

August / September 2023

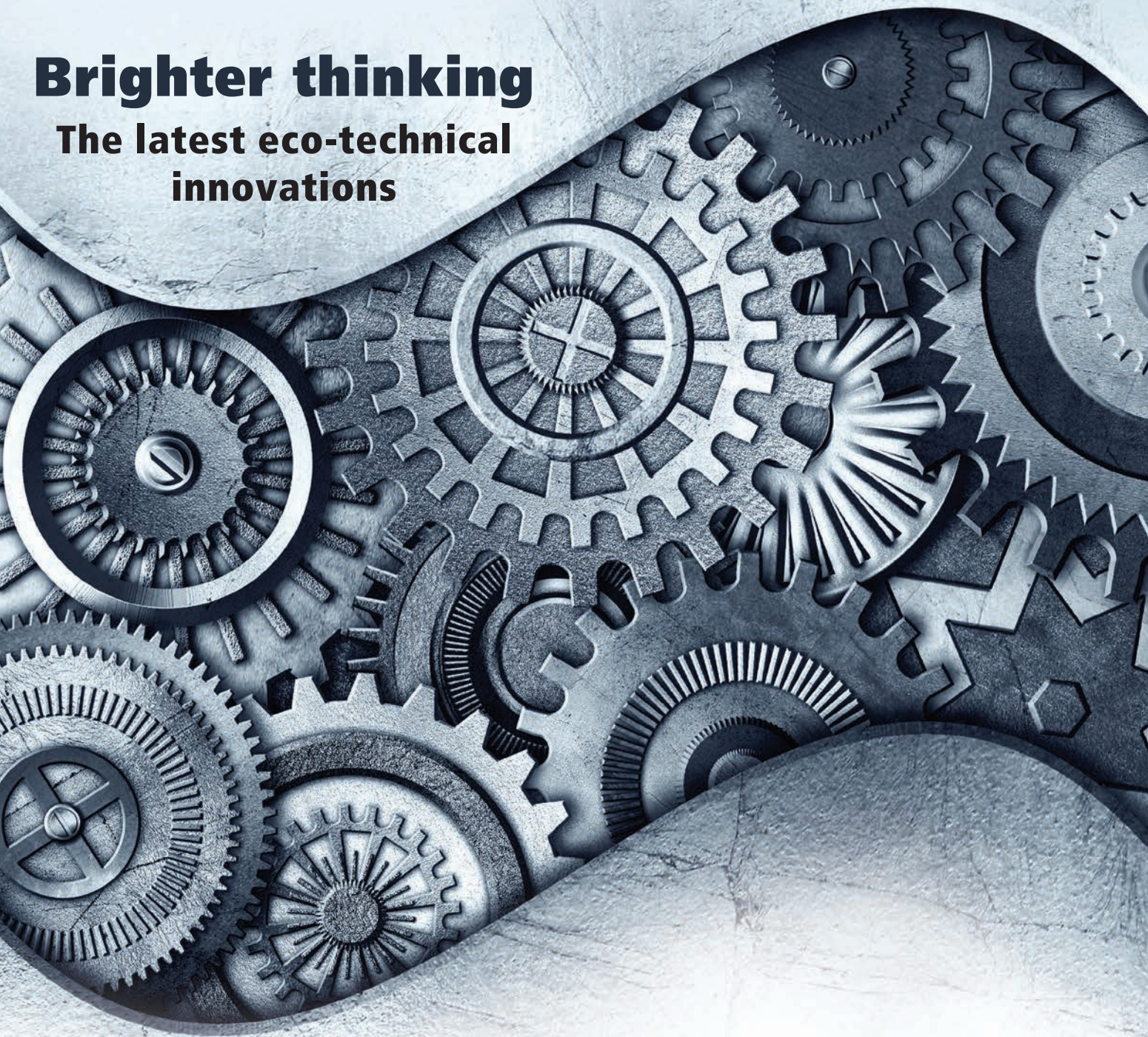
ECOTEXTILE

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NEWS

Brighter thinking

The latest eco-technical
innovations



Planet Textiles

ITMA visitors miss chance
to engage on sustainability

Crest of a wave

Microfibres pioneer
reflects on progress so far

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1: THE GENERATION AND AQUATIC BIODEGRADATION OF MICROFIBERES PRODUCED FROM LAUNDERING FABRICS. Zambrano, M., et al. NC State University, Raleigh, NC, USA. Cotton Incorporated, Cary, NC, USA.* 76% in waste water after 250 days with continued degradation projected. 2: Accumulation of Microplastic on Shorelines Worldwide: Sources and Sinks. Mark Anthony Browne, et al. Environmental Science & Technology 2011 45 (21), 9175-9179. DOI: 10.1021/es201811s



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Disruptive technology that works

In the last issue of *Ecotextile News*, we looked at some of the latest textile technology that will be pivotal in the implementation of the 'how' to reduce the industry's impact on the environment – as momentum shifts gear due to new legislative pressures.

In this subsequent issue – we reveal what we witnessed first-hand at the ITMA 2023 event in Milan where new advances in colouration, recycling, sorting, machine learning and resource savings took an impressive new turn.

The importance of shop-floor textile machine engineers is often overlooked in the move towards sustainability in our industry – but largely by those who have never actually stood inside a textile mill in their entire lives.

But it will be the textile machinery engineers, working with laboratory chemists, software engineers and material scientists that will ultimately provide the most game-changing industry solutions to new regulations currently being proposed in the consumer markets of Europe, North America and elsewhere.

And this is exactly what we saw at the seven-day ITMA 2023 in Milan, which attracted over 110,000 visitors from 143 countries.

Many of the visitors that we spoke to though, noted that because the trade show has evolved to feature various daily side-events, conferences, and other meetings, it was only possible to visit an even smaller fraction of the 1,700 exhibitors than in 2019. "Our team didn't stumble across any new innovations by chance this time, as we had a full schedule of conferences and such a tight timetable because our travel budgets were slashed and there's fewer of us here than in Barcelona," one large sportswear brand told us at our booth in Hall 4.

It's something the organisers may want to bear in mind going forward, although visitor levels were slightly up on Barcelona in 2019, which suggests a more successful sales strategy – did each visitor have enough time to really get to grips with the whole show?

We'd suggest not. That was our experience in Milan, although we've done our best to cover some of the more interesting developments for you – although in a more whistle-stop tour kind of way. See pages: 20–21; 38–45; 48–51.

Here, readers will find details of new advances in digital printing, synthetic fibre recycling, advanced AI-generated sorting machines for separating buttons, zips, labels and accessories from textile waste streams, high fixation reactive dyes, decolourisation of printed polyester fabrics for re-use, virtually waterless denim finishing, upgraded colour matching software, and much more.

One energy saving heat-exchange device by a little-known Italian machine supplier was branded as "worth the visit to Milan alone", by our correspondent Phil Patterson.

Other interesting new pre-commercial technologies seen included the use of cellulose, recyclable print cartridges instead of plastic, and an idea to use green hydrogen as a new energy source for the textile finishing, drying and related processes. We'll detail more on these online shortly after our time investigating the show was curtailed by the closing of the exhibition doors.

From a technical nerds' perspective, it was a fantastic event ... but you had to plan your time wisely if you were searching out for environmental innovations that were spread right across the vast 365,000 sq metre Milan site.

So, it's good to know that we don't have to wait another four years until the next ITMA – in Hanover Germany in 2027. That's because ITMA ASIA + CITME, the combined textile machinery exhibition which has been held biennially in Shanghai since 2008, is to be held over four days in Singapore in 2025, but with a smaller footprint of 60,000 sq ft.

We'd recommend a visit – and hope to see you there.

Enjoy the read – hopefully have a relaxing end to the summer after a very busy 2023 so far.



Issue 116

August / September 2023

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Cover story

20-21 | 38-45 | 48-51

ITMA returns

Our highlights from Milan where the industry's biggest trade show returned after a four year hiatus

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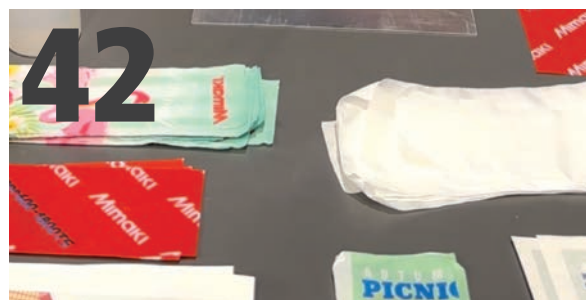
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Legal minefield

A cross-industry collaboration has published a report exploring how apparel suppliers can comply with an increasing raft of sustainability-related legislation

Haydn Davis reports



Denim trade body the Transformers Foundation linked up with sustainable development consultancy GIZ Fabric in an effort to guide manufacturers, especially those outside the 'global north', through the challenges of new legislation.

Specifically, their report aims to analyse the legal landscape with the intention of helping suppliers navigate new requirements, comply with new regulations and mitigate potential risks.

Amongst the 12 pieces of legislation highlighted in the report are the EU Corporate Sustainability Reporting Directive, the EU Forced Labour Regulation, the US Uyghur Forced Labor Prevention Act and the US Microplastics Regulation.

To ensure the project spoke to the needs of the industry, the Transformers Foundation and GIZ Fabric involved several apparel suppliers, including Epic Group, Norlanka, Shahi Exports and Simple Approach.

The report highlights how legislators in the EU, the UK and the United States are driving significant efforts to enact sustainability-related legislation.

The EU, for example, is at

the forefront of these changes, introducing a plethora of legislative and non-legislative measures to implement priority policies such as the European Green Deal.

This is a cornerstone of the EU's industrial strategy, comprising a series of proposals to make the EU's climate, energy, transport, and taxation policies fit for reducing net greenhouse gas emissions by at least 55% by 2030, and to secure the global competitiveness and resilience of European industry.

Importantly, there are also sector-specific initiatives such as the EU Strategy for Sustainable and Circular Textiles, which aims to implement the commitments made under the Green Deal, by setting out measures to address the design and consumption of textile products, and promote a greener and fairer value chain in the textile industry.

However, the report warns that these laws have the potential to impact companies beyond their jurisdictions, making it crucial for businesses to understand their implications.

"The report highlights the importance of determining whether companies are

directly or indirectly in-scope of these legislations," the Transformers Foundation said in a statement.

"It emphasises that even indirect in-scope companies may still face significant impacts and potential legal liabilities.

"By engaging with the factsheets and compliance recommendations provided in the report, companies can proactively prepare for compliance and mitigate potential risks."

Key trends outlined in the report include increased demands for supply chain visibility and traceability, more stringent codes of conduct, heightened reporting requirements, and the need for suppliers to implement due diligence processes.

"We encourage suppliers to establish whether your company is directly within scope, or whether the brands and retailers for which you produce are in scope – meaning that your company is likely to face strong knock-on effects," the report said.

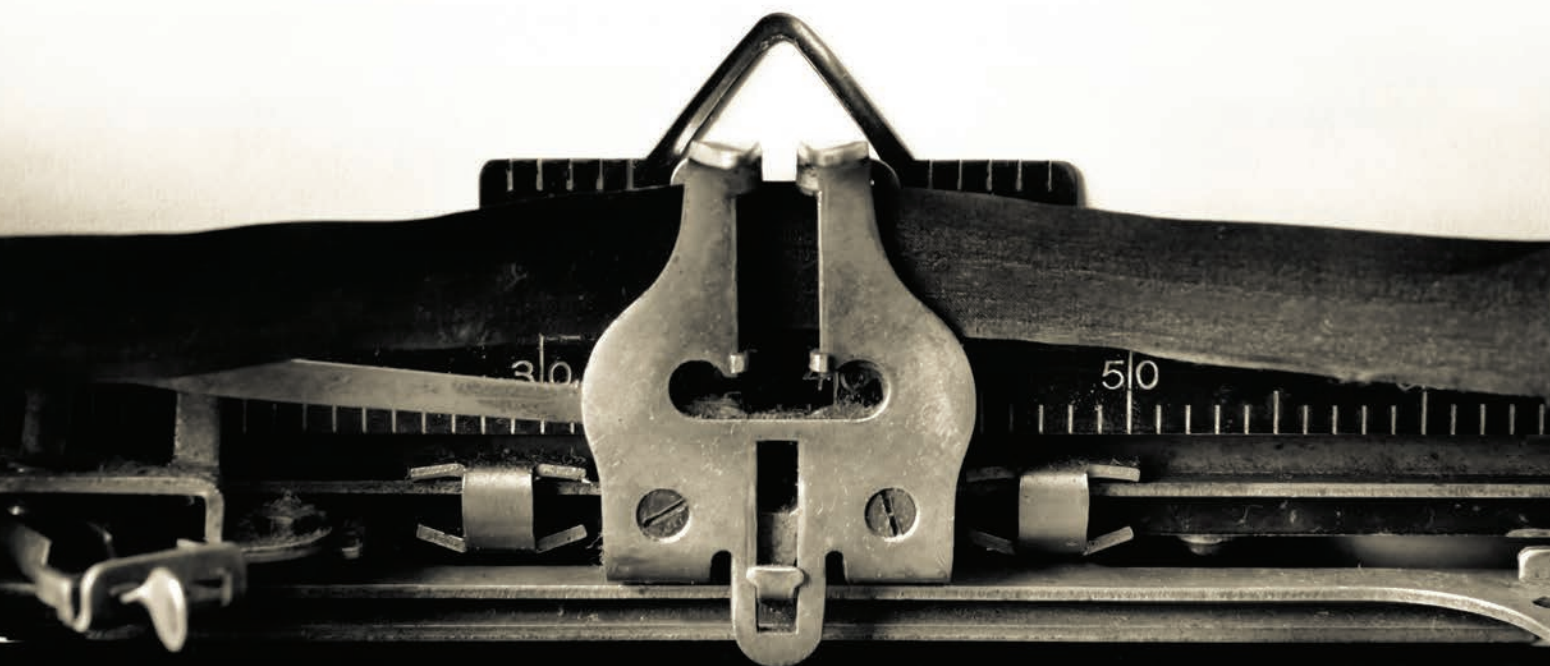
"It is important to emphasise that even if your company is only indirectly in-scope, you are still likely to be impacted and may even be legally liable through new and strengthened contracts from brands." ■

“**Even if your company is only indirectly in-scope, you are still likely to be impacted and may even be legally liable**”

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Supplier network to reinforce Circulose growth

STOCKHOLM – Textile-to-textile recycling innovator Renewcell has launched the Circulose Supplier Network (CSN), a group of 47 firms from across the textile supply chain that will work to ensure a secure supply of products made using the Swedish firm's dissolving pulp. Renewcell uses a patented process to breakdown and recycle cotton and other cellulosic textile waste, such as worn-out jeans and production scraps, to create a biodegradable raw material that can be used to create viscose, lyocell, modal, acetate and other man-made cellulosic fibres. These regenerated fibres can then be turned into new high-quality textiles and garments. The network of partners includes a number of major textile manufacturers from India, China, Turkey, and Europe such as MAS Holdings, Bossa Denim, Tintex Textiles, Arvind Ltd and Cone Denim. Each of the signatories to the CSN has also signed a letter of intent to develop the business case for Circulose to their customers while also committing. The company last year opened its first scale chemical textile-to-textile recycling facility in Sundsvall, Sweden.

Global union pressures EU on Myanmar support

YANGON – The IndustriALL global trade union is renewing its call on the European Union (EU) to withdraw support for the 'MADE in Myanmar project' following the arrests of garment workers and workers' rights campaigners who now face military court trials.

The arrests of eight workers and two campaigners followed disputes over pay and conditions at two garment factories which supplied

Zara owner Inditex and German sportswear brand Jako both of which subsequently announced plans to withdraw from Myanmar.

IndustriALL has now reiterated its call on the EU to withdraw support for the MADE in Myanmar project which it says legitimises and funds the military junta which has run the country since the coup of February 2021.

The union also wants the EU to withdraw

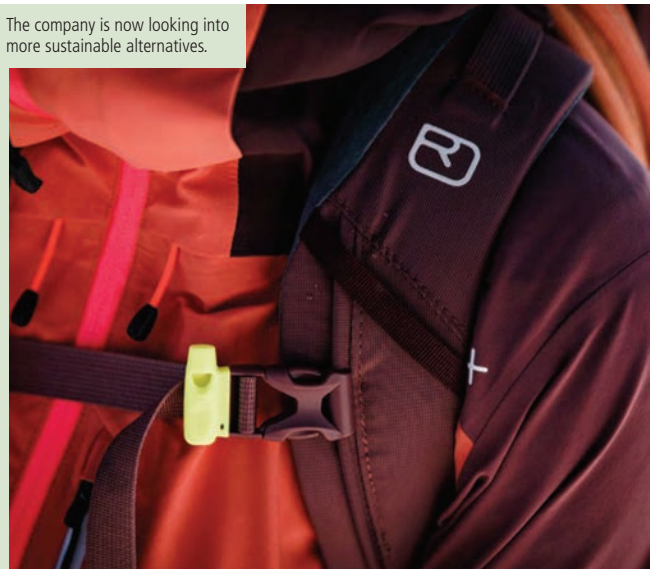
preferential trade tariffs enjoyed by Myanmar under the Generalised System of Preferences scheme, arguing that public funds should not be used to benefit the junta.

Inditex recently confirmed it was in the process of a "phased and responsible" exit from Myanmar, following the arrests of five garment workers and two union activists at one of its suppliers, Hosheng Myanmar Garment Factory in Yangon.

Ortovox to shift from rPET to recycled raw materials

MUNICH – Outdoor brand Ortovox has said it will now concentrate on textile-to-textile recycling in the future and no longer use PET bottles as raw materials for its textile products. The plans are outlined in the company's latest sustainability report, Planet Report, in which it says that while the use of recycled plastic bottles to make clothes has become a standard practice across the fashion industry, the company is now looking into more sustainable alternatives. Citing a study by the Changing Markets Foundation, Christine Brien, head of material at Ortovox said that only 32% of

The company is now looking into more sustainable alternatives.



used plastic bottles in the EU currently remain in the recycling loop. The remaining 68% are downcycled, mostly to make clothing. Furthermore, 85% of clothing manufacturers exclusively use plastic bottles for their recycled polyester. "For many companies PET recycling is the sole sustainability strategy in the production of synthetic

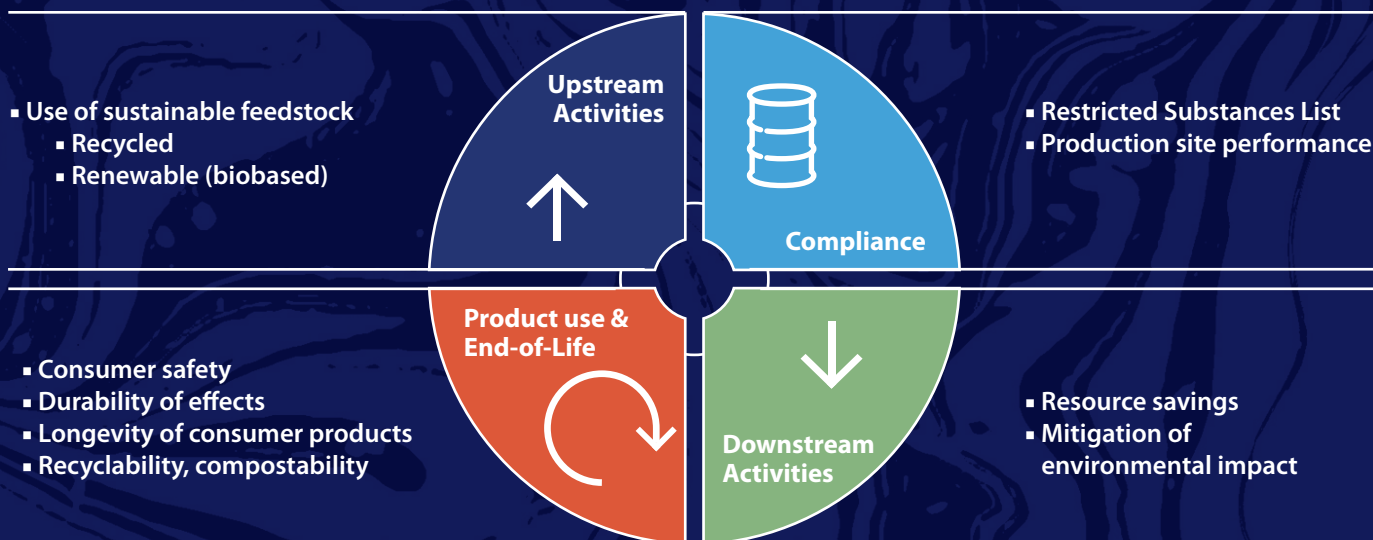
fabrics," said Brien. "The path of least resistance, so to speak. Very little is being invested in fibre-to-fibre recycling technologies." Ortovox determined that PET recycling poses two problems: firstly, bottles that have been made into clothing cannot be turned back into bottles and secondly, there are two different recycling loops.



