

Circularity in Textiles A Path to Net Zero



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Sustainability Updates

TIME announces top 10 sustainable apparel brands of 2024

■ Desk Report



In a world increasingly focused on environmental responsibility, TIME magazine has recently announced its list of the World's Most Sustainable Companies of 2024. This prestigious ranking includes the top 10 sustainable apparel brands, highlighting those that have made significant strides in reducing their environmental impact and promoting sustainable practices.

Leading the Way in Sustainability: Top 10 Apparel Brands

» Puma (Rank 67)

Headquarters: Germany

Website: eu.puma.com

Score: 73.02

Puma tops the list in the apparel sector, recognized for its comprehensive sustainability strategy and commitment to reducing carbon emissions and waste throughout its supply chain.

» Gap (Rank 73)

Headquarters: United States

Website: www.gapinc.com

Score: 72.19

Gap has been lauded for its efforts in sustainable sourcing and initiatives aimed at water conservation and waste reduction.

» **PVH Corp. (Rank 76)**

Headquarters: United States

Website: www.pvh.com

Score: 72.16

PVH, the parent company of iconic brands such as Calvin Klein and Tommy Hilfiger, is recognized for its ambitious sustainability goals and transparent reporting practices.

» **GUESS (Rank 199)**

Headquarters: United States

Website: www.guess.com

Score: 64.30

GUESS has made significant progress in sustainable material usage and aims to reduce its environmental footprint through innovative design and production processes.

» **Hugo Boss (Rank 209)**

Headquarters: Germany

Website: group.hugoboss.com

Score: 63.58

Hugo Boss is noted for its commitment to ethical labor practices and sustainable product lines, aiming to balance luxury with environmental responsibility.

» **Lululemon (Rank 245)**

Headquarters: Canada

Website: corporate.lululemon.com

Score: 62.26

Lululemon has been acknowledged for its focus on sustainable materials and community-based

initiatives that promote environmental wellness.

» **Burberry (Rank 258)**

Headquarters: United Kingdom

Website: uk.burberry.com

Score: 61.59

Burberry continues to set the bar high with its ambitious sustainability agenda, including goals for carbon neutrality and sustainable product innovation.

» **Gildan (Rank 276)**

Headquarters: Canada

Website: www.gildan.com

Score: 61.05

Gildan's sustainability efforts are reflected in its transparent supply chain and dedication to ethical manufacturing practices.

» **Ralph Lauren (Rank 280)**

Headquarters: United States

Website: www.ralphlauren.com

Score: 60.71

Ralph Lauren is recognized for its initiatives in sustainable design and its commitment to reducing its environmental impact through innovative practices.

» **American Eagle Outfitters (Rank 403)**

Headquarters: United States

Website: www.ae.com

Score: 56.04

American Eagle stands out for its focus on sustainable denim production and its efforts to engage consumers in sustainability initiatives.

As the world continues to grapple with climate change, these brands set a powerful example of how the apparel industry can contribute to a more sustainable future.

 <https://www.texspacetoday.com/time-announces-top-10-sustainable>

CHT Germany launches sustainable recycling plant in Dußlingen

■ Desk Report



CHT Germany GmbH celebrated the ground-breaking ceremony for its new container cleaning and recycling plant. This event marks a vital moment in the company's journey towards becoming a more environmentally responsible chemical enterprise.

CHT Germany GmbH, a key player in specialty chemicals globally, has set a clear path towards climate neutrality with its robust corporate strategy centered on sustainability. The new facility, located at the Dußlingen site and backed by an investment of nearly 5 million Euros, underscores the company's commitment to reducing its carbon footprint through innovative resource management practices.

The cornerstone of this initiative is implementing

a state-of-the-art container washing system designed for maximum resource efficiency. By focusing on cleaning and reusing existing packaging such as drums and IBCs (Intermediate Bulk Containers), CHT aims to minimize the procurement of new materials significantly. This approach conserves raw materials and reduces energy consumption compared to recycling processes.

The new plant will operate with utmost resource efficiency, utilizing heat from a local renewable heating network and rainwater for its operations. A robust photovoltaic system installed on the roof will generate renewable electricity, ensuring sustainable energy use that exceeds the plant's operational needs.



<https://www.texspacetoday.com/cht-germany-launches-sustainable>

Rohit Aggarwal to lead Lenzing group as new CEO

The Lenzing Group, a leading supplier of regenerated cellulose fibers, has announced the appointment of Rohit Aggarwal to the Management Board, where he will oversee the fiber division starting in the third quarter. Following the departure of Stephan Sielaff by March 2025, Aggarwal will assume the role of CEO.

Aggarwal brings extensive experience in the textile and chemical industries, with a strong background in strategic market development and global management. He has held significant positions in Europe, the USA, and Asia, making him well-suited for Lenzing's international operations.

Stephan Sielaff, who will step down as CEO,



Figure: Rohit Aggarwal

has been praised for his leadership during a challenging period marked by multiple crises. The Supervisory Board Chairman, Cord Prinzhorn, expressed gratitude for Sielaff's contributions and confidence in Aggarwal's capabilities.



<https://www.texspacetoday.com/rohit-aggarwal-to-lead-lenzing-group-as-new-ceo/>

EU-regulated 'sustainable' funds invest in major polluters

An investigation reveals that EU-regulated "sustainable" funds, claiming ethical credentials, have invested £14bn in the world's 200 biggest polluters, including fast fashion labels and fossil fuel companies. Over £68bn is invested in funds under the EU's sustainable finance rules, with a significant portion going to major polluters. Campaigners argue current regulations mislead investors and contribute to climate breakdown. Calls for stricter rules on labeling and marketing of sustainable funds are increasing to prevent greenwashing and ensure investments genuinely support environmental goals.



