions to ensure there is consistent availability and steady consumption of U.S. cotton, while balancing the interests of cotton manufacturers.

“Since government-influenced commodity prices affect the competitive-

ness of cotton-consuming mills, it is imperative that the Farm Bill benefits both farmers and the domestic textile supply chain,” Warlick emphasized as he explained the importance of maintaining productive working relationships with policymakers in Washington, D.C. on cotton issues.

“When you combine world-class farmers, a good Farm Bill, efficient looms, and cheap, reliable utilities, U.S. cotton yarn spinners can compete with anyone in the world and that’s why NCTO’s Cotton Committee works hard to make sure U.S. policy reflects that position.”

When you combine world-class farmers, a good Farm Bill, efficient looms, and cheap, reliable utilities, U.S. cotton yarn spinners can compete with anyone in the world and that’s why NCTO’s Cotton Committee works hard to make sure U.S. policy reflects that position.

Anderson D. Warlick

NCTO Cotton Committee Chairman; Chairman and CEO, Parkdale

Regulatory & Standards Committee: HELPING TEXTILE COMPANIES RUN SAFELY & SMOOTHLY

Businesses must comply with a host of regulations and standards on everything from health and safety to customs reporting and recordkeeping.

Chaired by Jim Booterbaugh, CEO of Washington, North Carolina-based National Spinning Co. Inc., NCTO's Regulatory and Standards Committee works to ensure that U.S. textile companies can run their operations safely and smoothly.

"NCTO members recognize the necessity of regulation, but regulations must be well-defined, quantifiable, realistic and affordable," said Booterbaugh.

"A poorly crafted workplace or environmental regulatory regime can drive entire industrial sectors offshore," he added.

With California taking the lead, many states have adopted or are looking at adopting chemical regulations more stringent than those of the federal government.

"A multiplicity of standards creates havoc when you have a nationally distributed product," said Booterbaugh.



Photograph courtesy of National Spinning Co. Inc.

"The need for safety is unquestioned," Booterbaugh continued. "The Regulatory & Standards Committee works on behalf of NCTO members to make sure regulations are written in a common sense way that makes them readily understandable and realistic to comply with."

Because most regulatory matters are complex, the Regulatory and Standards Committee works with other trade associations to address issues collectively.

"The best way to get a regulation that benefits all Americans is to work across industry lines," Booterbaugh said. "One day you'll be working with the chemical industry and the next with a consumer advocacy group."

Other areas where NCTO tries to coordinate with others include occupational

safety and health matters, (OSHA) and motor freight regulations to encourage the safe and reasonable transport of products.

Finally, NCTO also liaises closely with ASTM International and the American Association of Textile Chemists and Colorists (AATCC) to establish test methods for textile abrasion, tensile and tearing strength, and wet processing methods like water repellency, among other performance attributes.

"In practice, the only way to make sure a product performs in the field the same way it was designed to do on the drawing board is to test it," Booterbaugh said. "While testing can be expensive and time consuming, it ensures textile companies will be able to market performance benefits to the consumer with confidence derived from rigorous scientific data." ■

The need for safety is unquestioned. The Regulatory & Standards Committee works on behalf of NCTO members to make sure regulations are written in a common sense way that makes them readily understandable and realistic to comply with.

Jim Booterbaugh

NCTO Regulatory and Standards Committee Chairman;
CEO, National Spinning Co., Inc.



THE TEXTILE JOURNEY OF A PAIR OF PANTS

CHECK THE TAG.
NOT ALL IMPORTS ARE CREATED EQUAL.

- 1 FIBER IS GROWN OR MADE**
Cotton, polyester and other fibers are grown and produced in the U.S.
- 2 FIBERS MADE INTO YARN**
Fibers are turned into yarn at manufacturing facilities across the U.S.
- 3 YARN WOVEN INTO FABRIC**
Yarn then is woven or knit into fabric in U.S. facilities.
- 4 FABRIC SEWN INTO PANTS**
U.S. fabric is exported to Central America and Mexico where it is sewn into pants and then shipped back to the U.S. with the “Made In” tag from that country.
- 5 FABRIC SOLD AT RETAIL**
From U.S. coast to coast, pants are purchased at retail.

State-of-the-art, man-made carbon fibers possess a variety of properties, but are especially prized for their high strength and low weight.



CARBON FIBERS: DIAMONDS OF THE 21ST CENTURY TEXTILE INDUSTRY

Teijin is investing \$600 million in a carbon fiber manufacturing facility in Greenwood, South Carolina.

The U.S. textile industry is innovative and resilient. It has persevered through economic downturns, changing global market conditions and offshore pressures. The industry, as one of the most significant sectors of the U.S. manufacturing base, fuels the economy, sustains communities and supports some 1.5 million jobs across the United States.

From 2006 to 2016, the U.S. textile industry invested \$20 billion in new plants and equipment, with \$2.4 billion invested in 2016 alone. In recent years, U.S. manufacturers have opened new facilities throughout the textile production chain. But American textile manufacturing and its highly efficient supply chain — one long associated with quality and performance — is also attracting foreign investment.

“Not so long ago, headlines were replete with news of textile and apparel manufacturers offshoring their production,” said National Council of Textile Organizations

President and CEO Auggie Tantillo. “Today, the reverse is true. The United States has become a popular destination for large scale textile investment on the part of foreign companies, and in many cases from Asian companies.”

One such foreign company investing in the American textile industry is Tokyo-based Teijin Limited — a leading global technology-driven company operating in the areas of advanced fibers, plastics and films, composites, healthcare and IT businesses. Teijin Carbon Fibers Inc. (TCF), a wholly-owned subsidiary of Teijin Limited, recently broke ground on a new \$600 million carbon fiber facility in Greenwood, South Carolina.

CARBON FIBER — AN ADVANCED MATERIAL

Carbon is a very versatile element that can exist in a variety of natural forms from graphite to diamonds. State-of-the-art, man-made carbon fibers possess a variety

of properties, but are especially prized for their high strength and low weight. In fact, carbon fiber is 10 times stronger than steel, which makes it an ideal engineering material to replace metals in high-tech applications. Some of the most common uses of carbon fiber today include airplane and automobile components, where reduced weight and high strength can translate into fuel savings. Other applications include wind turbine blades, pressure vessels, medical devices bicycle frames and tennis racquets (*see box on page 12*). In theory, the possibilities for carbon fiber are limited only by the imagination.

Carbon fibers can be manufactured using a variety of starting materials. Teijin uses a specifically engineered high-quality polyacrylonitrile (PAN) as a precursor in its Tenax® carbon fiber production process. According to the company, Tenax fibers consist of 1,000 to 48,000 filaments each featuring a micro graphite crystal structure. The small diameter — between 5 and 7 micrometers — of these carbon

Carbon fiber demand is global, and we have been eager to have a plant in the United States for many years.