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Sustainable chemicals

The concept for sustainable chemistry is a holistic one, as it strives to remediate or minimize negative- and enhance positive impacts on environment, economy and society throughout the whole lifecycle of a chemical product.

Bid to demonstrate potential of bio-materials

LEUNA / LONDON – Wood-based chemicals specialist UPM Biochemicals has linked up with London's Central Saint Martins – University of the Arts for a collaboration to demonstrate how industries, including fashion, can shift to using bio-materials in their products. A team of 50 product and industrial design students from Central Saint Martins are tackling a brief to use the wood-based materials being developed by UPM Biochemicals in radical design solutions – from footwear and fashion to furniture and automotive. "We need to embrace radically new concepts and reconsider how brands can establish sustainability as a brand value and aim for true CO₂-neutrality," said Martin Ledwon, vice president, stakeholder relations, UPM. "They need to lead the transformation. But a net zero circular economy is only feasible if we work together across value chains. That is why we are prototyping a world beyond fossils with Central Saint Martins, proving it's possible and scalable to reduce supply chain emissions, now. Breaking down barriers - and excuses." The designs will be evaluated by a team of expert judges for their design quality, contribution to renewable circularity, commercial viability and their potential to disrupt conventional thinking in multiple industries.

S.Oliver and Retraced partner on traceability tool

ROTTENDORF – German fashion brand S.Oliver has partnered with tech firm Retraced to install a new central data management tool aimed at improving transparency within its own supply chains and enabling the digital traceability of products.

As part of the collaboration, Retraced, with the support of S.Oliver, is also working on the further development of the platform with regard to human rights issues, such as the expansion of digital risk management and the

implementation of risk prevention measures in the supply chain.

Welcoming the partnership, Oliver Hein, chief operating officer at S.Oliver said that with such complex and dynamic international supply chains, it was important that all stakeholders worked together to create the necessary transparency. "We are aware that with greater transparency comes greater accountability," he said, adding that the target was to ensure

that every S.Oliver product would be fully traceable via Retraced.

"This is necessary in order to define targeted measures and ensure their effectiveness. Only in this way can we take a holistic view of social and environmental responsibility and continue to develop," he said.

The Retraced system allows businesses to verify their supply chains down to the source of raw materials, ensuring that they can prove product and material provenance.

Avery Dennison and Texaid join forces on waste management

MENTOR – Avery Dennison has joined forces with Texaid, a European company specialising in the collection, sorting, repair, reselling and recycling of used textiles in a bid to address the challenges of textile waste management ahead of incoming regulatory changes in the EU.

Together, the companies will explore how digital identification technologies can enable the traceability of garments through the sorting and recycling process. The digital identifiers, tracked via Avery Dennison's atma.io cloud platform, which carries information on fibre

The digital identifiers will help automatically direct apparel into resale or recycling streams.



composition, will help Texaid to automatically direct apparel into the relevant resale or recycling streams.

An important aspect is the mandatory minimums for recycled content and the planned introduction of digital product passports containing information about an item's sustainability credentials. These will help EU regulators impose disclosure requirements and more accountability for what happens to clothes that can't be

sold or are no longer wanted. "How do we turn textile waste into value at scale?" said Michael Colarossi, vice president, innovation, product line management, and sustainability, apparel for Avery Dennison. "The fashion industry needs answers and it needs action. This technology-driven approach will enable textile recycling, while also reducing processing time, driving down costs, and increasing capacity."

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¹ Li, L., Frey, M., Browning, K. (2010). Biodegradability study on cotton and polyester fabrics. *Journal of Engineered Fiber and Fabrics*, 5(4), 42–53. Zambrano, M., et al. (2019). Microfibers generated from the laundering of cotton, rayon and polyester based fabrics and their aquatic biodegradation. *Marine Pollution Bulletin*, 142, 394–407.

Sri Lanka welcomes support for embattled garment industry

COLOMBO – The Joint Apparel Association Forum (JAAF), Sri Lanka's garment manufacturing body, has praised German textile firms for the continuing support offered to its troubled garment industry.

Over the last year, the country's garment manufacturers have reported a drop in orders from global retailers and brands which has further squeezed factories still reeling from the pandemic.

Keen to revive its

flagging industry, Sri Lanka been working on deals to source external financial support and restructuring debt. This has included agreements with China and India – Sri Lanka's biggest lenders for additional financial assistance - while it also recently received approval from the IMF for a four-year Extended Fund Facility (EFF), amounting to US\$2.9 billion.

With talk of reforms and a possible restructuring of the industry,

the JAAF cited a number of retailers and brands who had shown support for the industry's much-needed revitalisation.

"Ninety per cent of what we produce here in Sri Lanka is sent to our parent company for very discerning premium customers," explained managing director Sean Umagiliya. "Government support for exports right throughout the challenging times ensured that we continued production without any issues."

Textile firms urged to improve water management

ISLAMABAD – Pakistan's Environmental Protection Agency (EPA) has urged the country's textile industry to implement a raft of new, sustainable water management practices. Azmat Naz, deputy director at the EPA, told local finance journal *WealthPK* that there were significant concerns regarding the industry's environmental impact and that unsustainable practices such as excessive water consumption, the release of untreated wastewater into water bodies, and the use of hazardous chemicals, all posed significant risks to human health and aquatic ecosystems. "Addressing these challenges is crucial for ensuring long-term



There is a need for a regulatory agency to oversee and control industrial water usage and waste discharge.

sustainability of the textile industry," Azmat told *WealthPK*, insisting that urgent action was required to implement sustainable water management practices. These could include, she said, the implementation of stringent wastewater treatment standards and monitoring systems, which would help ensure compliance with

environmental regulations and reduce the ecological impact of Pakistan's vital textile industry. A recent report from industry body, the All Pakistan Textile Mills Association (APTMA), backed the pleas for improved water management practices, highlighting the need for a regulatory agency to oversee and control industrial water usage and waste discharge.

Material Exchange launches Deadstock Depot

STOCKHOLM – Swedish marketplace provider Material Exchange has launched a 'Deadstock Depot' service to enable brands to make use of excess materials in the supply chain to reduce the amount which goes to landfill or incineration. Material Exchange will market these deadstock fabrics at trade shows and also online to help brands source from a wide range of excess materials and enable suppliers to cash in on an additional revenue stream. Emily Olah, Material Exchange's vice president of strategic partnerships, told *Ecotextile News*: "These huge retailers order billions of yards and there's 30,000 or 20,000 yards left, where does that go? What happens to it? And why can't it be public for other people to use? "We've seen stats that there's 120 billion yards in leftover fabric sitting in warehouses worldwide. And currently, if it can't get sold off in local markets or used by local manufacturing, suppliers are selling it off for pennies on the dollar, or incinerating it or sending it to landfill in the worst-case scenarios." Deadstock Depot is initially focusing on the denim market. Material Exchange is talking to denim suppliers to find out exactly what deadstock material is available to buyers.



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Lululemon joins Sorting for Circularity USA

AMSTERDAM – Athleticwear brand Lululemon is among a number of new partners which have joined Fashion for Good's Sorting for Circularity USA project to assess where investment is needed to scale collection, sorting and recycling.

Lululemon joins seven existing brands - key project partners Eastman, H&M and Nordstrom, as well as Fashion for Good corporate partners Zara owner Inditex, Levi's, Target and Adidas, which

has also been named the project's lead sponsor.

Sorting for Circularity USA has also expanded its geographical scope, and added new implementation partners - Secondary Materials and Recycled Textiles (SMART) Association, Helpsy, United Southern Waste Material and Goodwill Industries International.

Fashion for Good launched Sorting for Circularity USA in January, together with Resource Recycling Systems, in a bid

to better understand the country's textile waste composition. The project has expanded to cover six key states - California, Texas, Florida, New York, New Jersey and Colorado.

"We are so excited to have the opportunity to expand the geographical scope of our Sorting for Circularity framework to encompass an extensive range of key sorting players and regions in our USA project," said Katrin Ley, managing director, Fashion for Good.

Study gauges CO₂ impact of discount fashion

AMSTERDAM – Online fashion marketplace Otrium has linked up with climate tech start-up Vaayu in a bid to assess the carbon emissions saved by selling off unsold stock at a discount rather than sending it to landfill.

Vaayu used its proprietary artificial intelligence (AI) and machine learning technology, alongside in-house life cycle assessment experts, to gather insights from over 45 fashion brands and data on almost five million fashion products. The results, published in Otrium's new 2022 impact report, claim the company prevented 6,496 tonnes of carbon emissions (CO₂e) and 104 tonnes of waste last year

The research represents one of the largest data sets of unsold stock practices.



by providing brands with a profitable solution to clear unsold inventory. The company says the research represents one of the largest data sets on unsold stock practices and a new contribution to understanding the end-of-life phase of fashion products. Otrium co-founder Max Klijnstra said: "In 2015, we founded Otrium to play a part in reshaping how fashion is

produced and ultimately sold. Our business model is a first step in solving the growing challenge of unsold inventory. "As a next step, the results from our Otrium 2022 Impact Report will inform and strengthen our sustainability strategy and climate targets. We will also use it to transparently communicate our progress with our community, brand partners and the fashion industry."

Bangladesh to host fashion climate conference

DHAKA – The Bangladesh Climate Action Forum (BCAF) is to host the world's first climate conference for the fashion industry in October 2023, gathering policymakers, garment manufacturers, fashion retailers and other stakeholders to look at solutions for decarbonising global textile supply chains. Bangladesh is the world's second-largest garment exporting country – and is also ranked as the seventh "extreme disaster risk-prone country in the world", according to the Global Climate Risk Index 2021.

The BCAF says the event will focus on "technological and financial challenges around reducing emissions and will examine causes of the climate crisis, its urgency, and impacts that have already been seen". The conference will also explore outcomes that can be expected under both "businesses as usual and rapid decarbonisation" scenarios. A key element of the event will be evaluating practical solutions for Bangladesh's RMG industry. It will explore specific solutions such as energy efficiency, machine upgrades, the electrification of thermal loads, direct power purchase agreements and biomass-fed thermal systems.



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Wheels within wheels

Discussions around circularity in the fashion industry have mainly revolved around the subject from a complete value chain perspective, less so the inner workings of the circular model

Tom Bithell reflects

Various debates have cynically unpicked the efforts of brands and retailers in a bid to disprove the viability of the concept of circularity, or more so to uncover the true motives behind these circular endeavours. Often these reports and articles have succeeded in disillusioning the glossy ad campaigns and allege that profit is probably still at the top of the agenda for retailers.

However, one strand of the circularity model that garners less intense criticism is resale, even though most clothing brands and retailers appear to have a resale offering or scheme in place. And maybe the lack of scrutiny comes from the fact that people have largely



disregarded the effects of the resale business model.

Former Timberland chief operating officer Ken Pucker recently pointed out, in an article titled: *Unscalable or questionable business models*, that “many of these models have yet to prove profitable and are subsequently difficult to scale”.

Pucker pointed out that resale platform ThredUp lost money and now trades at one-tenth of its peak market capitalisation, closing \$2.55 on Thursday, July 13, down from a high of \$27.04 in June 2021. Nevertheless, it still has a current market valuation today of \$263.98 million.

However, despite what low profits and low market capitalisations might suggest, buying second hand has never been more popular with the consumer than it is today, according to fashion resale platform Vestiaire Collective.

The company recently released its 2022 Impact report and found through

“**It cannot be forgotten that the resale market has always been slow and quaint in comparison to the mainstream**”

that buying second-hand has become “more ingrained in consumers’ approach to buying fashion”.

The report even claims that 80% of the Vestiaire’s users say that being able to buy and sell pre-loved high-end and luxury fashion “helps them invest in higher-quality, longer-lasting and timeless pieces”, while 85% say they are willing to buy fewer, but better, items.

However, it cannot be forgotten that the resale market has always been slow and quaint in comparison to the mainstream, for exactly that reason; resale has always been viewed as ‘the alternative’.

But, as the stigma of buying second hand slowly melts away, given time the profit-based success metrics of the industry could be met, and maybe even surpassed if the success of circularity in the fashion industry comes to rely on resale markets.

Garments need to be kept in circulation for longer periods of time while the industry figures out the recycling technology that is going to enable the closure of overall loop. Otherwise, without the buffer of the resale market, a bigger flood of textiles will be *en route* to a landfill near you.

What if the key to achieving industry circularity does not lie with one answer? Maybe circularity will best operate in the industry through multiple, smaller loops of circularity that carry garments around the larger loop, working together like small cogs within a much larger machine. ■



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Message



111,000 total no. of visitors

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We wish to thank all who visited the SHIMA SEIKI booth 🙏.

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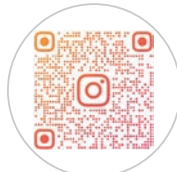
From your comments we felt a renewed trust in SHIMA SEIKI as innovator 💡

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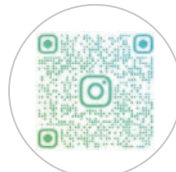
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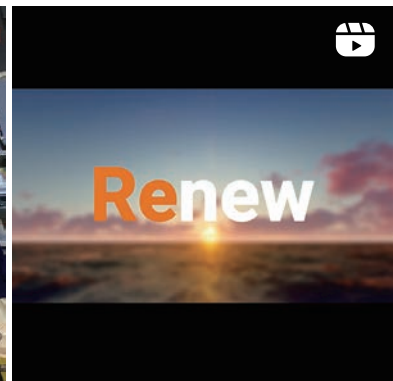
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Natural selection

A call from the Cotton Incorporated non-profit for consumers to clothe themselves in natural fibres to minimise microfibre pollution stokes an ongoing debate

Simon Glover reports

Numerous studies have demonstrated that cotton microfibres biodegrade readily in wastewater treatment conditions, freshwater, and seawater, unlike synthetic microfibres that do not easily degrade and persist in the environment for long periods,” says Jesse Daystar.

Given that Daystar is vice president and chief sustainability officer of Cotton Incorporated which is funded by US cotton growers and works “to benefit every link on the cotton supply chain”, this is perhaps unsurprising.

However, Daystar backs up his case by quoting three scientific papers which he co-authored and which have been published in the *Marine Pollution Bulletin* peer-reviewed journal in recent years.

In summary, these suggest cotton biodegrades much more rapidly than polyester in wastewater, freshwater and seawater, and that, while the finishes commonly applied to cotton fabrics influence biodegradation, these differences are not significant.

“When you look at cotton, it biodegrades in wastewater treatment, it biodegrades in

freshwater and in saltwater, even in soil and compost. It biodegrades faster than an oak leaf,” Daystar says.

For Cotton Incorporated then, it’s a logical step to suggest that consumers concerned about microfibre pollution should choose to wear clothing made out of natural fibres, like cotton, instead of oil-based synthetics, such as polyester.

However, not everybody agrees. The Microfibre Consortium (TMC) initiative, which works to minimise microfibre release from textiles, points to studies suggesting that natural microfibres are more prevalent in the environment than synthetics.

TMC’s research director Kelly Sheridan says: “The scientific evidence of the prevalence – and hence persistence – of natural fibres, including cotton, in the environment, is growing.

“This suggests that natural fibres, which are found in their processed state not their raw state – demonstrated by being coloured indicating that they have been through a dyeing process – are not as readily biodegradable in real environments as is often assumed.

“Until there is scientific

“**Cotton biodegrades in wastewater, in freshwater and in saltwater, even in soil and compost. It biodegrades faster than an oak leaf**

*Jesse Daystar,
Cotton Incorporated*

“**The scientific evidence of the prevalence - and hence persistence - of natural fibres, including cotton, in the environment, is growing**

*Kelly Sheridan,
The Microfibre Consortium*

evidence to the contrary, natural fibres, including cotton, must, and should, be considered as much of an environmental pollution risk as synthetic fibres.”

Mark Taylor, a research fellow at the University of Leeds, also quotes from papers published in peer-reviewed journals, again suggesting that cellulosic microfibres are more prevalent in the oceans, and also that while they degrade quickly in the lab, they did not do so as readily in the ocean.

“We should be careful not to demonise any one fibre type as they are all clearly ending up in the environment and not biodegrading in the ocean. We do not yet fully understand whether natural fibres are less harmful than synthetic ones,” said Taylor.

Daystar, however, is sticking to his guns. He insists that cotton biodegrades quickly in a variety of environments and questions how many of the cellulosic fibres found in the studies highlighted by Sheridan and Taylor actually came from clothing.

“There are a lot of sources of cellulose, not just cotton. I think there’s a lot of misclassification of cellulose fibres as cotton fibres, that could be from rayon, from plants, from toilet paper,” he told *Ecotextile News*.

“In the US, we’re flushing 20 to 30 pounds of that down the toilet every year. It’s the equivalent of washing a t-shirt a million times. If you’re worried about cellulosic microfibres, cotton probably isn’t the primary source.” ■

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Italian reservations on textiles EPR

Italy is working on new EPR regulations for textiles that differ from those proposed in the rest of Europe and is subsequently seeing push-back from the industry

By *Silvia Gambi*

Italian regulators are proposing a very different model of used clothes management to the rest of Europe with plans to base new EPR (extended producer responsibility) regulations that mirror how electrical and electronic waste is disposed of in the country.

Moves began last February when the Italian Ministry of the Environment presented the first draft of its potential new legislation to an audience of stakeholders including associations representing entrepreneurs, social cooperatives, and apparel brands to get comments on the proposed new rules on the collection and recycling of used clothes.

But it became clear the new system devised by the ministry proposes a new management model for post-consumer used textile goods, which doesn't consider existing textile recycling supply chains.

Italy is well-known in the fashion sector for its existing and complex network of companies and social cooperatives that have been involved in the collection of used clothes and their reuse for decades – especially between Prato and Naples which together manage the

flow of used clothes from all over Europe and has become a model of best practice studied everywhere.