Figure: Rohit Aggarwal



<https://www.texspacetoday.com/eu-regulated-sustainable-funds-invest-in-major-polluters/>

Archroma Wins Big at the '2024 Just Style Excellence Awards' for Sustainability and Community Engagement



Figure: Rohit Aggarwal

Archroma, a global leader in specialty chemicals, has won prestigious awards at the Just Style 2024 Excellence Awards for its sustainability innovations and community engagement efforts. The company received two Innovation Excellence awards for its SUPER SYSTEMS+ solutions and AVICUERO® leather tanning process, and a Social Excellence award for its community initiatives in Baroda, India.

Innovation Excellence Awards:

- » **SUPER SYSTEMS+:** This suite of solutions addresses key textile industry challenges like water consumption, greenhouse gas emissions, and chemical management. It offers end-to-end, fiber-specific solutions to enhance process efficiency and meet sustainability targets without additional investment.
- » **AVICUERO®:** A sustainable leather tanning system that is chrome- and metal-free, developed with Dr Leather. It reduces pollution, processing

times, and energy usage while maintaining quality and performance.

Social Excellence Award:

- » **Community Engagement in Baroda, India:** Archroma's initiatives include early childhood development, student scholarships, agricultural education, and women's empowerment. Projects like the Anganwadi Centre, vocational training scholarships, and a Household Biogas Plant demonstrate Archroma's commitment to socio-economic progress and sustainability.

Paul Cowell, Vice President of Archroma Textile Effects, highlighted the company's commitment to "people-centered sustainability" under their PLANET CONSCIOUS+ vision.

The Just Style Excellence Awards recognize top achievements in the global textile and apparel sector, encouraging companies to drive positive change.



<https://www.archroma.com/press/releases/archroma-wins-for-sustainability...>

Major Brands Unite to Decarbonize Fashion Sector through Collective Financing Model

FUTURE SUPPLIER INITIATIVE

Some world's leading fashion brands, including Bestseller, Gap Inc., H&M Group, and Mango, have committed to a groundbreaking initiative to decarbonize the fashion sector, starting with a pilot program in Bangladesh.

The Future Supplier Initiative, facilitated by The Fashion Pact in collaboration with Apparel Impact Institute, Guidehouse, and DBS Bank, introduces a collective financing model to reduce emissions in the apparel supply chain. Recognizing that 99% of fashion brand emissions occur in the supply chain (Scope 3), the initiative seeks to accelerate the transition to net zero by sharing the financial risks and responsibilities of switching to renewable energy sources in garment and textile factories.

This brand-agnostic mechanism will provide

financial incentives and technical support to suppliers, helping them adopt low-carbon technologies and renewable energy solutions. The initiative's goal is to enable suppliers to meet Science Based Targets (SBTs) and stay within the 1.5-degree Celsius climate trajectory.

The Future Supplier Initiative will initially focus on Bangladesh, with plans to expand to other key apparel manufacturing regions, including Vietnam, India, China, Italy, and Turkey. The first year will prioritize factories based on impact, develop technical proposals for deep decarbonization, and de-risk lending to suppliers. Year two will focus on project implementation and monitoring the climate impact.

For more information on joining the initiative, visit futuresupplierinitiative.com.



<https://www.texspacetoday.com/major-brands-unite-to-decarbonize-fashion>

New guidance on science-based targets for nature

This week, the Science Based Targets Network (SBTN) unveiled updated technical guidance to help companies set science-based targets for nature. The initiative, launched last year, aims to assist companies in evaluating and mitigating their environmental footprints. Following a pilot programme, a new cohort of 24 companies, including Accenture, Heineken, and Toyota North America, has joined this year. The pilot's insights have informed the new guidance, and a

comprehensive manual is now available. SBTN plans to release further results later this year to shape future guidance. Despite growing corporate awareness, only 15% of business leaders have implemented plans to address biodiversity impact, compared to 23% with net-zero carbon emissions plans underway. CDP data reveals a 24% increase in climate and nature disclosures from over 24,000 organisations in 2023, with most companies identifying more opportunities than risks.



<https://www.ecotextile.com/2024071232263/materials-production-news..>

Dye Innovator Coloreel Group AB Files for Bankruptcy

Coloreel has filed for bankruptcy, citing its inability to quickly develop business volume and secure necessary financing. The company aimed to revolutionize the textile industry with a sustainable thread dyeing process and had over 90 global customers and 120 patents. Despite extensive discussions with investors and partners, Coloreel couldn't overcome its financial challenges. Chairman Anders Persson expressed pride in the team's achievements and gratitude for the support from partners, customers, and investors.



<https://www.ecotextile.com/2024071132260/dyes-chemicals-news/dye>

OCA published 2023 Annual Report, claims expansion

The Organic Cotton Accelerator (OCA) released its 2023 Annual Report, highlighting significant progress in supporting farmers transitioning to organic cotton production. In 2023, OCA's Farm Programme saw participation from 16 brands, benefiting over 70,000 farmers and covering 91,000 hectares. Organic cotton procurement increased to over 87,000 metric tons. OCA consolidated its efforts in Pakistan with the first Organic Cotton Training Curriculum and expanded operations to Türkiye. New initiatives include biodiversity monitoring and regional Life Cycle Assessments. OCA also introduced a Public



Affairs strategy and launched a Decent Work training resource in India. The global community grew to 58 contributors, and OCA co-hosted the Organic Cotton and Textiles Conference in Indore, India.

https://organiccottonaccelerator.org/news_article/ocas-2023-annual-report-key-highlights/

"Marzotto Group Partners with Authentico® for Transparent and Ethical Wool Supply Chain"

Marzotto Group has partnered with Authentico® by Schneider Group to ensure a transparent, ethical, and high-quality supply chain for wool fabrics. This partnership, showcased at Milano Unica, involves various Marzotto mills, including Fratelli Tallia di Delfino and Guabello | 1815. Authentico® certifies raw materials with a traceable and responsible supply chain. Giorgio Todesco, CEO of Marzotto Wool Manufacturing, emphasizes their commitment to transparency and quality. Laura Ros, CEO of Schneider Group, highlights the partnership's role in promoting a sustainable and innovative fashion industry.