Shukei “Daniel” Inui

Teijin Group Corporate Officer, General Manager, Carbon Fibers Business Unit

fibers makes them flexible enough to be processed using traditional textile manufacturing methods such as knitting, weaving or braiding. When combined with a resin, carbon fibers can be turned into composite materials.

“Carbon fiber is a next-generation fiber,” said Wayne Trotter, director of government relations, Teijin Holdings USA Inc. “We have only scratched the surface with the applications and we see endless possibilities. Every industry I can think of is going to benefit from the textile composites industry. It’s very interesting and very dynamic.”

SIGNIFICANT INVESTMENT PUTS TCF ON HIGH-TECH GROWTH PATH

Teijin’s decision to invest in carbon manufacturing in the United States was a result

of demand from the aerospace and automotive industries, as well as Teijin’s desire to manufacture carbon globally.

“There is demand for carbon fiber here in the United States,” said Shukei “Daniel” Inui, Teijin Group corporate officer, and general manager, Carbon Fibers Business Unit at Teijin Limited. “We have a carbon fiber plant in Japan, and also in Europe based in Germany, but [we] were missing capacity in the United States. Carbon fiber demand is global, and we have been eager to have a plant in the United States for many years.”

Teijin considered several locations for its U.S.-based carbon fiber plant, but ultimately decided on Greenwood, South Carolina. “People here in South Carolina always are very supportive of our busi-



ness. Not only with the incentives and the infrastructure, but also with support of the people, we decided on South Carolina,” Inui said.

The \$600 million investment will occur in stages. By the end of the fiscal year 2020, one carbon production line will be in operation and the facility will employ approximately 70 people. TCF will



Teijin executives and local dignitaries held a ground breaking ceremony to celebrate the \$600 million carbon fiber plant investment in Greenwood, South Carolina.

CARBON FIBER

is used in a myriad of products today with yet more still to be discovered. Here are just some of the products that can benefit from the use of carbon fibers.

- 1 AERONAUTICS & AEROSPACE PARTS** including fuselage panels, wings and engine blades for commercial aircraft, military planes, helicopters and unmanned aerial vehicles
- 2 HIGH-END AUTOMOBILE COMPONENTS** such as body parts, wheel rims, seat shells, door sills, braking discs and protective crash structures
- 3 INDUSTRIAL APPLICATIONS** including robotic arms and high-precision engineering parts
- 4 RENEWABLE ENERGY APPLICATIONS** such as wind turbine blades and rotors, solar panel frames, fuel cells and batteries, and natural gas pressure vessels
- 5 SPORTS & LEISURE ITEMS** including bicycle frames, fishing rods, skis, surfboards, golf clubs, baseball bats, tennis racquets, shoes, protective headgear, musical instruments, and protective cases for laptops and smartphones
- 6 CONSTRUCTION PRODUCTS** including concrete and asphalt reinforcement, as well as rebar
- 7 MEDICAL APPLICATIONS** including x-ray and magnetic resonance imaging equipment, implantable devices, surgical implements, and medical aids like artificial limbs and braces, wheelchairs and access ramps
- 8 MARINE PRODUCTS** including masts, sail cloth, hulls, drive shafts and propellers

import its precursor material, PAN, from Japan initially, but may invest in equipment to produce PAN in Greenwood, if the demand is there. By 2030, the company hopes to have several carbon fiber production lines running with 220 associates in place.

“We have enough land so it’s not necessary to limit to the three lines,” said Inui. “If necessary we can invest more.”

Different grades of carbon fiber can be manufactured depending on the end use and required properties, and the lines at TCF will have the flexibility to produce various grades of fiber depending on demand. Capacity at the plant will be determined by the product mix because of process variations for the different grades. Teijin hopes to have its highest-grade fiber qualified by the aerospace industry, but this process can take several years. In the meantime, TCF will focus on producing

grades of fiber used by other industries and expand sales to other markets.


“I think the United States’ demand for carbon fiber increases more and mainly for aerospace and automotive, so we have to follow this demand,” Inui said. “But we are not limited to just these applications, and will manufacture for other industries including pressure vessels, wind energy and any other applications we are open to also.”

THE FUTURE OF CARBON FIBER

“I see synergies between the carbon fiber industry and the traditional textile industry,” Trotter commented. “Carbon fiber is in fact the next-generation fiber, and I think there are multitudes of yet-to-be-identified opportunities to work in conjunction with textile companies particularly here in the Southeast. The folks in the textile industry are very proud

of their craft, their workmanship. That’s something we were looking for as well, and we saw that in the rich heritage, the textile heritage that exists here in this part of the country.”

Inui added: “As a supplier, we have been expecting new applications for carbon fiber for many years, and we want to create new applications and new demand with our customers. While it’s very difficult, together with our customers, we can develop these new applications. Our customers and partnerships are very important — people here in South Carolina can support us, and we will grow together here in the United States.”

Teijin’s goal is to become a leader in the composites industry in the United States according to Inui. The company’s commitment and \$600 million investment undoubtedly set them on a path to achieve this goal. 

Ascend Performance Materials' Fiber Center of Excellence in Greenwood, South Carolina, produces nylon 6,6 staple-fiber.

STATIC FREE? — ASCEND'S NYLON 6,6 ANSWER IS **ENDUR**

**Nylon 6,6 producer
Ascend Performance
Materials is solving
problems with its
antistatic, anti-cling
ENDUR by Ascend™ yarn.**

Nylon is a material that plays a significant role in daily life, but its performance attributes and extensive applications are rarely recognized by the average consumer. This man-made polymer, first synthesized in 1937, is formed when specific chemical building blocks called monomers are brought together to create long chains known as polymers. Because of its versatility, nylon has traditionally been used to create products ranging from women's stockings to Army parachutes and cording.

Nylon 6,6 is just one type of polymer used in textiles — other common textile polymers include nylon 6, polyester, rayon and polypropylene. Today, the uses for nylon 6,6 have grown to include all types of apparel, tires, automotive airbags and carpet, among other applications.

Houston-based Ascend Performance Materials is a privately owned, fully vertical nylon 6,6 producer, with roots going back more than 60 years. Ascend specializes in nylon 6,6 resins, fibers and com-

pounds as well as specialty and intermediate chemicals used throughout the polymer value chain. In recent years, the company has expanded facilities including capacity increases across its intermediate chemicals and polymers portfolio. Today, Ascend has sales and technology offices throughout the world and six manufacturing facilities and a technology center in the United States. Globally, the company employs approximately 3,500 associates and contractors. In addition, Ascend has announced a \$35.2 million investment in Greenwood County, South Carolina, that will create 30 new jobs.