"It is important to bear in mind that the EPR is above all a question of industrial policy," comments Filippo Bernocchi, a lawyer specialising in environmental law and professor of circular economy at the Luiss Business School in Rome. "With the new standards to which Europe is working, which require the use of a certain percentage of recycled material, even in new products, the ownership of the secondary raw material will represent the only way to compete with the newest market challenges."

In the draft decree, it will be the producers, understood as those who place the product on the market such as textile suppliers, importers, and distributors, that will have to manage the entire supply chain. These will become the 'owners' of the collected materials and therefore will be responsible for managing the reuse, recycling, and recovery process, in compliance with the waste hierarchy.

This means, this group of industry players will be obliged to plan, finance, and



▲ Second hand clothes donation, Alghero, Sardinia.

“**The first draft proposal excluded the entire recycling chain**”

guarantee the effectiveness of a new recycling supply chain, even though in Italy a robust textile collection and recycling network has existed for decades.

In addition, the proposed new EPR regulation will apply to not only clothing and home textiles, but also leather goods, hosiery, and a range of other apparel related accessories.

"To achieve the collection objectives, producers can set up individual or collective management systems: the so-called consortia," adds Bernocchi. "The first draft proposal excluded the entire recycling chain from participating in the management of the system, taking into consideration only the retailers. Now a new draft decree is circulating informally where this problem seems to be solved."

The entire system will be financed through a fee that's calculated based upon the environmental impact of a garment. This amount, which must be paid for each garment offered for sale, will be paid in part by the consumer and can be reduced if, for example, clothes are designed based on recyclability, composition, and the use of recycled fibres.

In order not to be caught unprepared by the new legislation, some producers have already begun to organise themselves into 'consortia'.

One example is the establishment of Re.Crea, founded by Dolce&Gabbana, MaxMara Fashion Group, Moncler Group, OTB Group, Prada Group, Ermenegildo Zegna Group, and coordinated by the National Chamber of Italian Fashion. ■



Image © Sustainable Apparel Coalition

Listen up...

Tens of thousands of ITMA visitors missed the opportunity to engage with key stakeholders on environmental issues in Milan – but they won't be able to turn a deaf ear forever

By John Mowbray

ITMA 2023 was billed as the most sustainable ITMA event yet – if such an event that generates so much end of show waste and cumulative air miles can ever be considered 'sustainable'.

But the word 'sustainability' was found somewhere on almost every ITMA booth in Milan, which officially attracted 111,000 visitors from a staggering 143 countries.

After it closed its doors, Ernesto Maurer, president of CEMATEX which owns the trade show noted, "At this ITMA, the transformation journey toward digitalisation and sustainability has taken a huge leap forward."

Yet the attendance at this

"I haven't met a single manufacturer that's having these regulatory conversations with their customers"

year's Planet Textiles – 230 registered delegates – was a lot lower than in 2019 at ITMA in Barcelona. It was a surprise given tens of thousands of ITMA visitors duly filed past the congress venue every morning. Many of whom will have been briefed on how to sell the environmental credentials of the equipment they were offering at the show.

Why did they not sign up? Were there too many similar events at ITMA? Yes. Are retail and brand travel budgets being slashed in the post-pandemic world? Again, yes. Is sustainability a tick box exercise for many? Our straw poll of random ITMA visitors indicates that could well be the case.

It's a shame, as most Planet Textile attendees were more than happy with the overall content, but representative from the vast number of textile mills visiting ITMA failed to show up. It was their loss.

They missed an opening morning session on legislation where Ilishio Lovejoy ESG general manager at Simple Approach, noted that the

textile industry was ill prepared for wider environmental regulation.

"There hasn't been dialogue with the supply chain on the creation of much of this legislation", she noted, "We (delegates) all know that this is coming – but actually I haven't met a single manufacturer that's having these regulatory conversations with their customers," she said.

Lovejoy was speaking one month ahead of the official launch of a new report, 'An Apparel Supplier's Guide: Key Sustainability Legislations in the EU, US, and UK' (see page: 6) for companies operating within the apparel value chain, particularly those established or headquartered in the global south – the intended target audience of Planet Textiles.

In the same session, chaired by Baptiste Carrier-Pradal from the Policy Hub, Maxine Bédard, director of the New Standard Institute and one of the backers of the New York Fashion Act, told attendees that voluntary initiatives alone would not secure the changes needed in the industry, but she held out an olive branch to industry stakeholders, saying that legislators were keen to work with them.

"The reason why I'm here is to hear feedback from industry to understand how we can ensure that this is aligning everybody's efforts to get to the goal that we all want to get to," she said.

Delegates were treated to a sneak preview of a major new update to the Higg Facility Environmental Module (FEM). Version 4.0 will enable data on CO₂ emissions from

manufacturing facilities to be reported against GHG Protocol and Science-Based Targets initiative (SBTi) criteria.

Angela Ng, director of Higg facility tools at the SAC, said: "In the fall we will launch a major upgrade to the Higg FEM that will present impact data in a much more meaningful manner, such as the ability to report data based on their finished product facility versus their wet processing facility, which will be of particular interest for vertically integrated facilities."

Another of the most well-attended sessions focussed on life cycle analyses (LCAs) where Cerian Atwell, senior sustainability manager at Marks & Spencer confirmed the UK retailer was using LCAs to inform its business decisions considering upcoming environmental legislation. "What's crucial is the standardisation of data collection, and standardisation of the LCA impact methodology, so we can all be confident that we're making credible claims about the impacts of the textile manufacturing processes," she noted.

Atwell said Marks & Spencer would use LCA data to guide their raw material choices and conversion of their materials into more sustainable versions.

Meanwhile, Jeremy Levin, a senior energy specialist with the International Finance Corporation (IFC), part of the World Bank, said financial help was available to help manufacturers fund the improvements needed to help brands meet their climate targets.



▲ Kurt Kipka and Amina Razvi unveil a new partnership between the SAC and the Aii.

“You need to do more to unlock financing at the ground level”

▼ (From L-R). Baptiste Carrier-Pradal, Ilshio Lovejoy and Maxine Bédar.

But he added: "At the end of the day, brands and stakeholders need to do more to accelerate and unlock finance, be it organising suppliers into aggregated renewable procurement groups, or participating in alternative financing structures to improve bankability of projects."

"If left on its own, target setting and capacity building will get you certain progress, but it's not going to meet the ambitious targets that have been set out for 2030. You need to do more to unlock financing at the ground level."

During the close out of the event, the SAC announced a new strategic partnership with the Apparel Impact Institute (Aii) in a bid to support efforts to accelerate and scale

decarbonisation programs across the entire industry.

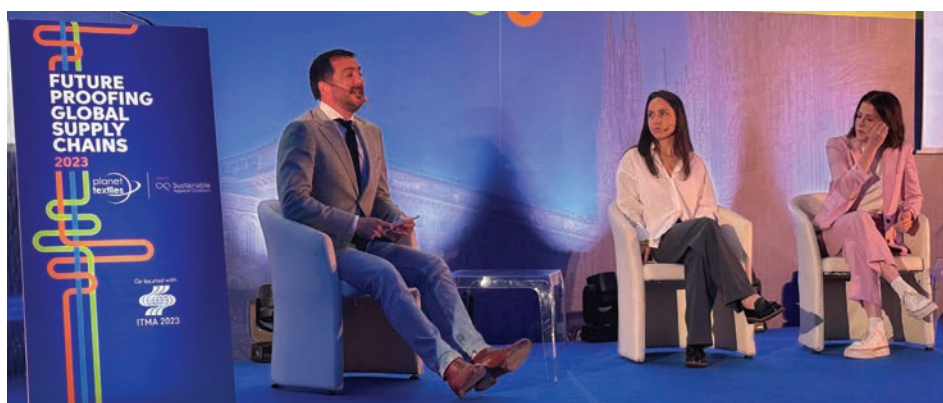
Amina Razvi, CEO of the SAC told Planet Textile delegates. "And so today we're excited to announce a new strategic partnership between SAC and Aii, on an initiative that is going to accelerate decarbonisation programmes."

Kurt Kipka of the Aii explained, "Our organisations are going to couple the strength that SAC has in providing data and insights for the industry with the funding and financing mechanisms that our organisation seeks to bring to the sector."

Organising Planet Textiles for the first time, the SAC did a great job under some severe and unexpected constraints related to the event taking place at ITMA in Milan.

The question going forward is how the key messages of industry stakeholders seen at this event can reach the much wider textile industry that was present at ITMA.

A side-show with a few hundred willing delegates is not going to cut it, even if many Planet Textiles panellists are instrumental in shaping new regulations that will impact every single ITMA visitor in future. ■



Eco-Advanced Indigo Dyeing

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Eco-Advanced Indigo Dyeing

DyStar's Eco-Advanced Indigo Dyeing aims to reduce water usage by up to 90 % and energy consumption by up to 30 % during the production process. This technique of sustainable Indigo dyeing will help to reduce substantially the effluent load in Denim production.

Measuring up

A leading expert puts a new figure on the size of the fashion industry's carbon footprint

Simon Glover reports

Climate change consultant Michael Sadowski has fine-tuned his method for assessing the carbon footprint of the fashion industry and the bad news is that it's still climbing, albeit by as little as 0.87% from 2019 to 2021.

Sadowski admits the data is still far from perfect but he is confident that it is getting better and is at least good enough to determine where the sector needs to focus.

His latest estimate was revealed in an Apparel Impact Institute (Aii) report, *Taking Stock of Progress Against the Roadmap to Net Zero*, which updates the same organisation's 2021 report, *The Roadmap to Net Zero*.

Sadowski reckons the sector was responsible for 897 million tonnes of carbon dioxide equivalent (CO₂e) in 2021 — roughly 1.8% of

global greenhouse gas (GHG) emissions.

His earlier 2021 study put the carbon footprint at 1.025 gigatonnes (Gt) of CO₂e in 2019, about 2% of global emissions, but that number falls to 889.2 million tonnes CO₂e using the consultant's revised methodology.

Sadowski admits his figures are still reliant on secondary data, and also exclude consumer use and end-of-life, but he believes they are the best available.

"We are very clear that the data that we are using is imperfect and needs to be improved," he said, but he added: "We know enough to say where the hotspots are and what needs to happen."

The figures are based on data from the Sustainable Apparel Coalition (SAC), Worldly (formerly Higg) and Textile Exchange, and suggest that the apparel sector's



“We know enough to say where the hotspots are and what needs to happen”

Michael Sadowski

global emissions will reach 1.266 Gt in 2030, assuming business-as-usual growth.

To stay within the 1.5°C trajectory of the Paris Agreement, the sector would need to reduce emissions to 0.489 Gt, which would require a 45% reduction by the end of the decade.

The report ends with a call to action in which companies are urged to focus on further developing the six interventions highlighted in the first Roadmap to Net Zero report:

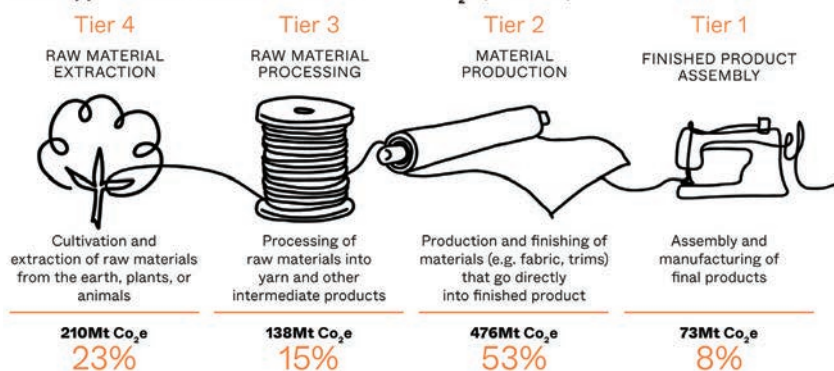
- Look for opportunities to maximise material efficiency
- Increase the use of sustainable materials and practices
- Explore and invest in the development of innovative materials
- Maximise energy efficiency
- Eliminate coal in manufacturing
- Shift to 100% renewable electricity

The authors talk about the huge scale of investment needed for the sector to meet its climate targets – but also highlight some of the steps already being taken by some brands and manufacturers to reduce their emissions.

"While the task of driving GHG emissions to net zero is a daunting one, we are emboldened and inspired by the actions of organisations across the apparel value chain, and look forward to working together to build a more resilient, equitable, and prosperous apparel sector," said Aii president Lewis Perkins, SAC CEO Amina Razvi and Ashley Gill, chief strategy officer for Textile Exchange, in a joint foreword to the report. ■

APPAREL SECTOR GREENHOUSE GAS EMISSIONS, 2021

Total Apparel GHG Emissions: 896.94 tonnes CO₂e (0.897 Gt)





Time flies

The elusive pursuit of sustainable new materials is unfolding at a pace more tortoise than hare, says Rogier van Mazijk, fund manager at the Textile Innovation Fund

In the arena of the textile industry, the quest for sustainable materials is unfolding at a slower than anticipated pace. While numerous innovation categories demonstrate significant progress, it is uncertain whether the development of sustainable materials for the textile industry can achieve similar momentum.

The possibility arises the objectives may not only present a slow, uphill battle, but could potentially be an unattainable goal altogether.

Could this be a disappointing reality below the surface?

Despite the constant stream of examples in the media and numerous innovative endeavours over the past few decades, it remains unclear which, or whether, new materials can truly scale, and thus make any substantial impact. Whether it is about materials made from algae or fungi, lab-grown and bioengineered materials, or agri-waste fibres, the level of media attention surrounding these new materials often surpasses the

progress they achieve in terms of reaching the market.

Some companies that have been around for longer include well-known and well-funded technologies, for example Dupont, Spiber, AMSilk, Bolt Threads, and others, that still have an unclear path to becoming relevant to the mass textiles and fashion industry.

Dupont hasn't yet broken into the mass market with its Sorona 3GT and 4GT fibres based on PDO. Ingeo, a PLA fibre launched with great industry fanfare in 2003 by a Cargill-



Rogier van Mazijk
Correspondent,
Textile Innovation

took place several years ago, and the contrast between technical effectiveness and the challenges to deliver at scale, has been noted by many. The concept of 'pilot-washing' – coined by Levi Strauss & Co chief sustainability officer Jeff Hogue – captures the essence of these dynamics and how some of the brands have used the media attention for small-scale collaborations to their advantage.

Organisations like Textile Exchange and Fashion for Good have also noted and described the slow pace of progress and the difficulties involved, including but not limited to unavoidably long R&D times, large (pre-revenue) financing needs, and insufficient incentives to convince a subset of pioneers to absorb the risk and invest the resources involved in experimenting with this technology at the required scale.

With these more structural barriers, this type of innovation might be wholly incompatible with the ever-fluctuating, cost-focused, and short-term oriented nature of this industry, hindering its collective ambitions to eventually displace the materials in use today.

The popularity of existing materials

Nature's most popular materials – and perhaps cotton and leather in particular – have seen widespread adoption in our industry, and for good reason. They are held in high esteem due to their ability to fulfil numerous performance demands, offering comfort and durability.

The subsequent rise of synthetic fibres has amplified our high expectations of material innovation. We now desire properties much beyond those nature can provide, such as superior elasticity, rich colour retention, performance finishes and extreme durability.

In addition to their performance, anyone working in the industry would recognise the critical role of pricing – an innovative sustainable material could excel in every aspect, but if it misses the mark on affordability, it will struggle to gain acceptance. Here too, currently existing materials excel. Driven by centuries of refinement in cultivation

“The industry is not predisposed to paying exorbitant premiums for a transition period, let alone perpetually

and processing techniques, price brackets have become difficult to beat. Fuelled by inexpensive and abundant fossil resources, high performing synthetic materials are often even cheaper than their closest natural competitor. The industry is not predisposed to paying exorbitant premiums for a transition period, let alone perpetually. Competing against materials honed over centuries with billions of capitals invested is, to say the least, a big challenge.

The final stumbling block resides in the industry's deeply entrenched supply chains. Processes have been set in their ways for decades, if not longer. Given the fragmented nature of the textile industry, instigating simultaneous changes across multiple points proves to be an exceptionally challenging task.

Attempting to introduce new materials often necessitates not only adaptations in the mindsets of designers but also addressing the challenges of educating the supply chain that follows them, which includes spinning and material blending, pre-treatment, dyeing, and finishing. At end-of-life, these new or modified materials can then also complicate or pollute the waste stream as they are more difficult to pick out and may then need their own, specific recycling facilities and technologies to recover the materials used. This necessitates not just relentless experimentation but also significant investments from the affected supply chain steps – actors that often do not even see the need nor the incentive to change. ①

Dow joint venture as a revolutionary material, failed to gain traction in the apparel sector – although it's now used in nonwovens.

That's not to imply that the technology is ineffective. Numerous new materials innovators have successfully collaborated with renowned luxury and mainstream brands to create remarkable capsule collections and other small-scale, one-off projects. Yet it's clear there are still barriers preventing widespread implementation.

Some of these collaborations also

“Especially for fabrics and textiles, performance is assessed at the fabric level, which means that one needs to go from feedstock to filament, from filament to yarn, from yarn to knit or weave, sometimes to dyed or treated knit or weave, before one is able to test the fabric and decide what changes to make to the original recipe or to the process along the way, and try again,” notes Adrian Horotan, from Safer Made Venture Capital, a US-based firm that invests in teams that bring safer products and technologies to market.

“Working with third party partners, sometimes overseas, sometimes big and busy, a single one of these cycles can take months. This makes it costly and slow. This is also why smaller, pioneering brands, that have put together the partners and expertise for these projects, are critical for progress,” he said.

In the same boat?

Based on the current state of innovation, the prospect of developing materials that meet the above criteria for the requirements of

the mass textiles industry seems distant. Unfortunately, the sector shares some characteristics with other industries that tried to develop new materials – once considered disruptive but which now seem to have completely stalled – as the tension between environmental responsibility, practicality and affordability forms a persistent hurdle.

For example, the widespread roll-out of biofuels, despite its long-heralded potential to significantly reduce carbon emissions, has been hindered by production complexity and cost issues. In construction, the adoption of sustainable materials has been consistently hampered by higher upfront costs and performance limitations compared to traditional materials. Eco-friendly jet fuels, so very much needed by the aviation industry that is often perceived – even by its loyal customers – as a top climate change offender, face challenges with performance standards, achieving cost competitiveness with conventional fuels, and overhauling entrenched supply chains. Indeed,

even major players in chemical recycling will struggle to name the last disruptive commodity that has truly succeeded.

Some nuance

Before concluding, it is worth discussing certain areas of innovation that have the potential to stand out based on their underlying principles compared to the broader materials landscape. These include specific new materials that are designed for compatibility with existing viscose processes, as well as chemical recycling technologies like PET depolymerisation. These innovations may offer easier implementation and greater acceptance within the supply chain.

Furthermore, it is important to note that many existing materials gained popularity due to their functional benefits, not their eco-friendliness. The same could be true for new materials. If there are textiles that offer significant functional advantages, they may be able to justify a temporary or even permanent price premium. This

PFAS: Regulators have decided to trade in significant performance benefits in exchange for solving problems related to hazardous chemicals.





Once considered disruptive, the roll-out of biofuel derived products has largely stalled.