<https://www.the-spin-off.com/news/stories/The-Materials-DiscoverGroup>



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Future of Garment Production: Smart Needles with Embedded Sensor

■ M A Mohiemen Tanim

In the fast-paced world of garment manufacturing, technological innovation is essential for maintaining competitiveness. Among the latest breakthroughs in this sector is developing smart needles with embedded sensors. These advanced sewing tools are revolutionizing the way garments are produced, offering unprecedented precision, efficiency, and quality control.

What Are Smart Needles?

Smart needles are a new generation of sewing needles with tiny embedded sensors. These sensors monitor various parameters during the sewing process, such as needle temperature, pressure, stitch tension, and fabric resistance. The data collected is transmitted in real-time to a central system, allowing operators to make immediate adjustments or allowing automated systems to optimize the sewing process autonomously.

Key Features of Smart Needles

- » **Real-Time Monitoring:** One of the standout features of smart needles is their ability to provide real-time data on the sewing process. This includes information on stitch consistency, fabric tension, and needle wear. By continuously monitoring these factors, manufacturers can ensure that their garments are being produced to the highest standards.
- » **Predictive Maintenance:** The data from smart needles can be used to predict when a needle is likely to fail or become worn out. This allows for timely replacements, reducing downtime and preventing potential damage to fabrics.



- » **Adaptive Stitching:** Smart needles can adjust the stitching process based on the fabric type and thickness. For example, the needle might change its speed or pressure when sewing through different layers of material, ensuring a consistent and high-quality finish.
- » **Integration with Automated Systems:** These needles can be integrated with advanced sewing machines and robotic systems, allowing for a fully automated and optimized production process. The seamless integration helps in speeding up production while maintaining consistent quality.

Industry Applications

The applications of smart needles extend across various sectors of the garment industry:

- » **High-Fashion and Luxury Garments:** Precision is paramount in high-fashion and luxury garments. Smart needles ensure that every stitch is perfect.
- » **Activewear and Technical Textiles:** The demand for activewear and technical textiles, such as sportswear and outdoor gear, has

increased significantly.

- » **Medical Garments:** In the production of medical garments and equipment, hygiene and precision are critical.
- » **Mass Production:** For large-scale garment manufacturers, efficiency is key. Smart needles streamline the production process by reducing downtime and minimizing waste.

Leading Companies in Smart Needle Technology

Several companies are at the forefront of developing and implementing smart needle technology. These industry leaders are driving innovation and setting new standards in garment production.

- » **Groz-Beckert:** One of the most recognized names in the needle manufacturing industry, Groz-Beckert has been a pioneer in needle technology for decades. The company has recently invested heavily in smart needle research, developing a range of products that incorporate sensor technology. Their smart needles are designed to work seamlessly with their existing line of high-performance needles, offering enhanced precision and real-time monitoring.
- » **Schmetz:** Another major player in the needle manufacturing industry, Schmetz has also embraced the trend of smart needles. Their product line includes needles equipped with sensors that can monitor stitch quality and needle wear.
- » **Organ Needles:** Their smart needles are equipped with advanced sensors that provide real-time feedback on needle performance, helping manufacturers maintain efficiency and quality during long production runs.
- » **Brother Industries:** Although primarily known for its sewing machines, Brother Industries has made significant strides in smart needle technology. The company's smart needles are integrated into their advanced sewing systems,

offering a complete solution for manufacturers looking to embrace the latest in garment production technology.

- » **Juki Corporation:** Juki, a leading manufacturer of industrial sewing machines, has partnered with needle producers to develop smart needles that are compatible with their automated systems.

Impact of Smart Needles on Garment Manufacturing

The adoption of smart needle technology is transforming the garment manufacturing industry in several ways:

- » **Improved Quality Control:** By providing real-time data on the sewing process, smart needles allow manufacturers to catch defects early and make adjustments before they become major issues.
- » **Increased Efficiency:** Smart needles help reduce downtime by predicting when a needle needs to be replaced and ensuring that stitching is optimized for different fabrics.
- » **Enhanced Sustainability:** By reducing waste and improving efficiency, smart needles contribute to a more sustainable manufacturing process. Manufacturers can produce garments with less material waste and energy consumption.
- » **Cost Savings:** While the initial investment in smart needle technology may be high, the long-term cost savings are significant. Reduced downtime, fewer defects, and lower waste all contribute to a more cost-effective production process.

Challenges and Future Prospects

As the technology matures and becomes more affordable, smart needles will likely become a standard tool in garment production. Companies that invest in this technology early on will have a competitive edge, benefiting from improved efficiency, quality, and sustainability.

James Heal Unveils Titan 25 for High-Capacity Testing at Techtextil 2024

James Heal, a UK-based leader in textile testing solutions, has launched the Titan 25 at Techtextil 2024 in Frankfurt. Celebrating 25 years since the debut of its first Titan universal testing machine, James Heal introduces the Titan 25 to cater to growing demands in personal protective equipment (PPE), safety workwear, and broader industrial applications. Capable of conducting tests up to 25kN, the Titan 25 offers enhanced automation, quick tooling changeovers, and upgraded safety features. Equipped with TestWise software, it includes over 750 pre-loaded test procedures and allows customization for specific testing needs, streamlining setup and enhancing laboratory productivity. The Titan 25 underscores



James Heal's commitment to innovation and efficiency in textile testing, supporting diverse applications across industries.



<https://www.innovationintextiles.com/highest-capacity-testing-with-the-titan-25/>

bluesign and SCTI donated 'Sustainable Chemistry Index (SCI)' Methodology to ZDHC

■ Desk Report

bluesign and SCTI donated their pioneering Sustainable Chemistry Index (SCI) Methodology to ZDHC, marking a significant advancement in sustainable practices for the textile industry.