ADDING PERFORMANCE BEYOND THE BASIC

Amongst Ascend's line of products is ENDUR by Ascend™, a fiber product differentiated by its unique antistatic technology. It is a filament- or staple-fiber product that can be blended with other fibers and yarns to provide fabrics with permanent antistatic functionality because it is neither a garment treatment nor a coating that can wear off over time.



ENDUR by Ascend™ is a unique anti-static fiber technology that adds value to yoga and performance gear, loungewear, and childrenswear among other garments. The company offers a hangtag program for customers using the fiber.



The yarn has a bicomponent structure featuring one-part nylon 6,6, and one-part conductive carbon. These two components are joined together during the high-

temperature yarn extrusion process to produce a fiber that, among other attributes, eliminates static electricity.

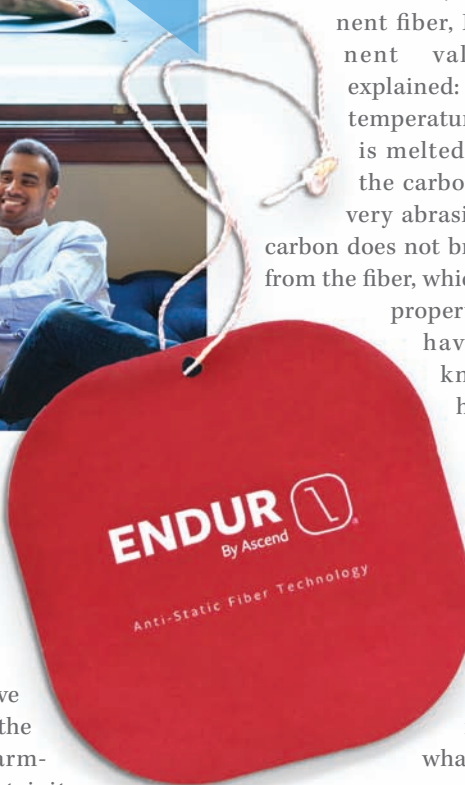
In Endur, the conductive carbon component of the fiber grounds and harmlessly moves electricity through the garment, preventing a build-up of static electricity and removing the possibility of an electric shock.

“Endur is a speciality fiber product and the furthest down the value chain that Ascend sells,” said Harrie Schoots, Ascend’s Specialty Fibers Segment Manager. “It’s been exciting for me to take the product out to the brands, retailers and design folks and explain it to them and show them what it can do for their apparel products.”

Beyond reducing static within a garment, Endur imparts other desired attributes to a finished product (*see box*).

These important properties help designers improve yoga and performance gear, loungewear, shapewear, eveningwear, childrenswear and medical garments. For example, Endur can help reduce bothersome and potentially harmful qualities in fabrics such as clinginess and lint and allergenic debris accumulation, while providing comfort in chemical-free, next-to-skin applications.

Futhermore, as a unique bicomponent fiber, Endur offers permanent value. As Schoots explained: “Because of the high temperature at which nylon 6,6 is melted and combined with the carbon, the fiber becomes very abrasion resistant and the carbon does not break off or flake away from the fiber, which is a very important property. In the past people have tried to weave or knit with a yarn that has been coated with carbon at a much lower temperature and the coating flaked off. If you have black specks of carbon on the machinery and then you run white fabric behind it, you can imagine what a problem that is.”



PERMANENT FUNCTIONALITY In a Fiber

Endur by Ascend™ is ...

- Static-free
- Cling-free
- Lint-repellent
- Hair-repellent
- Chemical finish-free
- Safe on skin

PROOF IN THE TESTING

To demonstrate that static does not build up in fabrics developed with Endur, Ascend employed the American Association of Textile Chemists and Colorists’ (AATCC) Test Method 115 — Electrostatic Clinging of Fabrics: Fabric-to-Metal Test.

“AATCC’s cling test is a test I think I pulled out of the basement from the polyester leisure suit days — it tests the static cling of fabrics,” Schoots said. “But we also had to show that the static is not in the fabric, and that’s why our lab offers the static decay test for customers.”

Ascend's static decay test charges a fabric to 5,000 volts, then measures the time it takes for 90 percent of that charge to dissipate. "In many cases, fabrics will take more than a minute," Schoots said. "But in order to show that a material offers static reduction, the time measured has to be less than half a second. Typically, fabrics featuring Endur take 0.01 seconds to reduce the charge. Essentially, if you wear a dress or yoga pants with Endur on a very dry winter day, you would not generate any static electricity when walking or sitting for example."

ASCEND: MAKING A DIFFERENCE

Ascend, whose operations are based in the United States, has weathered the storm and resisted moving production to other countries. U.S.-based manufacturing has remained profitable for the company, and Ascend has never been more successful than it is today.



The company values the communities and individual employees who are the lifeblood of Ascend.

Harrie Schoots
Specialty Fibers Segment Manager,
Ascend Performance Materials




At the core of this success is Ascend's open commitment to its employees. "The company values the communities and individual employees who are the lifeblood of Ascend," Schoots said. "Our president and CEO, Phil McDivitt, is dedicated to a safe, healthy and sustainable workplace. Well beyond manufacturing a quality product, his goal is to have no incidents and zero accidents throughout the entire corporation, and he's taken steps to ensure we all know that."

The company also created the Ascend Cares Foundation in 2011 after employees of its Decatur, Alabama, facility were impacted by a tornado. According to the company: "The Ascend Cares Foundation is about making a difference in the lives of others. It is led by Ascend employees and supports Ascend families in their time of need, provides inspiring opportunities for community engagement and facilitates community leadership. Funded entirely by donations and company match, every dollar donated to the foundation supports the work of the foundation."

Since its inception in 2011, Ascend reports the following tangible accomplishments made by the foundation:

- Volunteers cleaned and repaired 55 homes and served more than 1,000 meals to employees impacted by Hurricane Harvey in Texas;
- Volunteers have built five Habitat for Humanity homes on-site at Ascend's Chocolate Bayou, Texas; Greenwood, South Carolina; and Decatur, Alabama, facilities;
- Some 135 college scholarships totaling \$205,000 have been awarded to team members' children;
- Children at Escambia Westgate School in Florida play on a new sensory playground that is the foundation's largest project to date;
- Volunteer events at Ascend sites help local organizations such as food banks, animal shelters and schools; and
- A total of 206 families have received financial hardship support.

Ascend accounts for approximately one quarter of global nylon 6,6 production. According to the company, its "... vision is to be [a] recognized leader in the nylon 6,6 value chain, creating new possibilities with nylon 6,6 for everyone, everywhere, every day." 