“ It is possible that recycling innovations can be adopted more smoothly compared to new material alternatives

could provide them with an opportunity to compete with the dominant fibres currently in use. In addition, functional benefits may enable technologies to find industry segments with an appetite to scale the technology through earlier and mid stages.

When considering the examples mentioned earlier, such as spider silk and regenerated proteins, it becomes apparent that some are still significantly more expensive without offering a substantial technological or performance advantage that justifies their cost. In the absence of cost benefits, for a material to be adopted, it should not only provide a significant sustainability impact

reduction but also demonstrate a clear advantage in terms of technology and performance.

Perhaps in contrast, some recycling innovations are working towards a more reasonable price, comparable performance (given the often drop-in nature), and may offer reasonable sustainability benefits. It is possible that recycling innovations can be adopted more smoothly compared to brand new material alternatives.

Marginal progress so far

In the meantime, delivered progress on scaling existing, more sustainable materials is marginal at best, while for new materials it is nearly imperceptible. Perhaps, our collective optimism for a swift revolution in sustainable textiles distracts us from confronting the harsh realities of this challenging pursuit.

And, perhaps, the starring role is one that only the regulator could fulfil.

Although viable alternatives (comparable at performance, price, and implementation complexity) have not yet been identified, that doesn't mean the regulator could not force a shift away from existing materials. That is similar to PFAS, where regulators have finally decided to trade in some significant performance benefits in exchange for solving massive and persistent problems

related to hazardous chemicals.

Fortunately, switching to alternative materials is just one aspect of the broader actions required to meet both climate and other environmental targets.

Other crucial measures, such as decarbonising the supply chain, play a significant role and are more attainable, even when just using existing technologies such as renewable energy or implementing the installation of efficient boilers. These can be supplemented by the potential of viable innovation in the years to come such as waterless dyeing methods, zero discharge technologies, innovations in textile finishing and the use of clean specialty chemicals.

But the question is, how long can the industry wait for these new alternatives to arrive?

Surely, we are accelerating towards a tipping point in the near future when the majority of the fashion sector will have to decide which fork in the road it needs to take.

Should we allocate more resources to learn how to live with existing technologies rather than backing innovations where a high percentage are likely to fail? ■

Additional reporting by: Ashley Holding,
Principal Consultant @ Circuvate

The China conundrum

Forced labour is still widespread in the cotton industry of the Xinjiang region of China, despite Beijing's claims to the contrary, argues the first research on the subject to be published in a peer-reviewed journal

Simon Glover reports

China's mass internment of Uyghur Muslims, and other ethnic minorities, in the Xinjiang region of China may have "somewhat abated" but forced labour programmes have only intensified, according to Adrian Zenz, a leading expert on human rights abuses in the region. Zenz, a senior fellow at the Victims of Communism Memorial Foundation, recently published the first ever research paper on coercive labour in the region's cotton industry – which meets a fifth of global demand – to be published in a **peer-reviewed journal**.

He debunks Beijing's protestations that there is no forced labour in Xinjiang and that automation means that picking cotton by hand is a thing of the past. Zenz cites state media reports confirming the premium-grade cotton grown in southern Xinjiang still cannot be harvested by machine.

And he insists forced labour is still widespread, albeit evolving from the

Coercive Labor in the Cotton Harvest in the Xinjiang Uyghur Autonomous Region and Uzbekistan, *Journal of Communist and Post-Communist Studies*.

▼ Internment camp police security drills at the Tekes County Detention Center from 2018.



▼ Uyghur women work in a textile factory in Hotan county, Xinjiang.



▲ Police officers and auxilliary police perform marching drills and train with riot shields and clubs in Aqtam Village

common perception of incarcerated Uyghur Muslims being forced into the fields and factories, to labour transfers of unemployed ethnic minorities being rounded up and put to work.

Zenz believes that misconceptions about the way that forced labour operates in the region could pose difficulties for western legislators – such as the European Union which is currently drafting anti-forced labour legislation.

"Beijing's multiple systems of forced labour are

still poorly understood, which can seriously impair the crafting of effective policy," said Zenz.

"Even seasoned experts and policymakers at times conflate labour transfers with camp-linked forced labour, or believe them to be concentrated in a few sectors, such as cotton. In reality, most forced labour in the region is unrelated to the camps. The bigger factor is coercive labour transfers.

"The EU's proposed forced labour ban must be designed to accurately conceptualise, measure and counter Xinjiang's brand of state-sponsored forced labour. If these measures are not taken swiftly, consumers around the world are liable to become complicit in Beijing's oppression of Uyghurs."

Zenz attracted global attention last year when he posted thousands of confidential documents and photographs from Xinjiang – seized by hackers – on his Xinjiang Police Files website. He recently added new state documents, shedding light on Xinjiang's coercive labour programme.

They show how Beijing's efforts to force Uyghurs into 'poverty alleviation initiatives' intensified after documents issued in 2019 found efforts falling short of required goals, with officials being warned of 'severe' repercussions.

Lists were compiled of those deemed ripe for labour transfers, some as old as 77. One directive stipulated that “lazy persons, drunkards, and other persons with insufficient inner motivation” would need to be subjected to “repeated ... thought education”.

“Labour transfers target large numbers of Uyghurs for state-assigned work placements, often separating them from their families and communities and subjecting them to intense surveillance, long work hours, and mandatory political indoctrination,” says Zenz.

“While the campaign of mass internment in Xinjiang has somewhat abated, forced labour programmes have intensified.”

Zenz’s study compares the situation in Xinjiang with Uzbekistan where a global cotton boycott was called off last year after the Cotton Campaign coalition concluding that government-imposed forced labour had been eradicated from the cotton industry.

However, he concludes: “Global sanctions targeted Uzbekistan’s economic rationale for coercion and eventually led to systemic change, also due to the country’s strong need to attract more foreign investment.

“In contrast, Beijing’s economic might, long-term political aims in Xinjiang, and their perceived implications for China’s national security mean that coercive labour transfers into cotton picking and related industries could persist for a long time to come.” ■

“Beijing’s multiple systems of forced labour are still poorly understood, which can seriously impair the crafting of effective policy

Adrian Zenz

How Shein and Temu ‘evade restrictions’

US legislators are concerned that Chinese ultra-fast fashion retailers, like Shein and Temu, are out-flanking the Uyghur Forced Labor Prevention Act (UFLPA) which bans imports from Xinjiang on the assumption they are made with forced labour.

Senator Marco Rubio, one of the authors of UFLPA, points out that the millions of parcels sent to US consumers by these Chinese companies evade import inspections because of their direct-to-consumer business model.

Shein and Temu are able to avoid customs scrutiny on their shipments to the

US due to the ‘de minimis’ provision of the Tariff Act of 1930, under which packages worth less than \$800 are not checked.

In a letter to his fellow senators, Rubio points out that independent laboratory testing of Shein products has found that some are made with cotton from Xinjiang.

“Shein is able to offer this array of products at rock-bottom prices ... because it steals intellectual property, infringes copyrights, exploits US trade law, and uses fabric linked to Uyghur slave labour,” he said.

A Shein spokesperson insisted: “We take visibility across our entire supply chain seriously, and we are committed to respecting human rights and adhering to local laws in each market we operate in.

“We have zero tolerance for forced labour and have implemented a robust system to support UFLPA compliance. Our suppliers must adhere to a strict code of conduct that is aligned to the International Labour Organization’s core conventions. We have no manufacturers in the Xinjiang region.”

Temu’s sourcing, meanwhile, has been challenged by the Tel Aviv-based digital vetting platform Ultra Information Solutions.

Ultra’s Publican system **1**



found that Temu was hiding the identity of vendors on its platform but, by checking products available on both Temu and sister platform Pinduoduo, it was able to show a connection between vendors based in Xinjiang and products available for sale to US consumers.

"Publican was able to analyse a mammoth company with thousands of vendors and identify and flag Temu vendors that have a very high likelihood to be operating in XinJiang and in close proximity of forced labour camps," said the company.

The US House Select Committee on the Chinese Communist Party subsequently revealed that Temu, which recently overtook Shein in terms of US sales, had no

“Shein is able to offer products at rock-bottom prices because it exploits US trade law and uses fabric linked to Uyghur slave labour

Senator Mark Rubio

auditing system in place to prevent goods made with forced labour being sold on its platform.

An interim report from the committee estimated that Temu and Shein were probably responsible for more than 30% of all packages shipped to the US under “de minimis” provision.

“This all but guarantees that shipments from Temu containing products made with forced labour are entering the United States on a regular basis, in violation of the UFLPA,” said the report.

Temu admitted it conducted no audits on forced labour but claimed that, because it connected third party retailers with consumers, UFLPA did not apply to its business, revealed the committee. ■

Threat to global fashion brands

Legal action launched against VW, BMW and Mercedes over alleged links to forced labour in Xinjiang could have serious repercussions for fashion brands and retailers.

The European Center for Constitutional and Human Rights (ECCHR) brought the case, under the new German Supply Chain Act, accusing the car giants of failing to prove they were responding to forced labour risks in supplier factories in Xinjiang.

Significantly for the fashion and textiles industry, the complaint relies on evidence from Laura Murphy, professor of human rights and contemporary slavery at Sheffield Hallam University. Murphy and her team have also produced a number of studies showing how Xinjiang cotton is being shipped to other parts of China and other countries to evade import bans, such as UFLPA. Their ‘Laundering Cotton’ report in 2021 forensically tracked cotton from Chinese textile companies with links to Xinjiang to intermediary companies in other countries, and on to global brands. They found that 103 global brands – including H&M, VF Corp, PVH, Bestseller, Uniqlo, Patagonia, Levi’s, Nike, Adidas and Primark – had been supplied by those intermediaries and were at high risk of having Xinjiang cotton in their supply chains.

Last year, they turned their attention to the Xinjiang Production and Construction Corps (XPCC) with another report which claimed the state-run paramilitary conglomerate’s cotton was being moved from Xinjiang to warehouses in eastern China.

“So if you’re buying from any cotton reserve within China, you’ve no idea whether you’re getting XPCC cotton or not,” Murphy told *Ecotextile News*.

Although the ECCHR is not currently targeting fashion brands, it has previously filed criminal complaints against European fashion brands and textile companies in Germany, France and the Netherlands over forced labour in Xinjiang.

‘Infecting’ global supply chains

In a recent blog, Andrew Olah, founder of the Kingpins denim show and the Transformers Foundation, pointed out that cotton production in China was around six million tons during 2022/23 – the highest in the world – with close to 90% of this coming from Xinjiang.

“The big rumour going around my world is that Xinjiang cotton is everywhere and it’s infecting supply global chains like COVID-19 was infecting the global population back in March 2020,” he wrote.

“It’s in everything, it’s everywhere and it’s an unstoppable onslaught because there is so much grown and it’s so cheap.

“Since that law (UFLPA) went into effect, the price of Chinese cotton has dropped 35% and rumour has it that everyone outside of China is using it to meet the low prices consumers are desperate to pay.” ■



▲ Andrew Olah

Dutch disagreement

Negotiations to set up a successor to the former Dutch Agreement on Sustainable Garments and Textiles have collapsed

Simon Glover reports

After the Dutch Agreement completed its term, at the end of 2021, hopes were high that a successor organisation could be established to continue its work to improve working conditions, prevent pollution and promote animal welfare in the textile industry.

An independent final evaluation of its work, by the KIT Royal Tropical Institute, concluded it had taken “significant steps” forward while its chairman Pierre Hupperts said at the time that it offered a starting point for future co-operation.

Negotiations quickly began to establish a successor organisation between the coalition of fashion companies, trade associations, unions, NGOs and the Dutch government which made up the agreement. However, they ended in failure earlier this year.

Dutch trade associations INretail and Modint, trade unions CNV and FNV, and NGOs Solidaridad and UNICEF were involved in the talks which ended “because the parties could not agree on the scope of the possible agreement”, according to the Social and Economic Council of the Netherlands (SER).

Tamar Hoek, senior policy advisor with Solidaridad, said she was disappointed,

explaining: “We have had to conclude that our ambition to take a big step in making the textile sector more sustainable is not supported by the companies.”

One key factor had been that proposed mandatory due diligence legislation, both in the Netherlands and with the European Union (EU), had complicated the need for the agreement for some of those involved.

“We saw the ambition, or at least the energy, from companies fading away. Companies don’t really know what the legislation is going to be and they want initiatives that help them to comply with legislation. I think that was one big issue,” Hoek told *Ecotextile News*.

“We always said initiatives like this should not be a check box for legislation. The other thing was the Dutch

“**Maybe when emotions cool down, we can say, ‘Hey, this was a really good thing’. We threw away something we could build on**

*Tamar Hoek,
Solidaridad*

▼ Garment workers in a factory in the city of Huaibei in eastern China, Anhui province.



government kind of stepped away because they said they could not be someone who needs to enforce legislation and at the same time be part of these initiatives.”

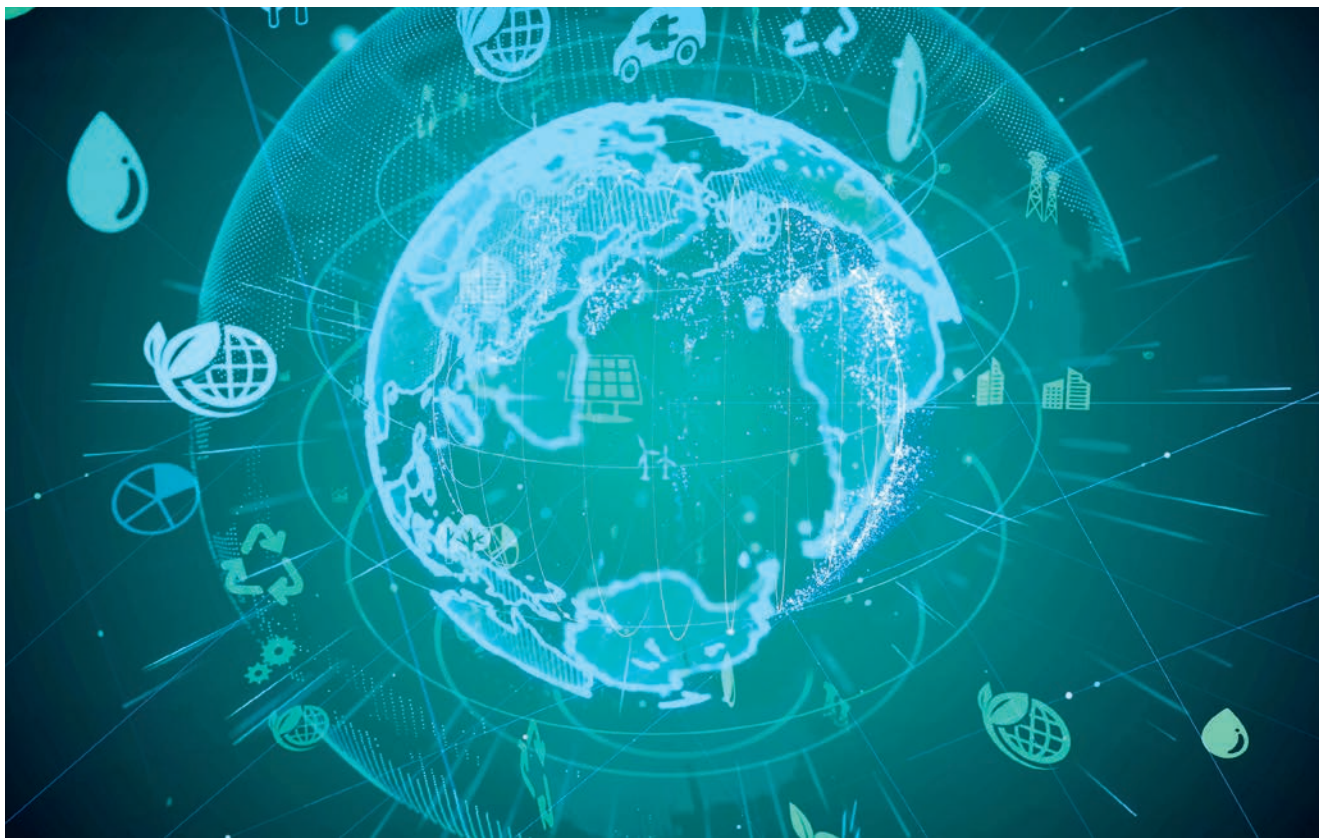
Hoek says that Solidaridad wanted a renewed Dutch Agreement to be about impact on the ground more than complying with legislation but she felt the talks were heading towards a compromise around due diligence before they collapsed.

“Due diligence legislation describes a mandatory process that you have to follow to analyse risks in certain areas, like forced labour and child labour. It doesn’t describe how eventually you need to mitigate or remediate the issues that you find in your value chain,” she explained.

“Initiatives like the Dutch Agreement are helpful to build the trust between different stakeholders that you need to be able to work on the ground. First and foremost, it helps companies to step towards impact on the ground. Because otherwise it’s just risk analysis, and then what?”

However, despite her disappointment, Hoek says Solidaridad has not completely given up hope of resurrecting the Dutch Agreement.

“Maybe when emotions cool down a little we can say, ‘Hey, this was actually a really good thing’. So why did we decide not to continue with it, and why didn’t the Dutch government want to fund it when there was lots of money left. We threw away something we could build on,” she said. ■



Brave new world

James Schaffer, chief strategy officer with Worldly– the company formerly known as Higg – talks data, new tools and that name...

You can't use that," laughs James Schaffer, after tripping over 'Worldly' – the rebranded new name of the Higg technology company which runs the Higg Index suite of tools for the Sustainable Apparel Coalition (SAC) and is now branching out with new products.

Schaffer had taken time out of his busy schedule at the giant ITMA trade show in Milan to talk to us about how the industry had responded to the rebrand and the new,

closer to real time, tools Worldly plans to offer alongside the Higg Index.

Some critics have questioned the name, suggesting it's tricky to type and harder to say, particularly bearing in mind that the company has clients all over the world, so we wanted to ask how had it gone down?

"Well, no name is going to be perfect," says Schaffer. "But we came upon Worldly because it's an opportunity to use a short and memorable name

but also to make a point with its definition.

"When we first named the company, I think we thought, what could make more sense than to name the company the same as the primary tool set? But as time has gone by, it's a bit like as if Procter and Gamble was called the Tide laundry detergent company.

"We realised we need a more expansive identity, and a more expansive offering to meet the market. It's an opportunity to tell our story. It's an opportunity to talk about new solutions and all the exciting things to come."

It's not hard to see why the company wanted to stand slightly apart from the SAC. It was after all, confusing that senior executives at both companies had the word 'Higg' in their job titles.

But we also wondered whether last year's controversy, in which the Norwegian Consumer Authority ruled the use of

“No name is going to be perfect but we came upon Worldly to use a short and memorable name but also to make a point

the Higg Materials Sustainability Index (MSI) tool ‘misleading’ and ‘illegal’ on consumer-facing product labels, had also played a part.

“No, I wouldn’t say so because Higg is still very central for us,” insisted Schaffer. “Higg is the name of our primary offering today, and the plans for the relaunch started probably two and a half years ago, so long before the criticism from the NCA.”

That relaunch was finally made public earlier this year when the company also unveiled **Factory Data**

Solution, its first product outside of the Higg Index, which aims to capture closer to real-time data from factories across the supply chain.

It seems a bold claim, given recent concern about the quality of the data – much of it based on global life cycle assessments (LCA) – on which the industry relies to gauge its progress on reducing its impacts. So how confident is Schaffer that it will work.