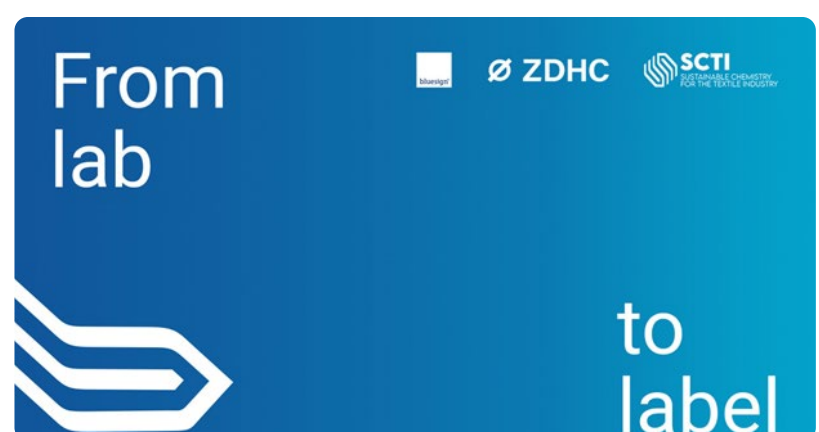
Challenges and Solutions

» **Resource Utilization:** Assesses chemical products' impact on resource efficiency.

» **Transparency:** Enhances supply chain transparency and responsible sourcing.

» **Sustainability Metrics:** Evaluates carbon footprint, resource consumption, and end-use impact.

Collaboration and Impact: SCTI and bluesign's donation of SCI to ZDHC aims to foster industry-wide collaboration through ZDHC's



Chemicals to Zero (CTZ-A) program. The SCI content will undergo stakeholder engagement and be integrated into ZDHC's publicly available framework, promoting widespread adoption and positive change.

This strategic collaboration empowers manufacturers and brands to make responsible, informed choices, committing to sustainable chemistry and benefiting society.

Revolutionizing Textile Printing: The R-JET DTF Machine by RH Corporation

 RH Corporation



In the dynamic world of textile printing, innovation is the key to staying ahead. RH Corporation, a trailblazer in the industry, introduces the R-JET DTF (Direct-to-Film) Printing Machine, a game-changer for businesses in Bangladesh and beyond. As DTF technology gains momentum globally, the R-JET stands out as a beacon of progress, offering unparalleled benefits that cater to the evolving demands of the textile market.

What is DTF Printing?

DTF printing is a cutting-edge process that involves printing designs onto a special film, which is then transferred onto fabric. This method has revolutionized the industry with its ability to produce vibrant, high-quality prints on a wide array of materials.

The R-JET Advantage

The R-JET DTF machine, offered by RH Corporation, embodies the pinnacle of printing

excellence. Here's why it's becoming the preferred choice for textile businesses:

- » **Versatility:** The R-JET can print on a multitude of substrates, including cotton, polyester, and blends, regardless of color or texture.
- » **Quality:** It delivers prints with incredible detail and color fidelity, making intricate designs come to life.
- » **Durability:** Prints made with the R-JET are known for their longevity, enduring multiple washes without fading.
- » **Eco-Friendly:** Utilizing eco-friendly inks, the R-JET aligns with the global shift towards sustainable practices.
- » **Cost-Effectiveness:** It offers competitive pricing for both small and large orders, ensuring a high return on investment.

Empowering Businesses with the R-JET

RH Corporation's R-JET DTF machine is not just

a piece of equipment; it's a catalyst for growth. It empowers businesses to:

- » **Expand Product Offerings:** With the R-JET, companies can diversify their products, catering to a broader audience with custom prints.
- » **Increase Efficiency:** The machine's advanced technology streamlines the printing process, reducing turnaround times and boosting productivity.
- » **Enhance Quality:** The superior print quality elevates the value of the final product, attracting more customers and generating higher revenue.

RH Corporation introduces the state-of-the-art DTF textile printing machine, designed to revolutionize your printing business with its cutting-edge technology and high-efficiency performance- R-JET

- » **Print Head:** Dual Epson DX5, original and unlocked for superior quality.
- » **Print Width:** A generous 1820 mm to accommodate large fabrics.
- » **Max Print Thickness:** Up to 5 mm, offering versatility for different textile types.
- » **Ink Droplet Size:** Precision droplets ranging from 1.5-21pl.
- » **Printing Resolution:** High-definition prints at 1440 DPI.
- » **Printing Speed:** Achieve up to 56 sqm/hr with 2 heads in 2 PASS mode.
- » **Color Range:** CMYK for a full spectrum of vibrant colors.
- » **Ink Type:** Sublimation ink, perfect for polyester and blends.
- » **Drying System:** Optional infrared heater for quick drying.
- » **Ink Supply System:** Optional large bulk system, 1800ml*4 for uninterrupted printing.
- » **Auto Cleaning System:** With anti-clogged flash spray and moisturizing function.

- » **Media Adsorption:** Adjustable strength sucking system for stable media handling.
 - » **RIP Software:** Photo print for efficient processing.
 - » **Operating Systems:** Compatible with a wide range of Windows platforms.
 - » **Input Power:** AC 220V 50Hz; 6000W for robust operation.
 - » **Work Environment:** Optimal performance in 18-35°C and 40%-70% humidity.
- Weight:** Net weight of 350 kgs and gross weight of 420 kgs.
- » **Printer Dimensions:** L3140W880H1320mm for a compact footprint.

This DTF printer is not just a machine; it's a gateway to expanding your creative horizons. From sportswear to home textiles, and soft-signage to outdoor advertising, the possibilities are endless. Experience unparalleled print quality, reliability, and the joy of bringing vivid, pin-sharp images to life.

Elevate your printing game with this DTF printer – where innovation meets industrial production capabilities.

The R-JET DTF machine by RH Corporation is more than just a technological marvel; it's a testament to the company's commitment to innovation and excellence. As DTF printing continues to make waves in the textile industry, the R-JET stands ready to propel businesses into a new era of printing prowess. Embrace the future with RH Corporation's R-JET – where quality, versatility, and sustainability converge to redefine textile printing.