MILLIKEN— WHERE INNOVATION IS KEY

How can we improve the
image and comfort of
serious athletes?

Milliken's Roger Milliken Center
features an Innovation Gallery
showcasing the company's
advanced textile technologies.

A new Milliken website helps clients access the depth and breadth of Milliken's technology trove of innovative, amazing textiles.

In many ways innovation in the textile industry is synonymous with Spartanburg, South Carolina-based Milliken & Company. Founded in 1865, the company's history in textiles stretches back more than 150 years.

Milliken & Company's strong culture of innovation, which was shaped personally by the late CEO Roger Milliken, began in 1945, when the company formally established its research group. Milliken bet the company's future on continuous product development — making a corporate commitment to conceptualize and create cutting edge textiles. To do so, Roger Milliken personally involved himself in reviewing research and invited preeminent minds in engineering and chemistry to help guide future projects. Milliken also challenged his research associates to look for the very best brains in the world. He commissioned his scientists to contact schools that were prominent in chemistry, chemical engineering and

mechanical engineering to find the best students of the previous 10 years. This recruitment effort was at the core of a serious research commitment that continues to this day.

The Roger Milliken Center (RMC) recently celebrated its 60th anniversary. RMC is home to the company's global headquarters and corporate innovation center — one of the world's largest privately-held textile research facilities.

Today, Milliken operates three divisions — Performance and Protective Textiles, Floor Covering, and Chemicals. With innovation firmly woven into Milliken's DNA, staying on the forefront of technological advances is a priority. When challenged to solve a problem, Milliken's team of researchers, chemists, engineers and developers work together to create best-in-class technical solutions, while investments in innovative technologies ensure the company remains cutting-edge.

IMPROVING ACCESS TO MILLIKEN'S TECHNOLOGIES

Through its Performance and Protective Textiles division, Milliken serves a range of industries including apparel, automotive and transportation, building and infrastructure, hospitality, industrial, military, interiors, and protective markets.

The company's new website, launched under the tagline "Textiles from a Different Perspective" and located at textiles.milliken.com, unifies the diverse portfolio of the Performance and Protective Textiles division, showcasing its breadth of capabilities and highlighting the company's expertise and next-generation products. The website also illustrates the successful history of Milliken textiles, its legacy and ability to collaborate with customers to solve complex problems.

"Milliken is synonymous with credibility within textiles," said Jeff Price, president of



Our keen attention to detail and unsurpassed quality result in superior textiles that add value to people's lives.

Jeff Price
President, Performance and Protective
Textiles Division, Milliken

the Milliken Performance and Protective Textiles Division. "Milliken innovations speak for themselves, and this website helps convey our story and fortify our reputation in a cohesive online platform."

TAMING COMPLEXITY

Previously, exploring the vast array of textiles available through the division presented challenges because of the sheer number of textiles available. Now, using the new website, customers can navigate through the portfolio by choosing market or by searching key performance characteristics to find solutions that best fit their needs. The advanced search page lists the eight markets served by Milliken's Performance and Protective Textiles division and 28 key fabric properties.

As an example, if a customer were searching for fabrics with moisture wicking or antimicrobial characteristics, 10 search results are returned. Among the results

are Biosmart® Technology — a patented technology engineered to bind chlorine in wash water to the surface of a fabric to inhibit the growth and spread of bacteria — and ResQ™ DH — a National Fire Protection Association certified fabric enhanced with moisture wicking properties and high breathability to keep firefighters cool and comfortable.

"Milliken's Performance and Protective Textiles website displays the value of Milliken front and center," Price said. "We are enhancing our world through well-thought-out products, crafted to fill a need and manufactured responsibly."

RESPONSIBLE MANUFACTURING

Milliken designs fabrics for performance, but also takes environmental responsibility into consideration intentionally incorporating sustainable measures from product conception to production. The company continually assesses its net impacts, seeks greater efficiencies and develops new technologies to avoid using harmful materials. Many of Milliken's manufacturing facilities also have obtained ISO 14001 certification — the highest global standard for environmen-

tal responsibility. Company records also document its first recycling policy and the fact that it was reusing packaging and textile materials in its operations in the early 1900s. With one of the most ambitious environmental policies in the industry today, sustainability truly is and always has been an important part of the company and everything it does.

In addition, Milliken has the honor of being named one of the "World's Most Ethical Companies" for 12 years running. The list, published by Ethisphere Magazine, is compiled by the Ethisphere Institute, a leader in defining and advancing the standards of ethical business practice. Milliken is one of only 12 companies to receive the honor every year since its inception.

With new tools in hand, Milliken's diverse textiles portfolio, built on more than 150-years of industry experience and award-winning research and development, has never been more accessible to customers looking to solve challenges using innovative fabrics. "Our keen attention to detail and unsurpassed quality result in superior textiles that add value to people's lives," Price said. ☒



DEFEND®, TSG's protective finish, repels water and stains when applied to a fabric.

FINISHING FIRST

TSG Finishing enhances feel and functionality of fabrics.

Whether produced using knitting, weaving or non-woven processes, fabric most often moves along the supply chain to be dyed, printed and/or finished. Dyeing and printing adds color and pattern to untreated fabric, transforming it into today's most popular hues or eye-catching designs.

Finishing — through either mechanical or wet processing methods — adds further value to a fabric by imparting enhancements that can improve the look, feel, functionality and performance of a fabric. Finishes can impart properties such as

brightness, softness, embossed patterning, wrinkle resistance, shrinkage control, soil and water repellency, moisture management, flame resistance or abrasion resistance, among others.

Hickory, North Carolina-based TSG Finishing LLC is an example of a forward-thinking finishing company.

Founded in 1901 in Baltimore, Maryland, by Jacob Levy as "Levy's International Water Shrinking and Drying," the privately-held company is now run by fourth- and fifth-generation descendants. The business first thrived on preshrinking,

shrinking and softening wool fabrics under the motto “We expand from shrinking.” In the 1920s, Levy opened a facility in Philadelphia to be closer to New England’s growing textile business.

After World War II, the company developed a process for foaming latex backings used in vinyl seat covers. This launched TSG into the upholstery fabrics market and led the company down to High Point, North Carolina, a hub for U.S. furniture manufacturing. Today, TSG’s finishing plants still operate out of Hickory with additional locations in East Conover, North Carolina, as well as executive office space in Pennsylvania.

While finishing wool fabrics for military dress uniforms has been an important part of the company’s business for the past 118 years, TSG’s current mission is to expand its finishing capabilities and offerings.