“We have a lot of confidence, but at the same time, this is a journey,” he admits. “We’re looking at much higher frequency data collection, really focused on four to five key impact areas, in tier 2 factories where most of the impacts lie.”

But will it not add to the audit fatigue which is an increasing complaint from supply chain actors grappling to keep up with the sustainability data demands of their big brand customers?

“I think it’s a really fair question,” replied Schaffer. “But when we look at the

This enables companies to share energy, water and waste data from utility bills rather than filling in spreadsheets annually.

“There’s no choice, we have to move to product level, accurate data that faces consumers

▼ James Schaffer, chief strategy officer with Worldly.



keystone assessment for the industry, the Higg Facility Environmental Module (FEM), we think this new tool actually makes those heavyweight assessments easier.

“We’re talking about maybe minutes or an hour, once a month, and then you have that data around energy usage or water consumption or waste. And that ports right into major assessment like FEM.”

So how had the new tool gone down with Worldly’s partners at the SAC? Did it not seem to them that Worldly was with one hand, running the Higg Index but, with the other, offering something potentially better?

“I understand how some people have drawn that conclusion,” admits Schaffer. “That’s why I want to emphasise not better but complementary. I still think that the FEM is really your best annual health exam in the supply chain.

“In a lot of ways, I think our relationship with the SAC is closer today and is going to get deeper over this next seven year march to 2030. A metaphor I use is England and France. There’s always baggage but we engage with faith on the same side of every issue.”

Speaking of longer term ambitions, how hopeful was Schaffer that Worldly – and the SAC – would eventually be able to return to putting consumer-facing sustainability labels on products.

“I think the entire industry – brands, service providers like ourselves, conveners, factories – have to, there’s no choice, we have to move to product level, label level,

accurate data that faces consumers,” he replied.

Given that, as Schaffer says, there are not enough consultants in the world to draw up an LCA study for every product on the market, it seems the task is going to be finding something that provides consumers with useful information but which legislators are happy with.

“It makes it very challenging for brands and manufacturers to know exactly what to do, but if we have a high degree of confidence in the accuracy of our data, and we can have knowledgeable third parties verify it, then I think the industry will be back on track for product level claims,” he says.

“I certainly hope it’s within a couple of years,” he adds, pointing to the requirements that fashion brands and retailers will soon be under through proposed new legislation such as the EU’s Corporate Sustainability Due Diligence and the New York Fashion Act.

“We welcome the legislation because we all know the carrot and stick metaphor,” says Schaffer. “The carrot has been great. And I think we’ve all been all enjoyed being part of a collective project but we have to face facts, progress is too slow.

“It confuses a lot of people but due diligence is really quite simple. It’s about knowing your supply chain, understanding the inherent risks, knowing where you are today and then demonstrating improvement and mitigating those risks, year after year.” ■

Crest of a wave

Nearly two decades have elapsed since researchers published a seminal paper on tiny particles polluting the seas. David Styles asks professor Richard Thompson – a prize winning scientist in this field – how he reflects on the intervening years.

It was in the final embers of the 20th century that a young British researcher did precisely what any good scientist ought to do: he wondered. Why, the budding academic contemplated, was nobody talking about the miniscule plastic particles in the sand?

After an inordinate number of hours combing beaches to capture and catalogue the smallest fragments of plastic waste, Richard Thompson, now a much-celebrated professor of marine biology and recipient of an OBE, took it upon himself to chronicle the apparent rise of such pollutants on the nation's coastline.

"While I was studying for my PhD, I'd got experiments out on the shore. I went to look at them every day to count the things that were there and to tend to them," he tells *Ecotextile News*.

"I found I'd got items of litter arriving literally every day... I kept removing it, it kept coming back. I got curious. What is it? Where is it all coming from?

So, in a voluntary way, I started to work with local groups, cleaning beaches with the Marine Conservation Society."

Fast forward to 2023, with a plethora of highly cited academic papers published and global understanding of microplastics and textile-derived microfibres having grown markedly, Thompson is one of a trio of scientists to receive the 2023 Blue Planet Prize – recognising researchers who make significant contributions to addressing pressing environmental problems.

While all the progress and accolades during the past 20-something years are welcomed by the academic, who serves as director of the Marine Institute at the University of Plymouth, he remains committed to driving forward further change.

Prevention, not cure

Contrary to some suggestions, Thompson does not believe levels of microfibres shed from textiles are not overre-

ported. More likely, he suggests, they are more accurately quantified than other microplastic varieties due to their conspicuous shapes and colours – as a result of the dyeing process.

Identifying fibres in samples is, however, a very different task to halting their dispersal, and the professor thinks discussion of some potential mitigating measures as solve-all solutions may be naïve.

In particular, he remains sceptical about the growing political support for mandatory filters in washing machines, having conducted numerous trials in the University of Plymouth labs.

Regardless of whether filters were situated in machines or in a waste pipe the best-case scenario was a "reasonable reduction" in fibre emissions, he explains.

"[For this to work] you've got to rely on every household having a filter and using it properly, maintaining it properly and emptying it. And let's not forget that most of the world's population don't have the benefit of washing

▼ Richard Thompson, now a much-celebrated professor of marine biology and recipient of an OBE.



machines or the advanced wastewater treatment we do.

“Also, should we really be relying on wastewater treatment as this last barrier of defence?”

Emphasising the limitations of this approach, the researcher points to new evidence suggesting half of all textile fibre shedding happens not during laundering, but while being worn.

Changes in fashion design and material composition are therefore pivotal, Thompson asserts, in a concerted effort to make a difference in the global fashion industry's microfibre emissions.

“I think there probably are designs that could lead to a slower rate of shedding. That would actually also, in terms of the wider sustainability footprint of fashion, basically mean that clothing would last longer, it would be more durable.

“Of course, this cuts against the trend of fast fashion that we're seeing. But fast fashion to me is analogous to a single use plastic cup or straw. We're going to have to move away, unfortunately, from these things.”

Against the tide

There's no doubt consumer awareness of plastic and fibre pollutants in the world's seas and oceans has leapt strikingly in recent years, to the point that *microplástico* was Spain's word of the year in 2018.

Despite swift legislative successes that Thompson advised on – most notably the UN Treaty on Plastic Pollution, signed in March 2022 by 175 signatory states, and the UK Government's outlawing of microbeads in

“
**I'm really
anxious that
concerns
about
human
health don't
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moves**

cosmetic products five years ago – Thompson believes political will has often failed to keep pace with recommendations from academia.

“Sometimes things move really, really quickly from evidence to policy and other times it can be a little bit slower,” he states in circumspect fashion, while discussing the ebbs and flows of political will on a global level.

The marine biologist recalls one particular occasion at a European Union meeting when a policymaker told him: “I'm not going to go back to my country and recommend action until you scientists show that it's harmful to me as a human.”

This kind of legislative heel dragging, which disregards the potential impact on wildlife, continues to irk the Blue Planet Award winner.

“Regrettably, I feel there's been too much delay around starting to look at solutions, and that's why I'm really anxious that concerns about human health don't derail those moves towards solutions even further.

“It frustrates me that I feel the dial hasn't moved a lot since Environment Day in

about 1970 when the phrase ‘reduce, reuse, recycle’ was coined.”

Regardless of the roadblocks all too often encountered, much of the evidence built and the international advancements made in tackling microplastic pollution can be attributed, in part at least, to work done by Thompson.

Nevertheless, he can still recall the disbelief when the initial microplastics research paper – ‘Lost at sea: where is all the plastic?’ – in the journal *Science* – was so feverishly reported on back in 2004.

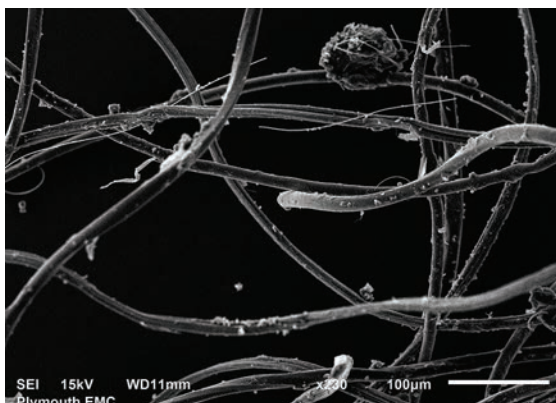
“I certainly never, ever expected it. I came back into the office after a bank holiday weekend in May, I'd been away camping, and the press release had obviously gone live. My inbox was absolutely full. The whole page was journalist enquiries, and the phone was going nonstop.”

The rest is a matter of both international and marine biological history.

“In terms of the scientific community, we went from that one paper back in 2004 which first used the term to now literally thousands of papers being published every academic year on the topic.

“One thing that has changed quite dramatically from 20 years ago is that I think we now have a consensus that there is a problem.

“We might still disagree slightly on the absolute magnitude of the problem, or the extent of the problem for a particular species, but I think there is a consensus that there's a problem and that's a really important step.” ■



Shedding the narrative

When it comes to fibre fragmentation, the common perception is that recycled polyester fabrics fair worse than those made with virgin polyester. However, Dr Kelly Sheridan, co-author of a recent report from the Microfibre Consortium (TMC), says new research indicates otherwise.

Tom Bithell reports

Since 1993 there has been a steady increase in the use of recycled polyester (rPET) due to rising demand from retailers and brands which, according to a recent TMC report, means that, by 2021, rPET accounted for more than 14% of global PET production, while virgin PET accounted for 54% of global fibre production.

Yet, while using rPET is considered a more 'sustainable' option than virgin polyester, it's still not fully understood how the recycling process actually impacts fibre fragmentation in the final textile product.

"TMC take a 'no regrets' approach to fibre fragmentation, which includes recycled polyester," Dr Sheridan told us. "The industry is moving towards the use of recycled polyester and what we don't want to happen, from a fibre fragmentation perspective, is solve one issue only to create another unintended issue further down the line."

Sheridan says that while TMC had previously carried out a small study, the findings were inconclusive making it clear that a larger, more inclusive industry-led piece of research was needed. "As a science-led organisation, we needed sufficient data to effectively investigate the effect of recycled polyester on fibre fragmentation to ensure any position we take from our research outputs is scientifically robust," she explains.

A new benchmark

To conduct the study, Sheridan and her team began work on analysing quantitative testing data on the extent of fibre fragmentation from 251 fabrics submitted by 36 anonymous brands and retailers that were uploaded into the TMC data portal. Of these samples, 79 were 100% recycled polyester, and 172 were virgin polyester. The report says that out of the 79, 42 were

▲ Polyester fleece fabrics have often been a favourite fabric for the use of recycled polyester.

“**Let's start with the big fish, and let us be led by science**”

mechanically recycled and 11 were chemically recycled, while 26 were recycled with an 'unknown method'. Some 2,977 individual test data points were then measured after each fabric was tested a minimum of eight times.

"We pulled all of the data from fabrics that were exclusively made from polyester. And then we broke that down into polyester types (virgin or recycled), and further into the recycling methods used. We repeated the process, with a narrower focus on those polyester fabrics made specifically with a weft knit

Technical research report

Authors:

- Elliot Bland and Dr Kelly Sheridan, The Microfibre Consortium

TMC Technical Committee:

- Dr Jan Beringer, Hohenstein
- Dr Andy Booth, SINTEF
- Helen Colebourn, Bureau Veritas
- Robert Jou, TTRI
- Dr Katy Stevens, European Outdoor Group
- Dr Jan Sueltemeyer, Avient
- Dr Mark Taylor, University of Leeds

using filament yarns which formed the bulk of the fabrics,” Sheridan carefully explains. “The approach that we took was methodical.

“Beyond those methodological constraints, this approach enabled us to encompass a range of fabric specifications i.e. different colouration methods, chemical and mechanical finishes, synonymous of fabrics being produced today, to give a broad, holistic view of the effect of recycled polyester on fibre fragmentation

“We took an objective statistical approach to determine whether there were significant differences between the extent of fibre fragmentation between the two groups. And then we looked even deeper to see if there were any group-to-group comparisons.”

And the results were not as anticipated.

“The surprising thing overall from the findings was that there doesn’t seem to be any difference in fibre fragmentation from the group that was made up of primarily mechanically recycled polyester and those made up of virgin polyester,” Sheridan states. “And the reason that was surprising is that it is not what was suggested beforehand.”

However, while this study suggests no significant difference between fibre fragmentation of rPET and virgin PET, Sheridan stresses that, to her, the report indicates that while recycled polyester is not detrimental from a fibre fragmentation perspective – compared to virgin – it’s no better.

“I think there really is still

“**There are likely other variables and other specifications of the fabric that are having a greater effect on fibre fragmentation**”

▼ Dr Kelly Sheridan,
research director at The
Microfibre Consortium.



TMC conclusions of the report, June 2023:

- **Mechanically recycled polyester does not seem to have a detrimental effect on fibre fragmentation compared to virgin polyester.** Based on current data, mechanically recycled polyester fabrics, overall, fragmented to the same extent as those made from virgin polyester.
- **TMC cannot currently comment on chemically recycled polyester due to the lack of data.** TMC acknowledges that chemically recycled polyester is in its infancy and calls the industry to action to increase testing, when available, so that further analysis can be undertaken.
- **Fibre fragmentation remains a concern, for all textiles including polyester materials, whether virgin or recycled.** Whilst isolated studies of limited samples may indicate differences between variables (e.g., rPET v vPET), those effects may not translate across a large data set containing a multitude of different fabric specifications such as yarn size, fabric construction, weight etc. This reinforces the importance of a substantive dataset.
- **TMC reiterates its position that composition alone does not determine the fibre fragmentation/shedding volumes of textiles.** Analysis from the Microfibre data portal reinforces the complexity of fibre fragmentation as a topic due to the inter-dependency of fabric variables. TMC recommends a broader, and deeper analysis across the entire data set.

a huge amount for the industry to do if we are to tackle microfibre pollution – which is something we need to do together. The report demonstrates a real collective power when brands, retailers and suppliers all come together and test their fabrics. In the TMC data portal, we have the largest data set on fibre fragmentation, as far as I’m aware, across the globe. We can use that to science-lead the industry to make root cause change – so that we can take that ‘no regret’ approach. What we don’t want to do is move too quickly without having sound scientific data behind us to support that move.”

Complex conundrum

However, as promising as they may be, the results do highlight the complexity of fibre fragmentation. Whilst no overall difference in fragmentation between mechanically recycled and virgin polyester was found, some of the data indicated that there are some

underlying effects of fabric structure, which tell of a more complex story beneath the surface.

“The results indicate that there are more important fabric variables that are driving fragmentation and we need to identify what they are,” Sheridan insists. “The next stage is for us to conduct a larger, more holistic analysis across all of the data within the TMC data portal, regardless of whether it’s made from polyester or cotton or nylon and regardless of the fabric structure or yarn type to ask which of these key variables is having the biggest effect in driving fragmentation? And from there we can develop smaller, more focused research projects with suppliers to better understand those key variables and begin to identify the root causes of fibre fragmentation enabling meaningful change to be made.

“So, let’s start with the big fish and let us be led by the science.” ■



Into the valley

Start-Up Valley, a new feature at the 2023 ITMA trade show, featured 16 emerging companies hoping to scale new and game changing solutions and technologies. Simon Glover spoke with three of them.

Tailr

Tailr is working on ways to harness the power of artificial intelligence (AI) to 'revolutionise' the way brands communicate with manufacturers but, for now, founder and CEO Shana Chu is keeping her cards close to her chest on this potentially exciting news.

However, Chu told *Ecotextile News* that the company's cloud-based, digital platform can already streamline



We've had so many factories coming up to us wanting and willing to implement a system like this to reduce waste

Shana Chu, Tailr

production, reduce waste and increase sustainability.

Tailr aims to bridge gaps between fashion designers and factories to simplify complicated processes to shorten sample and production cycles, minimise waste, reduce overproduction and decrease size-related returns.

"The sustainability aspect really comes in with the communication between the brands and the factory," she explained. "It's a little bit disjointed at the minute, factories work from tech packs that are not always fully completed or up to date.

"With our system, communication is at the centre. Brands and factories communicate seamlessly, everything is recorded, so if something does go wrong at any stage they are able to go back and find out exactly what went wrong.

"So if there are any human errors or formula errors, we'll solve them before it goes into production. This reduces the sampling time, and it means that product is less likely to come in wrong."

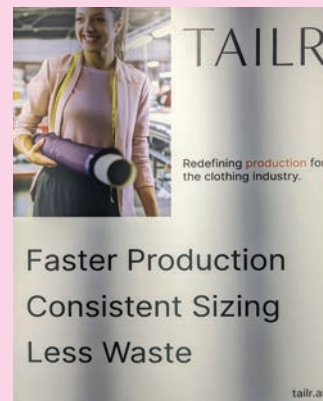
Last year, Tailr tested its system with six brands which all reported savings in both time and waste, according to Chu. "So brands were saving about four-and-a-half hours every day,

generating their tech packs and communicating with the factories," she said.

Launched in 2021, Tailr was just closing a pre-seed funding round when we spoke to Chu at ITMA. She said the company was already working with development partners and "significant brands to bring the Tailr platform to the next level".

"Also, here at ITMA, we have onboarded some more fabric mills and the appetite from factories to change their processes has been astounding, we've had so many factories coming up to us wanting and willing to implement a system like this to reduce waste on their end," Chu added.

"They feel that they have the short end of the stick because in Europe we kind of feel like, 'Oh what are those factories doing?', but they want to be more sustainable with their production."



Tree to Textile

With backing from the likes of H&M and IKEA, Tree to Textile is in the unusual position for a start-up of already having the clout to progress towards its goal of developing a more sustainable man-made cellulosic fibre.

But even with those powerful backers, TreeTo-Textile is still in the development stage, nine years after it was established by entrepreneur Lars Stigsson. However, the company says it is now ready to scale up.

That was the message of



Nina Ekstrand, the company's head of marketing and communication, who explained that the patented process used less chemicals, recycled and reused those that it does use, and produced no sulphur emissions.

"As all innovators know, it takes time to prove the technology and then go to market and then prove it to the world," she told us.

This year a demo plant is being established at a paper mill at Nymölla in Sweden, until recently owned by another partner, Finnish forestry firm Stora Enso, which should soon be producing 1,500 tonnes of fibre annually.

"So we have developed a new fibre technology based on cellulose. It's a chemical process, similar to viscose but it's not viscose. We are currently working on getting it classified in the EU and in the US," Ekstrand added.

"We are still a start up. But we have powerful owners in Ikea, H&M and Stora Enso who jumped on the train when Lars Stigsson told them he had this fantastic technology to

“As all innovators know, it takes time to prove the technology, go to market and then prove it to the world

*Nina Ekstrand,
Tree to Textile*

introduce a sustainable fibre at a lower cost.

"Our business model says that we should sell the technology through licensing. So we would like to partner up with fibre producers that can invest in our technology and then scale it globally. Because that is the ambition from our owners."

Ekstrand reported strong interest in Tree to Textile's stand at ITMA. "This is first

time that we are doing a commercial trade show like this," she said. "This is first time that we are showcasing the different samples.

"People can touch and feel the differences between our fibre compared to viscose and cotton. And the response that we are getting here is fantastic. That is another reason why we are here – we wanted to see that we are on the right track!"

Noosa

Belgian startup Noosa has its eyes set firmly on circularity, with the proud claim that its bio-based fibre is the first that can be endlessly upcycled without any deterioration in quality.