RH Corporation is dedicated to providing state-of-the-art machinery and unparalleled service. To learn more about the R-JET DTF machine and how it can transform your business, visit RH Corporation's website⁵ or contact their expert team⁶.

AI-Powered Dyeing: The Next Big Leap for Textile Manufacture

■ M A Mohiemen Tanim

Integrating Artificial Intelligence (AI) and Machine Learning (ML) into the textile dyeing industry is a transformative approach that significantly impacts production efficiency, sustainability, and innovation. As the textile industry faces increasing pressure to reduce its environmental footprint and improve production processes, AI and ML offer solutions that enhance dyeing precision, minimize waste, and optimize resources.

Impact of AI and ML in Textile Dyeing

- » **Precision and Efficiency:** Traditional dyeing processes often result in inconsistent color application, leading to wastage of materials and resources. Coloro, a company specializing in color management, uses AI to predict and control color accuracy, reducing the need for re-dyeing and minimizing resource consumption.
- » **Sustainability:** One of the most significant impacts of AI and ML in textile dyeing is the reduction of water and chemical use. The traditional dyeing process is water-intensive and often leads to environmental pollution. AI algorithms can optimize the dyeing process by adjusting the use of water and chemicals in real-time, based on fabric type and dye properties. Companies like Alchemie Technology are pioneering in this area with their AI-driven clean-tech solutions that reduce water usage by up to 95% in dyeing processes.
- » **Real-time Monitoring and Quality Control:** AI and ML enable real-time monitoring of dyeing processes, ensuring that any deviations from the desired outcome are immediately



corrected. This minimizes defects and enhances product quality. Datacolor, a global leader in color management technology, integrates AI into its systems to provide real-time feedback during the dyeing process, ensuring consistent color quality and reducing waste.

- » **Energy Efficiency:** AI can also optimize energy consumption in textile dyeing. By analyzing data from dyeing machines, AI systems can adjust settings such as temperature and timing to reduce energy use without compromising quality. Jeanologia, a Spanish company, leverages AI and ML to develop sustainable and energy-efficient dyeing and finishing technologies, reducing energy consumption by up to 50%.

Scope of AI and ML in Textile Dyeing

The scope of AI and ML in textile dyeing is vast, with applications ranging from process optimization to sustainability. The adoption of these technologies is not limited to large-scale manufacturers; small and medium-sized

enterprises (SMEs) can also benefit from AI-driven solutions.

» **Customization and On-demand Production:**

AI and ML enable the production of customized textiles with precise color matching and unique designs. This is particularly relevant in the fashion industry, where consumer demand for personalized products is growing.

» **Predictive Maintenance:** AI-driven predictive maintenance tools can foresee potential machine failures before they occur, reducing downtime and maintenance costs. By analyzing data from dyeing machines, AI systems can predict when a machine is likely to fail and schedule maintenance accordingly.

» **Supply Chain Optimization:** AI and ML are transforming supply chain management in textile dyeing by providing end-to-end visibility and optimizing logistics. AI algorithms can predict demand, optimize inventory levels, and reduce lead times, ensuring that the right products are available at the right time.

» **Sustainability Reporting and Compliance:**

With increasing regulations around sustainability, AI and ML can help textile dyeing companies track and report their environmental impact. Higg Co., a technology company, offers AI-driven tools to help textile companies track their environmental and social impact, ensuring compliance with global sustainability standards.

Latest Technologies in AI and ML Integration

» **AI-powered Dyeing Machines:** Companies like Baldwin Technology have developed AI-driven textile finishing systems that provide precise control over dye application, reducing waste and improving efficiency. Their AI-powered machines can automatically adjust dye flow, ensuring consistent color application across different fabrics.

» **Digital Twin Technology:** This cutting-edge technology involves creating a virtual replica

of the dyeing process, allowing manufacturers to simulate and optimize the process before it is implemented in the real world. Siemens, a global leader in digital transformation, has integrated digital twin technology into textile manufacturing, enabling manufacturers to test and refine dyeing processes without wasting resources.

» **AI-driven Color Matching:** Accurate color matching is crucial in textile dyeing, and AI-powered systems are revolutionizing this process. Datacolor's AI-based color matching solutions analyze large datasets of color samples to ensure precise color matching, reducing the need for manual intervention and speeding up the dyeing process.

» **Machine Learning Algorithms for Process Optimization:** ML algorithms are being used to optimize every aspect of the dyeing process, from temperature control to chemical usage. Osborn International, a global leader in surface treatment solutions, utilizes ML to optimize their textile dyeing processes, reducing waste and improving efficiency.

The integration of AI and ML in textile dyeing is a game-changer for the industry, offering unprecedented opportunities for efficiency, sustainability, and innovation. Companies like Coloro, Alchemie Technology, and Jeanologia are leading the way with AI-driven solutions that reduce waste, conserve resources, and enhance product quality. As these technologies continue to evolve, the scope of AI and ML in textile dyeing will only expand, paving the way for a more sustainable and efficient industry. Whether it's through real-time monitoring, predictive maintenance, or supply chain optimization, AI and ML are set to revolutionize textile dyeing, making it more sustainable, efficient, and responsive to consumer demands. The future of textile dyeing is undoubtedly digital, and the companies that embrace AI and ML will be at the forefront of this transformation.