Upholstery finishing — including woven fabrics for furniture and wallcoverings for residential and contract markets — now accounts for approximately 60 percent of the company’s business. Much of the remaining activity is focused on what TSG CEO Brian Rosenstein terms “industrial products,” which includes filtration materials, medical products, automotive, crafts, geotextiles, apparel and a variety of other technical products.

The company offers a broad range of finishing services including coating, fabric impregnation, mechanical finishing, toll coating, engraving, material handling, as well as warehousing and distribution. Coating and impregnation finishing provides antimicrobial, flame resistance, water and stain protection, among other treatments. “Being able to protect a fabric from both water- and oil-based stains is huge across multiple markets,” Rosenstein said. “In addition to upholstery, it’s also big in medical right now. Essential to producing medical nonwovens is providing a fabric that will keep doctors and surgeons protected. But it has to be breathable and have antistatic properties as well. We’re playing a critical role in that supply chain.”



TSG regularly uses a basic tenter frame in creative and innovative ways to supply customers with the exact finish they are looking for.

DEFEND® — “YOUR FABRIC + OUR PROTECTION™”

TSG’s branded upholstery finish is known as DEFEND®, which the company relaunched in 2017 for its water- and stain-repellent technology. Still, as a historically technical company, incorporating a brand marketing strategy was a new path. “We redefined ourselves and shifted out of our comfort zone as we moved into marketing,” Rosenstein said. “Our previous mantra was we’re the guy behind the guy behind the guy. But for the most part today, the market demands a name and a story. You need to have a brand.” With that in mind, TSG also trademarked the tagline “Your fabric + Our protection™,” which simplistically, but effectively captures what the company does and helps to market the brand.

DEFEND was originally developed for the woven residential and contract business, but it’s starting to break into other markets as well, according to Rosenstein. For example, denim producers and the U.S. military have shown interest in DEFEND. “What makes DEFEND special is that we can apply it to any fabric,” Rosenstein said. “There are no limitations. You want to protect a high pile velvet? Fine. High-end linen — no problem. Embroidered

silk — bring it on. A treatment for a military camouflage product that can only be treated on one side — done.”

“I can’t imagine that we would be unable to apply DEFEND to any product,” Rosenstein said.

CUSTOMER-DRIVEN PRODUCTS

TSG has a library of technologies that it draws from, but business is often customer-driven.

“On the one hand, we’ve really started to push and market the DEFEND brand, but people are knocking on our door more than ever to solve problems that don’t involve our core business of woven upholstery fabric,” Rosenstein mentioned.

The company fields phone calls from customers — including Fortune 500 companies — looking for a partner to help them achieve a certain look or set of properties in a finished fabric. Even in cases where production has yet to be attempted, TSG approaches each new proposal with a “not yet,” rather than a “no” attitude. “We have a saying around here that ‘the difficult we can do now, the impossible just takes a little longer,’” Rosenstein said.



Anyone can go out and buy a tenter frame, but it's what we are able to do with that tenter frame that sets us apart.

Brian Rosenstein
CEO, TSG Finishing LLC

TACKLING CHALLENGES WITH INNOVATIVE THINKING

According to Rosenstein, "One of the cool things about the job is seeing all the different, highly-innovative things that we are able to do with our existing equipment."

The existing equipment Rosenstein is referring to is a tenter frame — a piece of equipment for drying fabric while it is stretched and held under tension between two parallel chains — which is central to most textile finishing operations. Options built into a tenter frame can differ, but the basic functions of the machine are the same. But according to Rosenstein, what can be done using that machine both before the fabric enters the machine and after it comes out is something that TSG has excelled at over recent decades.

"Our company is built on intellectual property and strong partnerships," Rosenstein said. "Anyone can go out and buy a tenter frame, but it's what we are able to do with that tenter frame that sets us apart. We

will custom design and build our own chemical coating systems for a customer. We will stand behind and protect what we believe is rightfully ours, but we also recognize the benefit of partnering with both suppliers and customers. In today's day and age, you cannot maintain a solid business if you don't value those relationships."


FUTURE GROWTH

According to Rosenstein, innovations and staying ahead of design trends are key to remaining successful in the finishing industry. "Design trends really push the finishing industry," Rosenstein mentioned. "The latest is this idea of Resimercial, where workspaces are created and designed to be more reflective of your living room. We now need to take woven fabrics that used to be relegated to the part of the home that was seldom used, fabrics like decorative velvets, and find ways to make them work in heavy traffic workspaces. TSG can definitely help prolong the life of those fabrics using DEFEND so they don't have to be replaced every other year. And imagine what that could do for the environment?"

Other growing areas of TSG's business include building and filtration products. When Mother Nature bears her teeth, the company is proud to help consumers get back on their feet. "When there are tornados

or hurricanes and people lose their homes or the roofs, our fiberglass services provide durable solutions to people in need," Rosenstein noted. "Business on the filtration side is also increasing because of the wildfires in California. The air quality out there is really bad so there is an increased demand for air filtration products."

Rosenstein sees definite opportunities for TSG in the future. The diverse nature of the company's business and involvement in many different markets allows for the technology crossover and product diversification in which TSG finds strength. "We've been spread out and diversified over the years, which might lead some to say we cannot focus on any particular area to give it the attention it deserves," Rosenstein said. "But the fact that we were so diversified and involved in so many markets helped us through the recession. When one market is down, another one is up. That diversification, along with our inability to say 'no,' now exposes us to growth areas and sales opportunities."

"I think if my great-great-grandfather were alive right now, he would be absolutely astonished to see some of the stuff we are running on those finishing machines," Rosenstein mused. But Jacob Levy may be equally surprised to see the company also staying true to its roots finishing those military wool fabrics as it did back in 1901. 

THE DEFEND FAMILY

features four finish types



DEFEND

a high-performance water and stain repellent that offers protection against both water- and oil-based stains.

DEFEND-A

adds anti-abrasion and anti-pill properties.

DEFEND+

incorporates microbe prevention and odor control.

DEFEND-FREE

a non-fluorinated water-repellent finish.

SoftWear Automation offers a family of SEWBOTS® each with a distinct set of skills for optimal production of various product types.

SEWBOTS®

TRANSFORMING THE SEWN PRODUCTS INDUSTRY

SoftWear Automation hopes to disrupt the traditional sewing model and bring apparel manufacturing back to the United States — creating jobs in the process.

Within the textile supply chain, fabrics are cut and turned into finished products during what is known as the sewn products stage. During this stage, materials are transformed into various products such as high-fashion apparel, home goods, military dress uniforms, life-saving medical supplies and airbags, and more.