Created from GMO-free corn in China, the company says its 'Noocycle' technology – developed in its Brussels-based laboratories – means it can guarantee that every collected textile made from Noosa can and will be recycled back into pure, virgin-quality fibre.

Noosa says life cycle assessments have been carried out to confirm its

environmental claims which include a 30% reduction in CO₂ emissions and a 50% reduction in water use compared to conventional cotton.

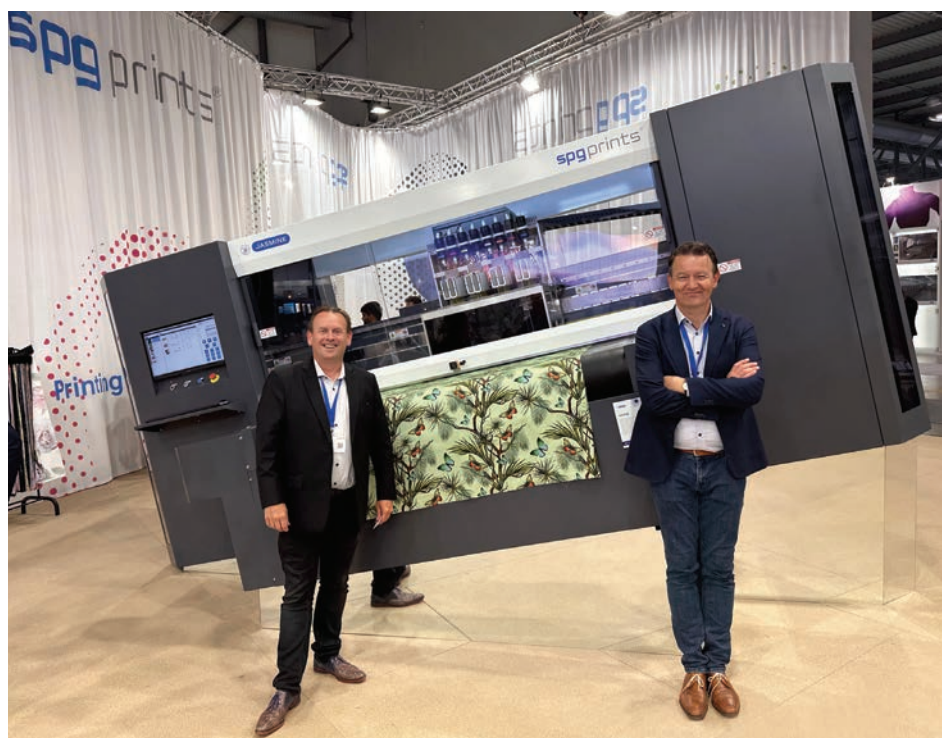
The company's range of products include staple fibre (1.4 to 6 dtex, 6 to 51 mm), spun yarn (Ne5 to Ne100, Nm8 to Nm165), and filament yarn (44 to 167 dtex, 48 to 144 F).

At ITMA, Noosa's co-founder and project manager Luna Aslan told us: "We have created a textile fibre made from the sugar from corn waste, and developed technology to make it 100% recyclable at end of life.

"And so this is a unique innovation that is patented. It is chemical recycling and it allows us to separate our fibre from any type of component. So any dye, any material blend, anything we can just isolate it and get back to a 100% virgin fibre without loss of properties or degeneration.

"So today we sell the fibre, the yarn and the filament directly to brands or manufacturers so that they transform it into end products."





Digital printing textiles – unplugged

Visitors turning up to ITMA were surprised that the Dutch digital printer supplier SPGPrints had not plugged in any of its machines at the giant textile machinery show, which closed in Milan recently

Instead of spewing out hundreds of metres of newly printed fabric – like everyone else in Hall 7 – its machines were left idle and perched at a jaunty angle on a basic re-useable hardwood floor.

Pre-printed fabric samples were simply hung out for display over the exit roller to give visitors an idea of each machine's design capabilities.

"We made a deliberate decision this time to not only show the sustainable advantages of our technology but also built the

stand on the principles of being more sustainable," said Ruud Zantman, SPGPrints chief commercial officer. "So, there are no running machines because typically in an exhibition like this the machines will produce printed textiles, but the only thing that you can do with this fabric is to throw it all away," he told us during a tour of the booth.

He pointed out that show fabrics were not re-useable because there is no fabric post-treatment available at the show to fix the reactives

“It's a very logical and sustainable way to go with pigments, even when the ink costs per metre are higher

or the pigments – unlike in a commercial factory – which results in staining when the fabric is rolled up as the inks are not even fully dry.

"At the last ITMA in Barcelona four years ago when we were displaying our high-speed single-pass digital printer, which even if you only run it for 10 minutes in an hour it prints 600 metres of fabric – so the amount of waste you generate is huge," noted Jos Notermans, SPGPrints product manager.

Zantman added, "Once we explain this to visitors, they understand where we are coming from, and it's a great talking point and introduction to our ethos on sustainability and environmental issues."

"At the end of the day, the customers want to see their own designs on their own fabric and not what we want to print anyway – so our approach here at ITMA in Milan makes perfect sense to us – and them," he explained.

Pigment print trend

The company offers digital printing ink for textiles in five different chemistries: reactive, acid, disperse, sublimation and pigment.

But Notermans told us that in terms of printing trends, more people are now demanding pigment inks due to environmental considerations.

"This is because with pigment inks you don't need to steam and wash," he said. "Around 80% of all the digital printers used in the production of fashion textiles was reactive ink printing on natural fibres like cotton, viscose and so on. But you

need to steam and wash these fabrics."

He explained that this was not a problem for original digital printing machine customers as most of them owned rotary printers and already had steamers and washers, so there was no need to invest.

"But nowadays they're not talking about investments anymore, they're talking about water and energy consumption, and all related legislation in all kinds of countries. The steamers they've been using for years suddenly won't pass the environmental rules anymore," he says. "This means they need to either buy a new steamer or they must fix the current one with all kinds of new measures."

Notermans says that as a result, there's been an uptick in people asking SPGPrints about the availability of precise printing technology for fabrics that don't need to be steamed or washed. He says that even though pigment printing has been used in rotary printing machines for a long time there has been a problem with fabric handle. "One big disadvantage is that textiles feel rather stiff," he notes.

The problem with using pigments in digital printing was that because the print nozzles are just a fraction of a diameter of a human hair, they clogged up the ink-jet heads. The chemistry previously used to prevent this relies on so-called nano-pigments but there were still problems with dyeing deep black shades – perhaps the most important colour in the fashion and textiles sector. Most digital printed 'blacks'



▲ Printing speeds for digital printing are increasing constantly.

Reactive inks:

Print on all natural fibres, mainly cotton/viscose

Acid inks:

Vibrant colours on swimwear fabric, silk, and wool

Disperse inks:

Print direct to polyester fabric

Sublimation inks:

print polyester fabric direct or through paper without the need to steam and wash

▼ Digitally printed fabrics are now noted for intricate, repeatable designs.

were more grey than black.

These have now been overcome with clever, non-polluting chemistry so that these days, digital pigment printed fabrics only need to be cured in an oven at around 160 degrees for just two or three minutes. "So, there's no steam, no water, no energy for steam anymore. And no washing," he said pointing to the SPGPrints print head fitted to its stationary 'Jasmine' direct-to-fabric digital printer on its ITMA booth, for which the company is currently delivering a pigment ink solution.

Pigment inks are suitable for all fabric types including blends.

With 16 or 32 print heads

on the Jasmine, combined with its own, newly developed pigments the fabrics on display in Milan included bright and vibrant colours and importantly, deep blacks printed with pigment inks.

In the past, pigment inks have been the cheapest option when it comes to digital printing, but they have come with technical limitations.

Not anymore, says SPGPrints, although as with most new innovations there is a cost attached, admits Notermans. "Other types of inks used in digital printing are cheap, and users expected the same with pigment printing inks, but because of the more complex production method to produce nano-pigments the price is higher," he conceded.

However, when looked at the process holistically, he said, "a kilo of reactive ink comes with financial costs to steam, wash as well as environmental considerations. So, you must look at your total cost of ownership of the whole process – and for us in Europe, with new legislation around the corner, it's a very logical and sustainable way to go with pigments, even when the ink costs per metre are higher than in reactive, acid or disperse solutions". ■



Digital technology transfer

A new transfer printing system unveiled by Mimaki at ITMA claims to minimise water consumption and lower CO₂ emissions – together with a new method to remove sublimation inks from printed polyester so fabrics can be re-used

The new Mimaki transfer system – that claims to be an improvement on both analogue and digital textile dye print methods – comprises three essential elements: the textile pigment ink, the transfer

system, and what is said to be a ‘revolutionary’ textile pigment transfer paper.

This paper was developed by Dutch paper supplier Coldenhove that allows for transferring a digital print using a three-step transfer process to a wide range of materials – including natural fibres. The textile design is initially printed onto the paper using a customised dye sublimation printer from Mimaki (model: TS330-1600), which was being previewed at the company’s ITMA stand.

This is done using a new textile pigment ink that’s currently undergoing Bluesign certification before coming commercially available, and at the final stage the ‘Texcol’ paper undergoes a one-step waterless process, through an entry-level calendar machine onto the textile of choice.

“Traditionally, the dyeing

process for natural fibres generates an alarming amount of wastewater – around two billion tonnes every day in the pre- and post- dyeing processes worldwide,” said Arjen Evertse, general manager sales, Mimaki Europe, citing the company’s own internal research.

“In addition, the dyeing process is complicated in terms of equipment structure and process and often, overseas transportation of textile products from the main textile-producing countries also emits CO₂. The textile pigment transfer printing system minimises water usage and simplifies the printing workflow. Additionally, its compact size and affordability allow small lot textile production to be implemented locally, leading to significantly reduced environmental impact.” ■

Decolourising polyester fabrics for re-use

Japanese digital print machinery builder Mimaki has revealed a unique way to remove dye sublimation inks from polyester fabrics so that the textiles can be re-printed or dyed immediately afterwards.

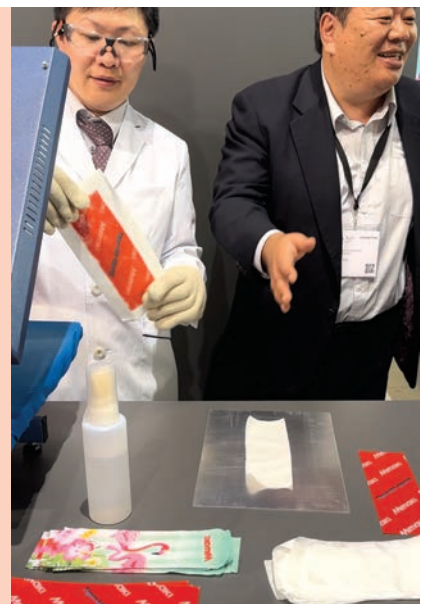
Shown publicly for the first time as a prototype at the recent ITMA in Milan, the process is said to not only eliminate waste, but also reduce the overall energy consumption associated with textile recycling and avoid the need for incineration.

Mimaki says there is no limit to how many times reused polyester can be treated with the new ‘Neo-Chromato’ process, which also claims to minimise water usage and pollution by enabling the safe disposal of the absorbent paper and decolouring solvents used in the process.

“This project is now running at our head office in Nagano, Japan, as we look to commercialise,” Kazuaki Ikeda, president of Mimaki Europe, told *Ecotextile News* during a demonstration. “We will first target the soft-signage market – but we also have an eye on the wider textile and apparel market with this new circular technology.”

Arjen Evertse, general manager of sales at Mimaki Europe, noted “The increasing awareness of sustainability has led to a significant disposal issue within the textile industry, with polyester textiles accounting for approximately 60% of 92 million tonnes of wasted textile materials worldwide – citing a report based upon Mimaki’s own research.

The company also told *Ecotextile News* that it was also working on a new printer cartridge prototype that is based on paper and not plastic that it was showing to select customers at the show. The rationale behind this is to try and move away from difficult to recycle plastic materials to components and consumables that are recyclable and have less impact on the planet.



▲ Removing inks from polyester fabrics allows them to be re-printed again.

Purifying the textile waste stream

Using artificial intelligence to extract trims, zips and buttons to create clean textile feedstock, a Belgian company at the recent ITMA in Milan claims to have solved how to close the gap between textile sorting and recycling

John Mowbray reports

Although precise global figures are not available, due to incomplete reporting, research* by academics at North Carolina State University in 2022 estimated that textile waste represents anything from 65 to 92 million tonnes of the approximately two billion tons of global municipal solid waste (MSW) generated annually.

It's these types of figures that have ignited action by the European Commission to introduce proposals for a mandatory extended producer responsibility (EPR) scheme for textiles in all European Union (EU) member states.

The proposed EPR scheme would make producers responsible for the full lifecycle of textile products and support the sustainable management of textile waste across Europe.

Valvan, which is based in the west Flanders city of Menen, aims to take advantage of the emerging infrastructure that will be needed to meet any EPR obligations of the textile industry with a range of new

sorting technology unveiled at the recent ITMA2023 trade show in Milan.

New machines that use a combination of elegant engineering and artificial intelligence (AI) to accurately sort textiles based on both colour and fibre composition drew a steady stream of visitors to its stand in Hall 9 at the Milan event.

Jean-Francois Gryspeert walked *Ecotextile News* through some of these new systems on the Valvan booth, confirming: "We have several automated sorting solutions that use AI machine learning that will greatly help the industry to scale up manual sorting and separating fabrics prior to recycling in the wake of impending new regulations."

"The first one is our 'Fibersort' technology that uses AI to predict the concentration of fibres based on Near Infrared Spectroscopy (NIRS) scans, which includes both pure fibre and fibre blends. It can also sort textiles based on colour using an RGB camera," he said. Sorting by colour is either by precise single colour or single versus multi-colour.



▲ Jean-Francois Gryspeert from Valvan walks us through the new Trimclean technology that separates buttons and trims from textile waste.

NIRS is based on the fact that molecules absorb specific frequencies that are characteristic of their structure. The system measures the absorption of radiation as a function of the wavelength.

▼ Artificial intelligence is used to accurately sort textiles by composition and colour.



NIRS works by spectroscopy, which is based upon molecular absorptions of materials measured in the near infrared part of the spectrum and is sensitive to organic constituents so it provides both chemical and physical information.

ITMA demo

Gryspeert manually passed various type of fabrics over the 'magic eye' of the device, which scanned the textiles, and then automatically calculated and recorded the composition and colour of each sample fabric, the results of which were then displayed instantly on a connected PC screen (left).

Based upon the textile we observed being scanned, in comparison to what was on the label of the fabric, the scanner was completely ①

accurate when it came to fabrics made of 100% polyester, cotton, viscose or any other non-blended material, and over 98% accurate when it came to identifying fabrics made with blends of two fibres.

Gryspeert admitted there are still some limitations to the technology. For example, it was less accurate for blends of three or more fibres and as yet says it isn't accurate enough to correctly identify textiles that have blends of more than three types of fibre.

Aside from fibre composition, he noted that since the technology is based on absorption of light, dark shades are more difficult to assess correctly. "Black textiles might give an inaccurate result," he conceded.

"But using AI programmed algorithms, the more samples we run and correct, then the better this technology will become as it learns more," he told us.

"Valvan already has a huge dataset which is important to ensure accurate sorting. This will be kept up to date on an on-going process so that accuracy will improve greatly over time," he said.

Although it was shown as a manual solution at ITMA for demonstration purposes, Fibersort can be integrated into existing textile sorting lines.

Zips, button and trims

Perhaps the new machine creating most interest in Hall 9 was Valvan's new 'Trimclean' solution, patent pending technology that's designed to remove trims very accurately from collected used textiles.

The aim of the machine – which also works with an AI algorithm built into the software – is to increase the value and purity of the textile feedstock before it goes for textile-to-textile recycling.

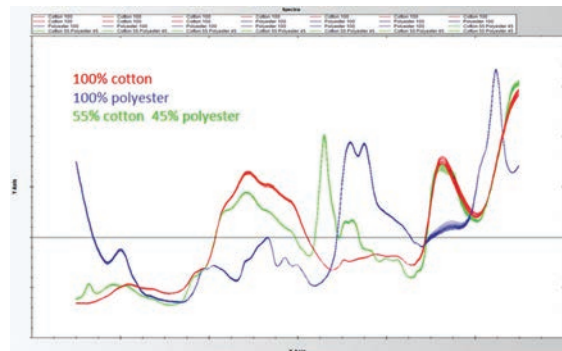
"We use this technology after the textiles have been through a cutting process, and the clippings are then sorted automatically as they are passed under a metal detector and an optical camera via a belt system," explained Gryspeert.

For ITMA demonstration purposes, Valvan was using denim trims cut into 100 mm square patches and included samples with buttons, rivets, pockets, and labels, all mixed with plain denim samples of the same size.

The metal sensor detects both ferrous and non-ferrous materials, whereas the camera detects pockets and labels, and as the samples pass by these two sensors, they are separated into two waste streams using a pneumatic blast of compressed air when they reach the end of the rotating belt (see image).

"Trimclean is both accurate and fast," he claimed, "we have run it at sorting speeds of up to 1,000 km per hour, although that was under very specific conditions."

▼ The technology uses Near Infrared Spectroscopy (NIRS) to identify both pure fibre and blended textiles.



Valvan says that such is the accuracy of this new technology, that the textiles that it sorts are not only suitable for mechanical recycling, but they can also be used as raw materials for chemical recycling methods.

"To do this we can alter the size of the clippings at the cutting stage," he explained. "Mechanical textile recyclers tend to ask for larger clippings as they want to maintain the staple length of the fibre to a maximum, whereas for chemical recycling textiles, the clippings can be smaller – we can go down to 20 mm squares."

Gryspeert noted a huge amount of interest at ITMA in this new sorting technology – which was visible on its busy booth.

"It's crazy to say that we've had too much interest in the technology – but it's almost true. And why? Well, in the past, most of this type of textile waste that was unsortable automatically was either incinerated, sent to landfill or the garments were sold into Africa and Asia. But, with EPR coming into Europe, this is a new machine for a new purpose – the circular economy."

That's why, he says, Valvan is already in talks with not just brands and retailers, but also with the suppliers of a new generation of man-made cellulosic providers who are looking to secure huge levels of textile waste to scale up their own technologies using pure feedstocks. ■

*Egan, J., Salmon, S. Strategies and progress in synthetic textile fiber biodegradability. SN Appl. Sci. 4, 22 (2022).

Fibre-to-fibre solution targets synthetics

Working with synthetic fibre supplier Radici, Austrian technology group Erema has developed a new combined textile shredder and fibre extrusion system for processing synthetic continuous fibres and fabrics for textile fibre-to-fibre recycling

Erema's new system is designed to process production waste – including polyester, nylon, and polypropylene – from the whole textile supply chain including fibre production, through spinning, weaving, and knitting, to clothing manufacture – where enormous amounts of waste are often generated.

Wolfgang Hermann, business development manager at Erema Group told *Ecotextile News* on its stand at the recent ITMA in Milan, “We have been working with the Radici Group on fibre-to-fibre recycling for a few years now with the aim of establishing a full loop from the fibre waste material it generates. Using this ‘Pureloop’ machine system – that is being show for the very first time in public – we can convert Radici textile waste into polymer granules that are extruded into filament fibres and then garments.”