Brückner Unveils Advanced Stenters for Knitted Fabrics

■ Desk Report

German manufacturer Brückner has launched advanced stenters specifically tailored for knitted fabrics, setting a new standard in textile finishing technology. These state-of-the-art machines are designed to enhance energy efficiency and boost production speed, meeting the industry's growing demand for sustainable and cost-effective solutions. The stenters are engineered to handle the delicate nature of knitted fabrics with precision, ensuring minimal tension and superior quality finishes. This innovation aligns with Brückner's commitment to sustainability, reducing energy consumption while optimizing



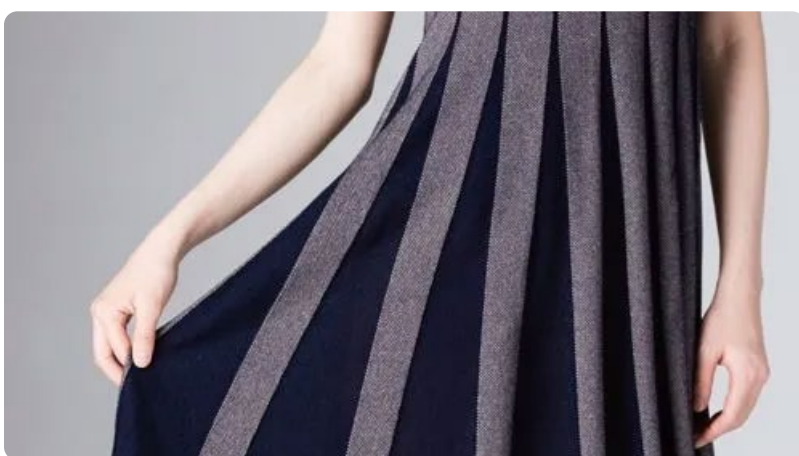
resource use. As part of the company's ongoing efforts to provide cutting-edge solutions, these new stenters position Brückner as a key player in modern textile manufacturing.



<https://www.brueckner-textile.com/en/products/stenters.html>

Shima Seiki enhances WHOLEGARMENT knitting with advanced tech

■ Desk Report



Shima Seiki, a leader in knitting technology, has unveiled significant advancements in its WHOLEGARMENT knitting machines. The latest models include upgraded software for

superior pattern precision, an eco-friendly yarn utilization system that reduces waste, and enhanced energy efficiency.

The new technology enables seamless production of garments in one piece, eliminating the need for cutting and sewing, which not only streamlines manufacturing but also minimizes material waste. The enhanced machines are equipped with advanced automation and data analytics capabilities, offering real-time monitoring and predictive maintenance to further optimize performance and reduce downtime.



<https://www.shimaseiki.com/wholegarment/>

Circularity in Textiles – A Path to Net Zero

■ A. Peter Tessa

It is now well known that the textile and apparel sector significantly contributes to environmental pollution and carbon emissions. Transitioning to a circular economy within this sector is essential for achieving the United Nations' net zero carbon emission targets and promoting sustainable development.

The textile industry is responsible for substantial greenhouse gas emissions, with material production and garment manufacturing being the primary contributors. In 2019, the apparel sector emitted approximately 1.025 gigatonnes of CO₂ equivalent, representing about 2% of global emissions (World Resources Institute).

As outlined in the Paris Agreement, the UN's net-zero carbon emission target is part of the broader effort to limit global warming to 1.5°C above pre-industrial levels. The says that the global net human-caused emissions of carbon dioxide (CO₂) need to fall by about 45 percent from 2010 levels

Key Insights:

- » **High Emissions:** Textile sector emits about **1.025** gigatonnes of CO₂ annually (2% of global emissions).
- » **Resource Intensive:** EU textiles in 2020 used nine cubic meters of water, **400 square** meters of land, and **391 kg** of raw materials per person.
- » **Significant Carbon Footprint:** US textile production's annual carbon footprint is **445 million** tons of CO₂e (equivalent to **89 million** cars).
- » **Impact Areas:** Apparel processing- **35%** of carbon footprint & fiber production- **42%** of carbon footprint.



Figure: Circularity in Textile (AI Generated)

by 2030, reaching net zero around 2050.

The textile sector was the third largest source of water degradation and land use in 2020 when it took on average nine cubic meters of water, 400 square meters of land, and 391 kilograms (kg) of raw materials to provide clothes and shoes for each EU citizen.

Textile purchases in the EU in 2020 generated about 270 kg of CO₂ emissions per person, according to the European Environment Agency. That means textile products consumed in the EU generated greenhouse gas emissions of 121 million tonnes.

According to a UK study from Wrap published in 2017, each ton of clothing generates approximately 26.2 tons of carbon dioxide equivalent (tCO₂e). Assuming a similar carbon intensity in the US, the total annual carbon footprint of the country's clothing and other textile production is a whopping 445 million tons of CO₂e. That's equivalent to a year's worth of greenhouse gas emissions from over 89 million gasoline-powered cars, according to the EPA.

The textile industry significantly impacts carbon emissions, with apparel processing and fiber production being major contributors. Based on

WRAP and EPA data, processing is responsible for about 35% of the total carbon footprint, equivalent to approximately 156 million metric tons of CO₂e in the U.S. Fiber production has an even greater impact, contributing around 42% of the total carbon footprint, or about 187 million metric tons of CO₂e.

To come out from this dire situation by adopting circularity principles—such as recycling, reusing, and designing for longevity—the global textile industry can significantly cut down these emissions. Enabling circularity involves a complex web of logistics and changes in purchasing and use activities which is gradually emerging, however, it is still in the early stages.

Promoting sustainable practices

Circularity in textiles involves creating a system where products and materials are kept in use for as long as possible. This approach contrasts with the traditional linear model of “take, make, dispose.” Key strategies to create a circular system can be sustainable material use, energy efficiency, and waste management.

Improving energy efficiency in manufacturing processes can lead to substantial emissions reductions. Techniques such as heat recovery, efficient motors, and better insulation are crucial. Investing in renewable energy sources for production can also make a significant impact (World Resources Institute).

Implementing zero-waste policies and promoting the recycling and repurposing of textile waste can minimize the environmental footprint. Transforming waste materials into new products can help reduce the industry’s reliance on virgin resources and lower carbon emissions. Also, implementing closed-loop production systems can help minimize waste and maximize resource efficiency, ultimately reducing the industry’s carbon footprint.