As technology has evolved, the steps in this cut-and-sew process have become increasingly automated. Designers now use computer-aided design software to visualize new products that are then cut by computer-controlled technologies capable of making precision cuts to fabrics ranging from lightweight silks, to heavy denims, to technical air-bag fabrics.

Still, the one stage in the production chain that has continued to evade automation is the labor intensive and

costly process of sewing. Consequently, in order to “chase the cheapest needle,” sewn goods manufacturers have relocated operations to countries paying the lowest wages to reduce their overhead.

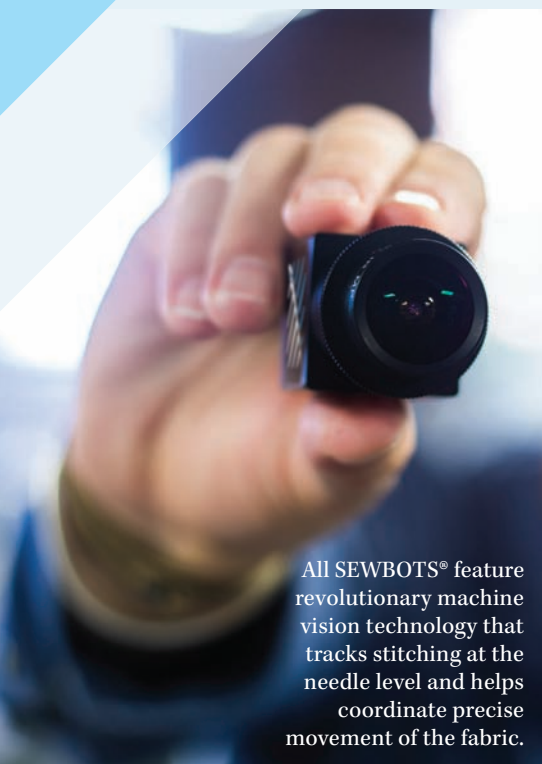
However, Atlanta-based SoftWear Automation Inc. hopes its fully autonomous SEWBOT® can disrupt the traditional sewing model and revolutionize the \$100-billion sewing industry. Formally established in 2012, the machine vision and robotics startup launched out of the Georgia Institute of Technology after seven years of research and development with the Defense Advanced Research Projects Agency (DARPA) and the Walmart Foundation. From the beginning, Sewbots were developed as an advanced, automated sewing technology that could help regrow the cut-and-sew industry in the United States.

All Sewbots feature revolutionary Thread-vision and Qualisight machine vision tech-

nology that tracks stitching at the needle level and helps coordinate precise movement of the fabric. SoftWear Automation has engineered a family of Sewbots, each with a distinct set of skills and capabilities to address fabric handling and construction. Sewn goods worklines are constructed using a Sewbot or combination of Sewbots to create optimal single-piece workflows for various product types.

The LOWRY SEWBOT®, for example, is based on a gantry system, and is well-suited for home goods such as bath mats, towels, area rugs, pillow covers and mattress covers as well as some medical and automotive products, and flags and banners.

“When you eliminate the sewing problem, and automate that facet of the production chain with our Sewbots, your equation of what’s possible in regard to manufacturing and scale is endless,” said Palaniswamy “Raj” Rajan, chairman and CEO, SoftWear Automation. “Everything else in the fabric construction chain is automated. Fabric construction is automated, yarn making is automated, cutting is automated, ... Automating the sewing process unlocks enormous potential.”



All SEWBOTS® feature revolutionary machine vision technology that tracks stitching at the needle level and helps coordinate precise movement of the fabric.

AMAZING ADVANCES IN PRODUCTIVITY

The advances in productivity the Sewbots represent are nothing short of amazing. SoftWear Automation reports that for most sewing processes, its Lowry Sewbot can increase output by 150 percent. For example, it takes the Lowry Sewbot just 20 seconds to serge the outer edges of a bath mat, a process that takes a human operator 30 seconds to complete. Over an eight-hour shift, the Lowry Sewbot can serge 1,440 mats, compared to a human operator's 960. Furthermore, SoftWear Automation reports that one operator can supervise up to six Lowry Sewbots at a time.

In the case of microfiber towels, the Lowry Sewbot reduces the time it takes to serge the outer edge of cut pieces to 45 seconds, a 285-percent reduction compared to the 129 seconds that it normally takes a human operator to perform the same task.

In addition to greater productivity, the Sewbots also offer increased quality. The Sewbot's complex machine vision systems can place a needle with extreme precision, ensuring consistency and quality in every product.

"Once you deploy the Sewbot, there is no training," Rajan said. "There is no ramp up with sewing operators getting up to speed. Quality, reproducibility — it's all consistent. Today, in the same factory from operator to operator over different shifts, you get stitch length and stitch density variation. But you have a higher value, more consistent product with a Sewbot. Those are the benefits of moving to Sewbot production — reliability, consistency, efficiency."

New worklines are also on the horizon, such as a digital T-shirt workline that SoftWear Automation plans to release soon. According to the company, one T-shirt workline with one operator can sew all 13 steps required to complete a colored shirt in 162 seconds compared to 10 operators on a sewing line, who take 350 seconds to complete the same tasks. That increase in productivity equates to 1,142 shirts sewn using the automation technology in an eight-hour shift versus 669 shirts sewed by humans.

"The big reveal will change everyone's perception of what's coming," Rajan said. "If

you look at T-shirts, there are some astounding statistics — U.S. consumers buy 3.5 billion T-shirts each year and 98-percent of them are imported. Theoretically, based on our technology and calculations, with less than 15,000 Sewbots, we can produce the world's T-shirts. If you want to produce a billion T-shirts in this country, we can integrate here and keep \$5 billion in the economy, which creates jobs — farming jobs, jobs in the textile sector, retail jobs, and distribution jobs.

"SoftWear Automation has set a public goal to have the capacity to make 100 million T-shirts within the next five years in the United States," Rajan continued. "Within the next 10 years, we'll have capacity for 1 billion T-shirts here in the United States."

SOLVING PROBLEMS: ON-DEMAND, MADE-TO-MEASURE

SoftWear Automation envisions an industry that makes clothing based on demand and made-to-measure. "Our plans are to go beyond T-shirts to dress shirts, to shorts, into jeans — essentially high-volume basics. If you are buying high-volume apparel, we want to try and manufacture most of that in



If you want to produce a billion T-shirts in this country, we can integrate here and keep \$5 billion in the economy, which creates jobs — farming jobs, jobs in the textile sector, retail jobs, and distribution jobs.

Palaniswamy "Raj" Rajan
Chairman and CEO, SoftWear Automation

the United States because we want to bring mass personalization with our on demand, made-to-measure initiative.”