Hermann pointed to a Shimano branded polyester

“**We really can scale up this technology**

*Wolfgang Hermann,
Erema Group*



Wolfgang Hermann

t-shirt on the company's ITMA stand (pictured, right), which he says is the first garment to be made from this recycled, virgin fibre standard polymers produced by the PureLoop system.

“This is a major technological breakthrough. Why? Because we've combined our ‘ISEC evo’ shredding machine with our ‘IV uptimiser’, to reggranulate the textile material so that very high-quality ultrafine fibres up to just 2 decitex can be produced from 100% recycled pellets,” he told us.

The system works in a continuous way where unshredded fibre waste and textile materials are fed into the ‘ISEC evo’ where they go through an ultrafiltration process to clean out contaminants. This then goes into an in-line reactor where any spinning oils and other textile additives are removed, and the viscosity of the polymer melt is adjusted to the correct value before repolymerisation of the synthetic material takes place; and before being turned into granules for future extrusion into filament and staple fibre.

And while the technology is suitable for pre-consumer waste, the work with Radici also involved the use of post-consumer waste with the



help of cycling brand Shimano. The polyester t-shirt on display at its booth was made from previously worn 100% mixed polyester clothing, before being dyed, according to Hermann.

So, why hasn't this been done before? Hermann explains, “Through the last three years we have developed a process and the technology to bring up the viscosity and molecular weight of the recovered material which usually degrades in the thermoplastic recycling process before it can be directly spun into fibre. Now this has been achieved, the granules we produce are 100% from recycled waste to give true fibre-to-fibre recycling.”

In terms of capacities and volumes, this depends on the size of the reactor. The smallest has a capacity of 450kg per hour but can run 24/7 to give a process capacity of around 2,800 tonnes per year recycling capacity, says Hermann.

“The next size up is 900kg – double the size and we are working on a system with a 1350kg per hour throughput which is significant to give between 8,000 – 9,000 tonnes per year,” he claimed.

“We really can scale up this technology.” ■



Cottoning on

The World Wide Fund for Nature (WWF) compared the strengths and weaknesses of six leading cotton standards in addressing sustainability issues

Simon Glover reports

The WWF studied the Better Cotton, Cotton Made in Africa (ICmiA), FairTrade International, United States Department of Agriculture (USDA) National Organic Program, EU Organic Program, and India National Production for the exercise.

Researchers considered how well each standard addressed agrochemicals, soil, water, biodiversity, climate change, monitoring and evaluation, gender, forced and child labour, workers' rights and working conditions.

The benchmarking exercise concluded that some were stronger in some areas than others but that none stood out as being better than the rest across the sustainability board.

"Looking at the coverage of criteria by theme, water and climate change have the weakest coverage out of all sustainability themes and is something that all schemes could strengthen," said the report.

The WWF also said that different standards had different priorities and it was important for users, including consumers, brands and retailers, to recognise each standard's strengths and limitations.

"No standard is perfect. Standards cover certain benchmark criteria well and not others. In other words, not one of the standards benchmarked covered all the sustainability criteria that were selected for this exercise," said the report.

"There's always room for improvement. Even where a standard has good coverage of a sustainability issue, there was always room to strengthen the criteria. Standards are a means to

“No standard is perfect. Not one of the standards benchmarked covered all the sustainability criteria

pursuing sustainability objectives and differ from one another in their scopes, approaches and quality of implementation. One size does not fit all!"

CMiA had the greatest total coverage of benchmarked criteria. It was particularly strong on water use, driven primarily by the fact that it does not allow the use of irrigation, but was weaker on climate change.

In a statement, CMiA said its standard had left its well known rivals, such as Better Cotton, behind in many criteria but it pledged to address areas highlighted as weaker, such as climate change where the WWF felt more could be done to support producers.

"To perform excellently in a comparative study on standard criteria is certainly a great success. However, it is much more important for us to emphasise that it was our partners in Africa who made the extremely successful implementation of the CmiA standard possible," it said in a statement.

"We continue to work together with our partner cotton companies to improve the social, economic, and ecological living conditions of the millions of small cotton farmers south of the Sahara."

The WWF said that, predictably, the organic standards tended to be strongest on agrochemicals, but had little coverage on water, biodiversity and

▼ Harvesting cotton in a field in the western Indian state of Maharashtra.



▼ Workers collect raw cotton for ginning at a factory in Burhanpur, Madhya Pradesh, India.





climate change, and none on gender, forced and child labour, workers' rights and working conditions.

Better Cotton, which claims to be the world's largest cotton sustainability programme, had good coverage of soil, and forced and child labour issues, but was weaker on water and climate change, according to the report's authors.

However, the initiative's coverage depended on the size of the producer as it has different standards for small, medium and large farms. These showed up in issues such as soil health, workers' rights and working conditions.

Better Cotton welcomed WWF's report and revealed it had recently launched **Version 3.0 of its Principles & Criteria (P&C)** to further refine its approach to more sustainable cotton production.

"WWF is correct – no standard is perfect. Better Cotton – by definition – strives for continuous improvement in delivering environmental and social impact at field level," said the spokesperson.

"To accelerate environmental improvements, the revision to the P&C supports the responsible use, conservation and enhancement of natural resources by championing regenerative agricultural practices, more sustainable crop protection methods

▲ Cotton fields in New South Wales.

Water and climate change have the weakest coverage - something that all schemes could strengthen

This is due to come into effect for the 2024-2025 cotton season.

▼ Heat map showing the eight standards' overall coverage of benchmark criteria by sustainability theme.



and effective water use.

"Acknowledging the responsibility and opportunity Better Cotton has to help make the cotton sector part of the climate solution, climate change adaptation and mitigation is also prioritised as a cross-cutting element across the revised P&C."

The revised standard would also place a stronger onus on driving impact and promoting wellbeing in farming communities, supported by more robust requirements on decent work and gender equality, in addition to the inclusion of a new principle on smallholder livelihoods.

"It is important to note that the report places little mention of the needs and priorities of the farmers and their communities," added the Better Cotton spokesperson.

"Another element to note is that the Principles & Criteria are only one small part of the Better Cotton Standard System – the implementation, monitoring of progress and verification are all equally important elements of the standard

which must be considered when evaluating impact."

WWF found that FairTrade covered similar issues to Better Cotton although it did better on monitoring and evaluation, workers' rights and working conditions, while performing similarly on agrochemicals, water and climate change, but worse on soil and biodiversity.

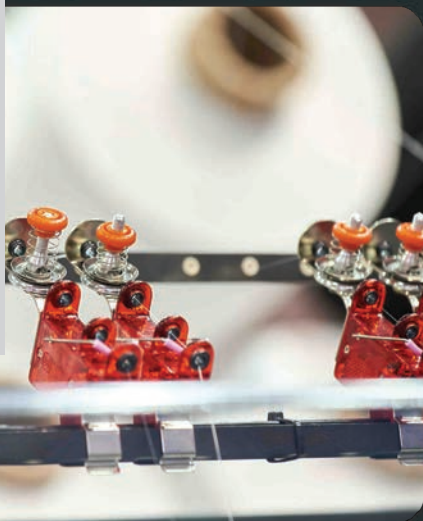
Subindu Garkhel, Fairtrade's global cotton and textiles lead, commented: "Fairtrade welcomes this research by WWF, which underlines the importance of having robust standards in global cotton supply chains.

"We are pleased the report acknowledges Fairtrade's contribution to improving workers' rights and working conditions in the sector, as well as our work on the use of agrochemicals, tackling climate change and reducing water footprint.

"We agree with the report's conclusion that much more needs to be done to make cotton supply chains fair and sustainable, and we will continue to work with the other organisations mentioned in the report to achieve this." ■



Phil Patterson
Correspondent,
Chemistry & retail



Hot innovations are cool at ITMA

Phil Patterson gives readers an insight into new innovations on textile wet processing at ITMA – where for him – one particular innovation, was worth the time and expense of travelling to Milan

In the June issue of *Ecotextile News* I gave you my hopes and expectations for the, then upcoming, ITMA exhibition in Milan.

You may also recall that I mentioned that ITMA has morphed from being a textile machinery show to an everything-to-do-with-textiles show – and that was probably the most significant factor in how easy or difficult it is to take in the vast number of innovations at the event.

Quite simply, there are so many fascinating and important events or meetings to attend, with so many fascinating and important people, that you have to book time with yourself to get around the exhibition halls – something I did with mixed success.

I didn't see enough, but what I did see surpassed my expectations –

and there were some genuine needle movers in the field of textile wet processing technology.

It was really encouraging to see a healthy slab of floorspace allocated to start-ups (see page: 38). These are the future of our industry and, although most will not scale and be successful, there will be a few that become mainstream over time and we should be thankful to the show organisers for providing them with a platform.

I was primarily there with my Apparel Impact Institute Climate Solutions Portfolio hat on, searching for low energy demand machines or processes, ways in which energy can be delivered more efficiently or recycled and ways in which product quality can be improved to reduce resource-wasting corrections or downgrades.

Before ITMA, I was intrigued to

know if anyone would show anything revolutionary with respect to material manufacture – specifically 'nice' nonwovens, which could dramatically reduce the energy requirement compared to woven textiles...but I didn't see anything other than a few bags that were apparently made from carpet underlay. One for future R&D.

Textile dyeing

In the dyes and chemicals area, Archroma was notable by its absence and, since it has recently acquired Huntsman Textile Effects, it would have provided an interesting benchmark for large-scale, viable innovations.

Out of the mainstream international players, the most interesting chemical solutions I saw were from CHT. Firstly, a new, full range of high



Image: © user15245033 on freepik

fixation reactive dyes called Bezactive 1, with fixation levels between 90 and 95%, which require significantly less water and energy in post dye wash off than conventional reactive dyes (with fixation of ~70%) and, secondly, a new pigment dye concept that uses what I'd call a cationic attractant layer onto which pigments are then attached.

The new pigment process is much quicker and less water/energy intensive than conventional reactive dyeing. The absence of a binder results in much improved handle, even on very soft fabrics and, being pigments, the light fastness is hugely superior to cationic dyeing processes using conventional dyes ... something that was on show on several booths.

As for bio-based dyes, whether from plants or bio-reactors – there were a few developments on show but nothing that I feel will make it to commercial scale unless they partner with one of the big existing dye companies. I genuinely hope they prove me wrong.

As predicted, the ITMA world of printing was dominated by digital (pp. 40 – 42) and the world of digital was dominated by speed, with fabrics now being printed as fast as screen printing machines and one panel printer claiming to print one t-shirt every nine seconds – quicker than screen prints, even for simple four colour prints.

At ITMA you'd be forgiven for

thinking that screen printing is dead but, provided the production runs are sufficiently large, it remains the most cost-effective method of fabric printing and industry leaders such as SPGPrints were also quietly showing screens – just as a reminder of industrial realities.

A squeeze on water use

Dyeing machines were, as expected, a case of evolution rather than revolution and we saw a nudging down of liquor ratios, better control systems, increased product versatility (so a single machine can dye a wider range of products) and some useful operator features, such as self-cleaning filters.

Italian yarn, fibre, and dyeing machinery specialist Cubotex showed its patent pending Dyeflex yarn and fibre dyeing machine – a surprise for me as this allows variable loading at constant liquor ratio to minimise water and energy wastage associated with underloading, something I called for in my previous article with no prior knowledge of this invention being showcased.

And there was a very important reminder for machinery manufacturers to respect patents and intellectual property of inventors. Failure to act with integrity, stealing designs or reneging on agreements can have devastating reputational and financial consequences as evidenced by Karl Mayer's admirable action taken against a copycat

version of its patented nitrogen dyeing method for indigo.

The copycat machine (I won't give them any free advertising by naming them) was ordered to be covered up for the remainder of the show by the Intellectual Property Rights Arbitration Panel – an unwanted badge of shame and stain on the company's reputation.

New dyeing innovations pose something of a challenge. Generally, to really make step changes, you need things to be very different and, for things to be very different, you need completely new technology, which generally means new, expensive, relatively unproven machines that then invite curmudgeonly cynics like me to complain about things being "too expensive to scale up", "not flexible in terms of substrate type" and so forth.

Low liquor ratio dyeing via sprays or digital print techniques were on display and both Weko (spray) and Alchemie (inkjet type) have systems that show good potential. Machines with a small physical footprint and instant colour changeovers are an interesting challenge to conventional continuous dyeing machines, which require hundreds of metres of fabrics and laborious cleaning regimes. If new technologies don't take off in their own right, a modular approach, where the new know-how can be inserted into existing continuous machinery ranges may be a pragmatic path forward. **1**



Challenge to traditional denim

For me, the standout of the novel dye techniques was Cooltrans from NTX, partly because of its two-sided plain-or-print colour application innovation and partly because of its supreme honesty with regards to how it works (so it does require fabrics to be scoured/bleached and dried before application of colour, it does require fixation and if you want to meet any meaningful colour fastness standards, it does have to be washed off).

The machine can apply different colours to each side, it can apply a print to one side and a plain to the other or different prints to each side. The last option seems a bit over the top until you see a pair of utterly convincing 'fake' wash-down jeans (see right), produced from a piece of plain white fabric with denim plus abraded seams printed on one side and a twill on the back.

This will not be popular with the traditional denim industry, but this has the potential to be a game changer. I often refer to pale denim being a 'build a skyscraper to make a bungalow' scenario, but with Cooltrans you just build the bungalow – as no wash down is required.

Twine, with its in-line polyester yarn dyeing, was busy at ITMA and the ability to get tailored colours with instant colour changes is clearly something that appeals to garment and product manufacturers.

Dyecoo has been joined by Indian company Deven in the field of super-

critical CO₂ dyeing, but Deven are reporting that they can successfully dye fibres other than polyester – albeit via a slightly convoluted multi-step process.

Like Dyecoo though, it's interesting science that comes at a price, because of the need for ultra-safe, super-specialised engineering to deal with the incredibly high pressures needed for the process.

Laundry machines from the better machine builders have shown ongoing drops in water use over the past decade or two with liquor ratios of less than 5:1 being common – but Jeanologia displayed a machine that can operate at 2:1. This starts to beg the question as to whether denim brands should now ban the use of belly washers that typically operate at around liquor ratios of 15:1.



▲ Cooltrans can apply a print to one side and a plain to the other or different prints to each side.

Jeanologia also showed an ozone bleaching system that can operate at 0.8:1, an unfathomably low liquor level, achieved by inserting moist cloths into the vessel rather than introducing water.

Turkish ozone bleaching specialists Wiser Wash demonstrated its low liquor ozone bleaching – which it says is genuine bleaching – as opposed to the post-bleach clean-up delivered by other ozone machines.

Machine controls for fabric weight, width, skew, moisture from the likes of Mahlo and Pleva were of course on display, but I felt that the full dyehouse control systems from Arel, Adaptive Control and Setex were busier than at previous shows as manufacturers strive to improve right first time, eco-efficiency and measurement of water and energy use.

Artificial intelligence

AI, artificial vision, and clever software was apparent in several pre- and post-wet processing examination or fault detection systems which should stop money being wasted either by dyeing faulty fabric, or by making garments from faulty dyeings.

A bugbear of mine is the fact that when I first worked in a textile dyehouse in the early 1990's, we self-approved all dyeings using instrumental colour measurement. But today, over 30 years later, and with all other technology moving at



Image: © user15245033 on Freepik

lightning pace, the culture of a swatch in an envelope still pervades. It's madness. As is the culture of always having to dye sample lengths of fabric to see what a t-shirt 'looks like in purple'.

So, how refreshing then to see Verivide with a suite of lightboxes (fully flexible LED to help navigate this previously perilous colour matching territory), virtual lightboxes, upgraded Digi-eye machine for measurement of 'unmeasurables' such as prints, melanges etc, and visualisation software to digitally recolour images to avoid sampling.

The ability to visualise colour on calibrated screens gives a massive leg-up to those who are nervous of instrumental colour measurement and, quite simply, there's very little excuse for routinely posting lab dyes and samples around the world.

It is worth remembering that sample dyeing typically accounts for around 10% of production volume and 20% of water and energy impacts

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The culture of a swatch in an envelope still pervades. It's madness

of a fashion dyehouse – some samples will be needed but dithering designers do need to embrace this technology.

Hot technology

And, about overall water and energy impacts I did predict in my last article that this would be the 'utilities ITMA'. And visitors could see a few effluent treatment and water recycling companies entering the centre of the ITMA show, as well as a few boilers on display and optional heat recovery solutions embedded into a lot of the heaters, dryers and stenters. However, it was largely 'business as usual' from very talented, very humble, understated utility engineers who probably remain more important than production machinery engineers in our fight to tackle greenhouse gas emissions – with one notable exception.

The highlight of ITMA, in my opinion, was a heat recovery system by Italian engineers Pozzi.

Anyone with a scientific qualification will know about the first law of thermodynamics which states that energy cannot be created or destroyed but merely converted from one form to another.

Heat pumps don't break this unbreakable law – but they appear to. They capture energy from large volumes of warm things and concentrate it so you have a smaller volume of hot stuff – and it can appear that they are magic because you use one unit of electricity to

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Typically, hot process water from textile machines is dumped into the effluent treatment plant

'create' say three units of heat in a typical household situation (referred to as a Coefficient of Performance or a COP of three, in this instance).

Typically, hot process water from textile machines is dumped into the effluent treatment plant and the cumulative amount of useful heat energy poured out of wet processing facilities is nothing short of shameful.

Pozzi has simply linked a heat pump to a clever effluent heat exchanger. The heat exchanger captures heat from the effluent into clean process water, handily cooling the effluent in the process (making it much less likely to be a thermal pollutant), and the heat pump then concentrates the heat to produce hot water – with an almost unbelievable COP of 11.

The energy savings are huge, the payback is around seven months and it's a genius move.

With this innovation alone, for me, ITMA 2023 delivered. ■

Eye in the sky

The Global Organic Textile Standard (GOTS) is looking to the stars for a new project to monitor organic cotton fraud by satellite



The latest attempt to overcome the long-standing challenge of eradicating fraud from organic cotton production sounds like something from the pages of a science fiction novel.

GOTS has teamed up with the European Space Agency (ESA) and artificial intelligence (AI) experts Marple in a bid to detect from space whether cotton fields on Earth are being farmed by organic practices.

The pilot project, expected to produce its first results by the end of the year, will initially train AI to use ESA satellite data to detect cotton fields across India and automatically classify them according to how they are being cultivated.

GOTS will then use this information to highlight the extent of organic cotton fraud, develop advanced risk assessment technology, and try to prevent fraud

from the beginning of the supply chain.

Jeffrey Thimm, project manager at GOTS, explained that the satellite would take a series of multi-spectral images of cotton fields over time to analyse factors, such as vegetation levels and soil quality, to determine whether or not a crop was being grown organically.

"The algorithm might say that one particular index is different for organic fields in one region. In another region, it might be a different index. We're allowing AI to figure out that difference," he told *Ecotextile News*.

"For example, spraying in itself would not be detected from space. But the impact of spraying, and what is being sprayed, will show up in the images.

"So, organic fertiliser is a slower release in which the plant grows a little bit slower but more robustly, compared

to a mineral fertiliser where it grows really fast and puts up a lot of foliage. The plants behave differently.

"And that's where we'll see a difference between organic or synthetic fertilisers, as well as organic and synthetic pesticides. Because they have a significantly different impact on the biodiversity of the farm.