Supporting UN Sustainable

Development Goals (SDGs)

Circularity in the textile industry aligns with several UN SDGs, including:

- » **Clean Water and Sanitation (SDG 6):** By reducing water usage and ensuring proper wastewater treatment, the industry can contribute to cleaner water resources. Advanced technologies in wastewater treatment, such as membrane filtration and biological processes, offer improved efficiency and environmental protection.
- » **Decent Work and Economic Growth (SDG 8):** Circular practices can create new job opportunities and promote sustainable economic growth.
- » **Responsible Consumption and Production (SDG 12):** Encouraging consumers to adopt sustainable consumption habits and fostering responsible production methods are key aspects of circularity.
- » **Climate Action (SDG 13):** Reducing carbon emissions through circular practices directly supports global climate action goals. By reducing emissions and moving towards net-zero emissions, in line with the Paris Agreement’s 2050 target, the industry is trying to combat climate change.

Achieving these goals requires collaboration across the entire textile value chain, including manufacturers, brands, policymakers, and consumers. The UNEP’s global roadmap outlines actions for various stakeholders to promote sustainability and circularity, emphasizing the need for improved practices, infrastructure investment, and shifting consumption patterns. This roadmap will ultimately reduce carbon emissions.

Transitioning to a circular economy in the textile and apparel industry is crucial for meeting the UN’s net zero carbon emission targets.

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<https://www.texspacetoday.com/transforming-ocean-waste-into-fashion..>

Brands embrace circularity with E.MacArthur Foundation initiative

Desk Report

In a significant move towards sustainability, major brands such as H&M, Nike, and Unilever have recently committed to the Ellen MacArthur Foundation's Circular Economy 100 (CE100) initiative. This program aims to accelerate the transition to a circular economy by fostering collaboration among leading companies, governments, and academics. Participants pledge to redesign products and business models to minimize waste and maximize resource efficiency. The initiative encourages the development of closed-loop systems where materials are continuously reused and recycled. By joining the CE100, these brands are setting a precedent for



industry-wide change, demonstrating a collective effort to address environmental challenges and drive innovation in sustainable practices. This commitment marks a crucial step in reshaping industries towards more circular and regenerative economic models.



<https://www.ellenmacarthurfoundation.org/ellen-macarthur-foundation...>



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Moving toward energy efficient textile industry and its importance

Textile manufacturers are trying to meet the demands of the ever-changing fashion industry. The fast-growing textile industry is one of the most energy-intensive industries, although it holds the record for the least efficiency in terms of energy use. In terms of energy consumption, the chemical processing industry consumes approximately 39% of energy, weaving 22%, spinning 33% and 6% for various purposes. Textile manufacturers need to adopt more efficient means of energy, time, money and production for new designs, materials, etc.

Textile manufacturing is difficult to characterize due to the diversity of machines, processes, materials, finishing steps and functional components. For example, to produce a finished fabric, different types of yarns or fibers, different fabric production methods and finishing processes (mechanical finishing, chemical finishing, printing, preparation, dyeing and coating) are all interconnected.

Due to the variety and intensity of its processes, the textile industry consumes large amounts of energy. Different types of textile industries use different energy sources. For example, in wet processing fuel is the main energy source, while in yarn spinning electricity is the main energy source. However, saving energy is no longer a luxury but a necessity.

There are two main ways to make the textile industry energy efficient. One is to retrofit or



Photo by Pixabay on Pexels.com

optimize processes, the other is to replace old machinery with modern, sophisticated and efficient technology.

How to make textile industry energy efficient

All sectors of the textile industry are involved in energy management. First, it is important to analyze the lighting usage. As this is an important factor in electricity consumption, it is important to analyze whether the light source is used efficiently and take conservation measures. Limiting the use of light, incorporating daylight conservation policies, using solar energy and using energy saving lights etc. can be good option to save energy.

Electric motors use a lot of energy. Conventional machines use a single motor to generate mechanical power, which is then transmitted to all parts of the machine. Modern technology now includes several small motors that are connected to the machine and have a control board that

controls the movement of the motors.

Fuel selection, including high calorific value, gas properties, ease of combustion, etc., is an important issue to consider. Changing boiler technology is also a smart way to make your industry more energy efficient.

Although the textile industry does not require large amounts of steam, significant losses occur while transporting steam due to thermal radiation in pipelines. In addition to steam pipes, steam accumulators must also be considered. This is because a steam accumulator is installed in the middle of the heat transfer pipe, between the boiler and the load that stores excess steam and receives heat. It helps save excess steam by converting steam into hot water.

Almost all applications in the textile industry require frequent heating and cooling of liquids and gases that act as heat media. Heat exchangers are useful during heat exchange between different fluids to ensure that direct contact does not cause chemical reactions or contamination. Heat exchangers ensure efficient indirect cooling and heating of these liquids and gases.

Above all, with constantly changing fashion trends and the requirements of the textile industry, energy audits are essential for energy saving and conservation. Energy auditing is basically a study that analyzes and inspects the flow of everything used in industry. This helps reduce the amount of power input to the system without negatively affecting output.

Additionally, through periodic maintenance and timely preventive measures, the industry is significantly reducing power consumption. A well-maintained machine provides better power output while consuming less fuel, electricity, or other energy sources.

Alternative Energy-Efficient Processes

Every year the United Nations holds a World Climate Conference. According to the decision

taken at the climate conference held in Paris in 2015, the use of renewable energy instead of fossil fuels will be ensured worldwide by 2030 to combat climate change. For that purpose, energy conversion, energy conservation and efficiency improvement and the use of renewable electricity in transportation, agriculture, industry, commerce and residential are increasing in countries.

Instead of using conventional energy, textile industries today are switching to other non-conventional energy sources including solar energy, geothermal energy, wind energy, tidal energy and biomass. Initially, people used solar lights for appliances that required minimal power. However, modern solar panels are robust, stronger and can provide more power. Many textile manufacturers are powering their production units through solar energy.