On-demand manufacturing reduces the need for warehouses to maintain high levels of inventory for products that a consumer may, or may not, want. Made-to-measure business models address issues with standardized sizing by allowing consumers to purchase clothing that fits and works with their body type. Solving fit issues also helps to reduce the likelihood of apparel item returns and increases profitability for retailers.

“There are many advantages for moving to an on-demand, made-to-measure business model,” Rajan said. “But it can only be accomplished if you are local. As a U.S. company, you cannot do on-demand manufacturing if you are not making products in the United States.” SoftWear Automation’s SEWLOCAL™ concept combines on demand and made-to-measure ideas with a local production location. “Our technology offers high-speed industrial manufacturing that can be located in the middle of cities, close to the consumer” Rajan said. “Or, manufacturing could be very close to a distribution hub so products can be made and shipped to a customer within 48 hours.”

The company also sees tremendous advantages of moving to hyper-local manufacturing when it makes sense. For example, championship team shirts, which must be made immediately available following the completion of a championship game, are printed for both participating teams prior to the event. Following the game, the winning team’s shirts are sent to retail, while the losing team’s shirts are destroyed. “But if you are located close to the population as a manufacturer, you can start production as soon as you get the results and have the shirts delivered on the same day,” Rajan said.

U.S.-FOCUSED BUSINESS MODEL

For SoftWear Automation, production is optimized when the distances from raw material to factory to consumer are mini-

SoftWear Automation’s LOWRY SEWBOT® is well-suited for home goods production.

mized. The United States offers tremendous opportunities in that respect.

“The United States is the third largest producer of cotton, so you can make your shirt using local resources,” Rajan said. “The United States also has a thriving man-made fiber and yarn industry, so finished goods do not have to be limited to cotton products. For SoftWear Automation to focus on the U.S. market and bring cut-and-sew manufacturing back to the textile sector is just a no brainer. When you look at our vision of on demand, made-to-measure using a local supply chain, this is ground zero as a country.”

FUTURE OUTLOOK: ROBOTS NEED HUMANS

The mental image of robots joining the existing automation technologies used in the sewn products industry may suggest significant job losses as human employees are replaced by robots. But this stark vision could not be further from the truth. Automated production will create new jobs, especially in high-cost labor markets, as segments of the industry return to the United States, according to SoftWear Automation. People are needed to program and maintain the machines, and often workers take an interest in learning

about new technologies so they can progress from lower-wage, less-skilled jobs into high-paying positions.

According to the report, “Humans Wanted: Robots Need You,” published by Milwaukee-based ManpowerGroup “... more employers than ever — 87 percent — plan to increase or maintain headcount as a result of automation for the third consecutive year.” The company surveyed 19,000 employers in 44 countries to gain a clearer picture on the impact of automation on job growth. The survey found that companies investing in digital technologies and shifting tasks to robots are the companies creating the most jobs.

“The focus on robots eliminating jobs is distracting us from the real issue,” said Jonas Prising, ManpowerGroup chairman and CEO. “More and more robots are being added to the workforce, but humans are too. Tech is here to stay and it’s our responsibility as leaders to become chief learning officers and work out how we integrate humans with machines. Learning today cannot be done as it was in the past.”

“SoftWear Automation is here to transform this industry,” Rajan stated. “And we are giving the industry practically no reasons not to join us on this journey.”



USFibers recycles post-industrial and post-consumer plastic into staple fibers for technical and industrial applications, keeping plastic waste out of landfills.

USFIBERS

INNOVATIVE AND SUSTAINABLE FIBER SOLUTIONS MADE IN THE USA

With a focus on meeting the U.S. textile supply chain's increasing appetite for recycled and sustainable fiber solutions, USFibers eyes future growth.

Whether for the automotive, filtration, nonwoven, furniture, or geotextile industry, USFibers is creating recycled polyester fiber to meet the specific needs of clients. Manufacturing in Trenton, South Carolina, for more than 25 years, this growing company has embraced "Recycling for a better planet" as part of its "Excellence Through Innovation" initiative.

USFibers is a minority-owned, ISO 9001:2015 registered company that is focused on post-consumer and post-industrial recycling. It specializes in manufacturing both recycled and virgin polyester staple fiber with an emphasis on various technical and industrial applications. The company is driven by a vision

to provide innovative and sustainable fiber solutions — basic building links of the textile supply chain — to all sectors of the global market. Its commitment to this vision is best summarized below:

"USFibers is committed to fighting pollution by tackling the problem from the source by recycling plastic before it ends up in the landfills. It also lowers carbon footprints by helping companies reclaim their plastic rather than expend more energy and resources to manufacture the products from new material."

STAYING CLOSE TO THE CUSTOMER

"USFibers is a company that is constantly evolving," said Ted Oh, vice president of operations. "We began in 1994 as a

domestic polyester trading company. Our president and founder, Edward Oh, had the vision to establish distribution in the Southeast, since it was in close proximity to the end users. We installed our first staple fiber capacity in 2002 and have consistently expanded, increasing not only our fiber capacity, but improving our product line to meet more critical applications and markets as well. USFibers has even received an award for excellence by the Governor of South Carolina."

RECYCLING – THE BEGINNING AND THE END OF THE SUPPLY CHAIN

USFibers recycles approximately 135 million pounds of post-industrial and post-consumer waste each year.

The company has grown through a continued investment in technology and staff. "Our products are dependent on both art and science — art, in the ability to blend materials to meet product specifications, and science in developing and enhancing recycling techniques in order to produce a consistent product with the most positive



We installed our first staple fiber capacity in 2002 and have consistently expanded, increasing not only our fiber capacity, but improving our product line to meet more critical applications and markets as well.

Ted Oh
Vice President of Operations, USFibers

environmental impact,” said Steve Zagorski, vice president of new business development. “For both these things, it is necessary to have a skilled and experienced workforce. This combination of artistic and scientific focus enables us to deliver value to our clients because we manufacture our fiber to meet precise customer requirements. We keep inventory to provide just-in-time delivery and have more than 100 years of combined technical expertise.”

Our products are dependent on both art and science — art, in the ability to blend materials to meet product specifications, and science in developing and enhancing recycling techniques in order to produce a consistent product with the most positive environmental impact.

Steve Zagorski
Vice President of New Business Development, USFibers



USFibers' products are used in a variety of end markets from filtration and geotextiles to home furnishings and automotive nonwovens.

RECYCLING, TRACEABILITY IN THE MAINSTREAM

The business model that USFibers has adopted will continue to contribute to significant industry trends of sustainability and environmentally-friendly supply chain solutions.

“Recycling has changed tremendously and advanced technically due to multiple polymers mixed in the product stream,” Oh said. “USFibers has focused on new methods and technology. Because we recycle our own waste streams, sustainability is critical to our success. Additionally, we must be able to trace all of the fibers we produce back to the raw material blend that we use and each of its components.”

“The demand for recycled products continues to increase over time,” Zagorski said. “We see growth in all market segments as the value proposition for using recycled materials continues to grow. Consumer recycling efforts have not kept pace with that demand in the United

States, thus the need for more industrial recycling. We feel we offer the most cost-effective solution by providing our customers with one stop shopping.”

COMMITTED TO RECYCLING FOR A SUSTAINABLE SUPPLY CHAIN

As a firm committed to fighting pollution at its source by recycling plastic before it ends up in the landfills, USFibers helps clients enable a reduction in the U.S. textile supply chain's overall carbon footprint.

“The work itself motivates me,” Zagorski mentioned. “Helping our customers improve their bottom line, while minimizing the impact on our landfills itself is very rewarding.”



Marty Moran
Chairman, National Council of Textile
Organizations, and CEO,
Buhler Quality Yarns Corp.
(a Samil Spinning Co.)



THE LAST STITCH

Why NCTO matters more than ever.

The U.S. textile industry is experiencing an exciting and dynamic period. A new policy environment has evolved in Washington that places a greater emphasis on domestic manufacturing. Combined with a desire for shortening production and sourcing cycles, investment in U.S. textile production capacity, including foreign direct investment, has been invigorated, as many look to our shores to grow their capacities.

I have seen this investment story firsthand. The company for which I have the privilege of serving as CEO, Buhler Quality Yarns, was launched in 1996 by Hermann Bühler AG, a Switzerland-based textile manufacturer originally founded in 1812. This 200-plus-year-history added a fresh chapter when it was purchased by Korea-based Samil Spinning. Our new ownership represents a sea-change — Samil Spinning has invested in Buhler Quality Yarns for growth — they see clear benefits and great potential in Western Hemisphere production.

This is not just a single data point to exemplify a trend. Consider a recently published McKinsey study¹ demonstrating that apparel manufacturing is returning to our hemisphere in a way thought impossible only a few short years ago. Retail, in almost all sectors, stresses the need for speed-to-market manufacturing processes, underscoring the need for optimized and more local supply chains.

A BRAVE NEW WORLD

Opportunity is potential, and potential is full of as much uncertainty as it is excitement. Let's make no mistake — we are in uncharted territory. Growth is certainly welcome news, but prosperity can often be guided by nearsighted intentions, causing us to be the architects of unintended consequences further down the road.

This is why our industry needs the National Council of Textile Organizations (NCTO) now more than ever. Our core mission,

to “preserve and enable the prosperous future of U.S. textile manufacturing,” is being put to the test under new light.

Consider the uncertainty of a potential trade war with China. The U.S. Government recently placed duties on many products under 301 Authority.² This position has touched many products in the supply chain, affecting many textile companies — some positively, some negatively. Navigating these new constructs, and anticipating next moves by both countries, has become a significant challenge not just for textile companies, but for brands and retailers as well.

In addition, the Trump administration has renegotiated the North American Free Trade Agreement (NAFTA), America’s regional free trade agreement with Canada and Mexico. Since U.S. textile exports to the combined Mexican and Canadian markets totaled nearly \$12 billion in 2017, it is critical that any transition to the U.S.-Canada-Mexico Agreement (USMCA) be smooth for all parties.

HOW THE U.S. FACTORS

Many brands and retailers are now faced with the decision to either maintain their current sourcing strategies, or adopt — or in many cases, create — new strategies that feature Western Hemisphere sourcing.

Trade challenges factor heavily, but it is also critical for brands and retailers to recognize the need to contract sourcing lead times and to avoid supply disruption.

David Sasso — vice president of Sales at Buhler Quality Yarns, and a veteran expert in textile supply chains — has made a very strong argument for Western Hemisphere sourcing in two recent articles. In “Responsive Retail”³ and “What TPP’s Death Means for U.S. Apparel Brands and Supply Chain Management in Uncertain Times”⁴ he argues that, because of the trend-based, mercurial nature of the fashion industry, it is important to be able to react quickly. Shotgun approaches to fashion can cause two major issues. First, when an item is ordered in large quantity and sales don’t meet expectations, the result is markdowns and lost revenue. A second possible negative outcome is when an item sells in far greater quantities than anticipated. Supply chains dependent on overseas sources, and shipping constraints often lead to stockouts, leaving profits on the table and customers looking elsewhere for similar styles.

A brand’s sourcing strategy that moves at least a portion of its sourcing chain to the Western Hemisphere reduces lead times, solving both issues. A Western Hemisphere supply chain holds net-positive potential for brands, retailers, and consumers alike.

The United States and our partners in the Western Hemisphere supply chain are making investments to better serve brands and retailers — and ultimately, consumers. Strategic business partnerships are important, but they must also be combined with a strong voice in Washington to ensure that the investments and relationships are allowed to prosper.

THE TASK AT HAND

The United States and our partners in the Western Hemisphere supply chain are making investments to better serve brands and retailers — and ultimately, consumers. Strategic business partnerships are important, but they must also be combined with a strong voice in Washington to ensure that the investments and relationships are allowed to prosper. This is a strategy that must be recognized and championed — and that is exactly why NCTO exists.

We must ensure that those working to craft trade and procurement policies hear our voice, understand our challenges, foresee those policy decisions that may have net-negative consequences for our industry, and enact policy engineered to further our interests. Governmental policy makers are not textile supply chain experts who live and breathe this industry. We are, and thus only we, as a united industry, can communicate our interests.

I am proud to serve this industry as chairman of the NCTO, and proud to work with and on behalf of all of our members.

The opportunity is ours to seize. It is a truly exciting time to be in American textiles. 

ABOUT THE AUTHOR

NCTO Chairman Marty Moran has been part of U.S. textile manufacturing for more than 26 years. A native of North Carolina, he serves as CEO of Jefferson, Georgia-based Buhler Quality Yarns Corp. (a Samil Spinning Co.). Buhler is known not only for its high-quality yarn spinning, but also for its deep supply chain expertise, placing Moran at the center of this complex and ever-shifting industry.

1. https://www.mckinsey.com/~media/mckinsey/industries/retail/our_insights/is_apparel_manufacturing_coming_home/is-apparel-manufacturing-coming-home.ashx

2. https://www.trade.gov/mas/ian/tradedisputes-enforcement/tg_ian_002100.asp

3. <https://www.buhler yarn.com/blog/how-faster-smarter-supply-chains-can-limit-discounts-stockouts/>

4. <https://www.buhler yarn.com/blog/tpps-death-means-u-s-apparel-brands-supply-chain-management-uncertain-times/>

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