Fossil fuels are rapidly being replaced by renewable fuels in grid electricity generation. In 2021, an average of 10 percent of the world's electricity generation came from renewable energy.

Importance of energy efficient textile industry

Textile is a highly competitive industry. To be competitive, one must find ways to reduce production costs without affecting product quality. Continuous increase in price leads to increase in cost of production. Hence, energy conservation has become imperative to stay afloat in the competitive industry.

Improving energy efficiency should be one of the main concerns of textile industry, especially in times of high volatility in electricity prices. Because, energy is one of the major cost factors in the textile industry. Every single penny matters. Energy engineers can have a significant impact on the bottom line of textile companies by applying various techniques and technologies, such as upgrading to more efficient equipment, improving insulation and implementing waste heat recovery systems.

Texcare International 2024 Focuses on Energy Efficiency

Texcare International 2024, slated for November 6-9 in Frankfurt, will spotlight innovations aimed at reducing energy consumption and enhancing sustainability in commercial textile care. With energy costs comprising a significant portion of operational expenses for laundries, manufacturers are showcasing technologies that optimize resource use and cut carbon emissions. These include advanced recycling of process water, integration of renewable energy sources like solar and heat-pump technologies, and efficient drying solutions. The event will highlight how modern equipment and detergents can



minimize environmental impact while improving operational efficiency, reflecting the industry's commitment to sustainable practices amid fluctuating energy markets.



<https://texcare.messefrankfurt.com/frankfurt/en.html>

Monforts Highlights Energy Efficiency at ITM 2024



Monforts, celebrating its 140th anniversary, will showcase advanced textile machinery at ITM 2024 in Istanbul, emphasizing energy-saving innovations like the Montex stenter

chamber with integrated heat recovery. These technologies, displayed with partner Neotek, enhance efficiency and sustainability in fabric finishing. Recent installations in Turkey, such as at Ilay Textile and Istanbul Boyahanesi, attest to Monforts' leadership in providing control over process parameters and substantial energy savings. The exhibition underscores Monforts' commitment to continuous innovation and customer satisfaction, pivotal as textile manufacturers seek sustainable, high-quality production solutions amid evolving industry demands.



<https://www.monforts.de/en/emphasis-on-energy-for-monforts-at-itm-in-istanbul/>

Karl Mayer Innovates with Energy Efficiency Solution for Warp Knitting Machines



Karl Mayer introduces a cutting-edge Energy Efficiency Solution for warp knitting machines, combining advanced sensor technology with cloud-based analysis software. This innovation

aims to address rising energy costs and stricter environmental regulations by enabling real-time monitoring and efficient management of energy consumption. Accessed through the my.KM.ON portal, the solution provides detailed insights into machine-specific energy usage, facilitating targeted energy-saving strategies. Historical data analysis allows for comparisons across machines and fabrics, supporting the generation of comprehensive energy reports. With initial trials showing potential monthly energy savings of 5-10%, Karl Mayer plans a phased rollout starting May 2024, underscoring its commitment to sustainable manufacturing practices.



<https://www.karlmayer.com/en/>

Monforts Innovates Energy Efficiency Solutions at ITMA Asia + CITME

Monforts, a leader in textile machinery, highlights its energy-saving innovations at ITMA Asia + CITME in Shanghai. Amidst China's dominance in global textile production and consumption, Monforts showcases its Montex stenters renowned for energy efficiency and resource savings. Key innovations include the Universal Energy Tower and ECO Booster heat recovery systems, offering up to 35% energy savings. These technologies, adaptable for both new installations and retrofits, aim to mitigate production costs, enhance sustainability, and reduce carbon footprints amidst rising energy prices. Monforts also emphasizes advancements



in denim production with its CYD yarn dyeing system and applications in technical textiles, underscoring its commitment to versatility and market responsiveness in textile manufacturing.

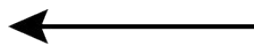
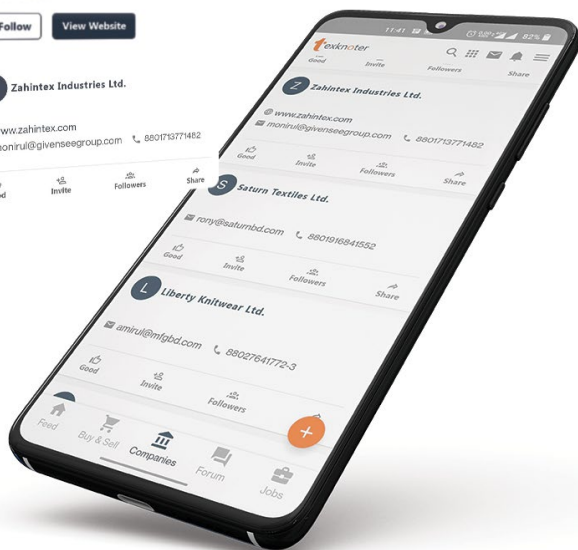
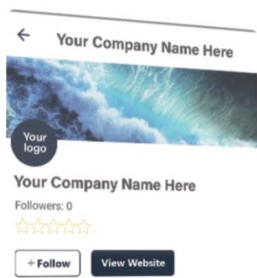


<http://www.monforts.com/>

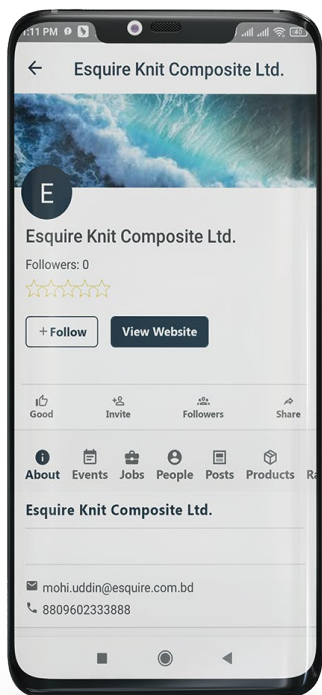


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