"From a satellite, I'm not sure if we could see it with our eyes. But definitely the algorithms would be able to detect those subtle differences."

Whenever the AI-powered algorithm detects something seemingly amiss, it would raise a red flag for human certifiers to investigate on the ground.

"The algorithm is a tool, it's not the defining judge," Thimm said. "It can say this farm appears to be doing something wrong, or it appears to not fit the pattern of what we consider organic.

"The investigations are key because sometimes it's not intentional. More often than not, the contamination we see in organic cotton is unintended contamination from GMO fields nearby.

"One of the hopes that I have for this technology is that we'll be able to identify risks. So, you might have 1,000 farmers growing organic cotton and smack dab in the middle, there's a GMO field.

"So then we could say, well, how can we remove this risk? By giving an incentive to this farmer to join the group, or be aware that all of these farmers are at risk of losing their livelihoods."

German software firm Marple previously developed

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**Spraying in
itself would
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Jeffrey Thimm, GOTS

the CoCuRA (Cotton Cultivation Remote Assessment) software with ESA and successfully piloted it in a 2021 feasibility project in Uzbekistan.

That venture showed how trained AI was able to accurately differentiate cotton fields from other crops using only satellite images and sensor data, as well as whether the cotton fields were cultivated organically with 98% accuracy.

It is expected that through the collaboration with GOTS, Marple's AI will be able to distinguish fields according to multiple cultivation standards in India, and even more accurately.

"The challenge is that India is very different from Uzbekistan, both in terms of climate and also farming style. The farms in Uzbekistan tend to be quite large, whereas in India farms are small and fields are even smaller," Thimm said.

The satellite data is also expected to enable GOTS to recognise cotton fields that have not yet obtained organic certification but possess the potential for a seamless transition, thanks to their use of traditional farming practices.

"Many cotton farmers in India are growing naturally and that might be a challenge for the algorithm but it's great for us – because we would then be able to take those into the sector," he said.

Thimm explained that the project was being co-financed by GOTS and ESA, and would not have cost implications for GOTS customers.

"Of course, we are still developing the technology and how it's used in the

I'm not sure if we could see it with our eyes. But definitely the algorithms would be able to detect those subtle differences

Jeffrey Thimm, GOTS

▼ Satellite image of cotton fields in Uzbekistan remotely detected using Marple's CoCuRA technology in 2022.



National security risk?

Claims about the potential national security implications of monitoring cotton crops by satellite have been labelled as "false" by GOTS.

The scheme has been the subject of speculation in the Indian media regarding whether it poses a risk to sensitive data.

GOTS has been robust in its rebuttal of these claims, although the organisation welcomed "constructive dialogue" to allay any misunderstandings.

"Information that the project may contain sensitive data for National Security of India is false," a GOTS spokesperson told us.

"All data collected is limited to the necessary information and handled in accordance with General Data Protection Regulation (GDPR) requirements."

The spokesperson said data for the project would come from two polar-orbiting Sentinel-2 satellites included in the European Space Agency's Copernicus Programme.

Dr Peter Haschberger, acting co-director of the EMF German Aerospace Center's Remote Sensing Technology Institute, said: "This data is publicly available through the Copernicus Open Access Hub, an online platform that provides free and open access to a wide range of Earth observation data and satellite imagery collected by the European Union's Copernicus programme."

"This data includes optical and radar imagery, land cover maps, climate data, and more. Its primary purpose is to support applications such as environmental monitoring, climate research, disaster management, and urban planning."

future is another question," he added. "But we have a very strong commitment to making sure that sustainability and traceability do not cost more."

The project is seen by GOTS, whose oversight of the cotton supply chain currently starts with the ginning process, as a new

development to improve the traceability and increase the integrity of fibre production in the field.

However, Thimm added: "GOTS has no intention of taking over organic farm certification which is already well established. We don't want to reinvent the wheel." ■



Simon Ferrigno
Correspondent,
Cotton & agriculture

Cotton Horizons

Uptake is not enough. Regenerative words, edited gene rules, and hope in Burkina Faso

We had hoped to bring some interviews with farmers involved in regenerative trials this time, but they're delayed. Instead, regen scepticism is back on the agenda after agricultural chemicals giant Bayer defined its products, which are part of much cotton production, as "regenerative".

We are pleased to review Pesticide Action Network UK (PAN UK) and Solidaridad's new cotton ranking, which is moving the debate on sustainable cotton uptake into new territory, including on living income. This is important as we move into the due diligence era.

And in Burkina Faso, locally sourced 'tree shirts' are heading for Switzerland. It's a small step, but a welcome one in a region threatened by instability, where it sometimes seems as if the ground has been abandoned to the Wagner group and Islamic terrorists.

Meanwhile, the European Union (EU) is proposing to update its rules on GMOs to treat gene editing differently to other transgenic methods. Part of the EU's Green Deal, the proposals include regulations on soil monitoring, "diverse and sustainable plant and forest reproductive materials" (a fancy way of talking about seeds) and reducing textiles waste.

This is good, but we must bear in mind that the main issue with technology is not what it is, but what is done with it. Focusing GMO research primarily on pest and herbicide resistance led to problems with pest resistance and superweeds. Will gene editing research be any different? That remains to be seen.

Cotton and corporate responsibility: NGOs talk tough

PAN UK and Solidaridad have been tracking the uptake of sustainable cotton since 2016, and recently launched their

latest ranking and report. It departs from previous editions in making demands beyond increasing uptake, according to Rajan Bhopal, PAN UK's international project manager for supply chains, who told us this years' cotton ranking represented a focal shift from "policies to action". Decathlon and H&M top the list for now, with 100% sustainable cotton use coming from BCI, organic and recycled. But, the report says nine companies are "doing the bare minimum, and 89% of companies are non-transparent".

How very undiligent of them - and due diligence underscores the key messages of PAN UK and Solidaridad's 'Cotton and Corporate Responsibility' report, which urges brands and retailers to "change their relationship with cotton farmers and their value chains", or risk "irreversible" damage to livelihoods and the environment. After years of looking to encourage uptake of certified and verified cottons, the NGOs want brands to do more, in sourcing and tracing what they do, and paying and supporting farmers better.

The report, the first in a series, is published on a new Sustainable Cotton Hub¹ which seeks to "lay out the sustainability challenges in cotton production", with more papers planned on problems such as "impacts of hazardous agrochemicals, the realities of labour in cotton and textiles, the projected water risks for cotton growing regions, and the persistent issue of poverty in the supply chain".

Climate change is a major focus, and so are smallholder farmers, as the report notes that unsupported small farmers will struggle to adapt to climate change fast enough to ensure cotton production.

They warn: "Some companies might think that

¹ <https://sustainablecottonhub.org/cotton-papers>

disengaging with cotton is the easiest choice, which would be a mistake. The main alternative to cotton, cheap plastic fibres, will only deprive poorer communities of income and worsen our impact on our planet. Supporting smallholder farmers to adapt to grow cotton in a sustainable, regenerative way, while earning a living income, is the responsible course of action for companies."

Bhopal said information on farmer investment was still lacking, hence the move away from certification to broader conversations about sustainability and due diligence. The root of all problems is poverty, he continues: "Companies should understand harms and risks in cotton sourcing and address hidden risks." The partners want companies to be scrutinised, and not - as apparently some lobbies have proposed - for membership of a multi-stakeholder initiative to be considered equivalent to due diligence in supply chains.

Tamar Hoek, Solidaridad's senior policy director, sustainable fashion, says companies have been asking what to do next. She says "buying certified cotton is not enough" and that companies need to look at "the full value chain, business model, your behaviour, your purchasing practices, how you source, the countries you source from" and eventually work with cotton farmers to improve their livelihoods.

The report also targets "price ... unequal power and value distribution", as well as training quality, which brands will be asked to contribute towards. Equal partnerships are mooted, using a tool called the Common Framework for Responsible Purchasing Practices (CFRPP) which focuses on buyers and sellers being treated as "equal business partners" with "a shared responsibility to improve working conditions".

And while the report sees value in certification, they want brands to go beyond, saying "certifications and standards have their limitations, including lack of demand, high implementation costs, limited impact assessments or mixed impact results, insufficient funding, variable quality of auditing, impaired credibility due to impact and

assurance issues, and growing consumer confusion around labels and what they mean".

Hoek says companies are worried about due diligence, but many misunderstand it, thinking it will stop at tier 1.

The report has recommendations, she says, including for brands to do full value chain risk analysis, and for traders to follow good business practices. Another is to establish farm funds, not just to spend through sector initiatives, but also directly, including on climate change mitigation and agroecology.

And they want more emphasis on a living income for cotton farmers and workers. This means brands will have to establish the relationships needed for meaningful due diligence, and eventually be asked to show proof on wages and living incomes.

Hoek says BCI is already working with IDH - the Sustainable Trade Initiative on living income benchmarks² for farms and farm workers. Solidaridad will push for this to be done quickly, to avoid a "10 year discussion" with no agreement. A webinar took place in June 2023, she says.

Can this be done without raising costs? Hoek points (see graph 1) to the real value distribution in garment costs. She adds there will be lessons from cocoa, where they are looking at what chocolate brand Tony's has done using the open chain sourcing principle³ to develop a living income benchmark price for cotton, as well as palm oil and soy (see graph 2).

In the end, they want "business model transformation", they say.

Traceable tees from Burkina Faso

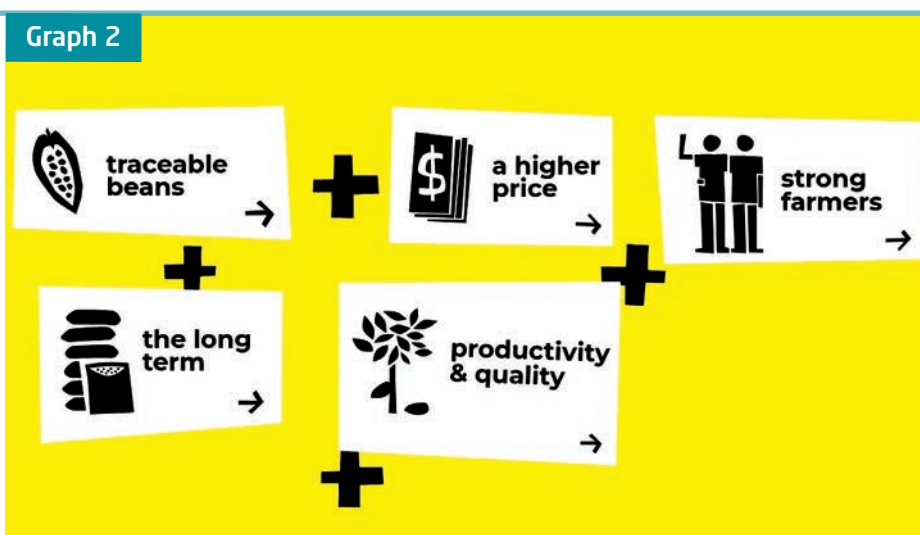
In the midst of conflict and instability, a ray of hope from Burkina Faso: the first shipment of 100% locally made **1**

² <https://www.idhsustainabletrade.com/roadmap-on-living-income/>

³ <https://www.tonysopenchain.com/>



Source: 2023 cotton ranking by PAN UK and Solidaridad



Source: Tony's website <https://www.tonysopenchain.com/>



organic cotton t-shirts, the culmination of a project to link a local value chain that meets Swiss standards.

'Traceable TreeShirt⁴' is a crowdfunded project⁵ using Burkina Faso organic cotton, involving four Swiss companies (Ecos, Nikin, Haelixa and Gebana).

The samples shipped in April, and passed muster, allowing products to be shipped. Tobias Meier, green team senior project manager at Ecos, told us that development had taken two years, beginning with Filsah, the local spinner, investing in improving its yarn, and Cotexia importing new machinery to make collars.

In May, t-shirt orders reached 950, on their way to a target of 2,000, with a total of three tonnes of cotton marked by Haelixa, which provides DNA traceability and QR codes, which feed into the [traceabletreeshirt.com](https://www.traceabletreeshirt.com) website. The remaining 2.5 tonnes of cotton are ready for follow up projects, with a target to spin 30 tonnes in summer 2023.

Local processing is handled by the 17-member Coalition de la transformation locale du coton bio du Burkina Faso, founded in December 2022. The 'Rendez Vous du Coton

Bio' event in November and the SICOT cotton and textiles conference, in January will act as shop windows.

Long term, the goal is to help West Africa process 5% of its cotton locally, says Meier.

While it is hard to compete with Asian products on cost, the t-shirts are competitive against products from Greece, he adds, and the goal is to fill a niche for smaller volume products made closer to Europe.

Meier says African Union developments are making shipping easier, but that logistics, and trust, still have to improve.

Regen watch. Bayer, really?

Agrochemical manufacturer Bayer wants to be the leading player in regenerative agriculture, and to save the Monarch butterfly⁶ – long threatened by GMOs, according to activists.

The company says "the journey toward regenerative agriculture has already begun". By which it means that Bayer is rebranding existing tools as "regenerative", which of course is not dissimilar to how other advocates of the word are rebranding integrated pest management (IPM) and agroecology. Caution would be advised for those tempted into investing without checking.

Bayer's 2023 Innovation Summit⁷ identified "growth potential in segments like crop fertility, biologicals, biofuels, carbon farming, precision application services as well as digital platforms and marketplaces, all of which are serving the needs of agriculture⁸". Apparently, it wants to "shape" regenerative.

Years ago, agrochemical companies defined sustainable agriculture as anything that was profitable. How much has changed? Bayer defines regenerative farming as "increasing food production, farm incomes and resilience in a changing climate while renewing nature", with a view to "explore new market opportunities to further allow farmers to combine productivity, profitability, and sustainability benefits".

How natural will "renewed nature" be? Especially when coupled with digital tools that lock farmers to the company and to its carbon markets⁹.

Bayer may well have tools to contribute to sustainable agriculture. However, ownership of what regenerative is should not be up for co-option. Outcomes is what we seek. Not plays on words, or marketing, or more standards or certificates.

⁴ <https://cotton-coalition.com/traceable-treeshirts-a-pioneering-project-to-strengthen-local-value-creation-and-transparent-supply-chains/>

⁵ <https://www.gebana.com/projects/ch/project/timeline/53?lang=en>

⁶ <https://twitter.com/GMWatch/status/1669646856618491909>

⁷ <https://www.bayer.com/en/agriculture/bayer-innovation>

⁸ <https://www.bayer.com/media/en-us/bayer-sees-more-than-doubling-of-accessible-markets-and-potential-to-shape-regenerative-agriculture-on-more-than-400-million-acres/>

⁹ <https://www.bayer.com/media/en-us/bayer-sees-more-than-doubling-of-accessible-markets-and-potential-to-shape-regenerative-agriculture-on-more-than-400-million-acres/>

Talking of outcomes – Textile Exchange has announced their regenerative outcomes just as we close this column – so no in-depth review, but a welcome for the recognition that local factors are critical¹⁰.

Pesticides – leaching into our waters, ‘regenerating’ our climate?

Two reports take a slightly more critical look at pesticides than loading them onto the ‘regenerative’ bandwagon. PAN UK has released a report on pesticides and climate change, while researchers from University of Sydney and the Food and Agriculture Organization of the United Nations (FAO) have shown how pesticides leach into environment.

The latter study, published in Nature¹¹, shows how, of three million tonnes of pesticides used every year, 70,000 leach into aquifers. The authors say the “cascade of molecules” can “persist”, and be just as harmful as the original, pointing to glyphosate, which, “although it is highly degradable, breaks down into a molecule known as AMPA that is both highly persistent and toxic”, according to report lead author Federico Maggi. Herbicides overall were the most prevalent pesticide residue in land and rivers. And pretty much everything that leaches makes it way to the oceans. The authors warn that not all pesticides were included in the analysis, including “legacy pesticides and those used in aquaculture, private dwellings and public spaces”, so the risk to people and ecosystems is probably higher.

They also threaten the climate. PAN UK’s report, ‘Pesticides and the Climate Crisis’, produced with PAN North America (whose own pesticides and climate report we covered earlier this year) and the Pesticide Collaboration, points to pesticides contributing to emissions, even as they make “agricultural systems more vulnerable to the effects of climate change” – and 99% of them, they say, come from fossil fuels. And while “manufacture of one kilogram of pesticide requires, on average, about 10 times more energy than one kilogram of nitrogen fertiliser”, pesticide companies own self-reported CO₂ equivalent emissions are also high.

Global pesticide use emissions	CO ₂ produced
Herbicides	Between 18.22 and 26.63 kg CO ₂ e per kg of product produced
Glyphosate	31.29 kg CO ₂ e* per kg
Insecticides	14.79 to 18.91 kg CO ₂ e per
kgFungicides	11.94 to 29.19 kg CO ₂ e per kg
* Production of glyphosate requires enough energy to power 6.25 million cars for a year. Table made using PAN UK report figures.	

Syngenta’s were 9.8 million tonnes of CO₂e in 2021, while Bayer’s Crop Science Division’s were 2.7 million tonnes of CO₂e in 2021. Emissions also occur post-application, with “fumigant pesticides shown to increase nitrous oxide production in soils seven to eight-fold”.

The report also suggests that climate change, by further destabilising ecosystems, is going to increase demand for pesticides. Pest pressures will grow, populations will move, beneficial insects will decline, crops will be less resilient, weeds will increase, and so will diseases. And certain ‘climate-smart’ practices will increase weed resistance to herbicides, they say. The authors also warn that “precision agriculture is often expensive, only available to a very limited number of farmers or areas and maintains a system dependent upon chemical and energy-intensive technologies and materials”.

However, organic solutions suffer from an over-reliance on voluntary initiatives, and a lack of public investment in research and development.

Gene editing

If gene editing regulations may be loosened in the EU, opponents are not going quietly. They raise concerns over limitations on seed sharing and diversity, including heritage varieties. Arc2020, a campaign group, warns that, under current draft plans, seed users “are only allowed to exchange their own seeds in small quantities and under certain conditions. Selling is no longer possible. Public gene banks, private collections and seed initiatives are also no longer allowed to give their seeds to farmers¹²”. This could be a constraint on cotton farmers if the law becomes a global benchmark, limiting access to seed banks to find varieties with, for example, natural pest or disease resistance as part of organic breeding programmes.

The draft law targets both mutagenesis (induced mutations using radiation or chemicals) and cisgenesis (modification of a gene within and organism – gene editing).

Gene-edited crops were initially classified as GMOs following a European Court of Justice ruling in 2018. A survey shows one third of respondents think risk assessments should be based on “the characteristics and risk profile of a plant”, and want transparency to be ensured by labels on final products¹³.

ARC adds that some 50 organisations are opposing the deregulations, and have petitioned the European Commission to demand they remain regulated and labelled as at present. ●

¹⁰<https://textileexchange.org/knowledge-center/reports/regenerative-agriculture-outcome-framework/>

¹¹<https://www.nature.com/articles/s41586-023-06296-x/>

¹²<https://www.arc2020.eu/eu-seed-law-reform-and-new-genetic-engineering-double-attack-on-our-seeds/>

¹³<https://www.europarl.europa.eu/legislative-train/carriage/plants-produced-by-certain-new-genomic-techniques/report?sid=7101>

Pulp friction

The world's largest producer of viscose fibre has been accused of "hidden links" to deforestation

Simon Glover reports

Viscose giant Royal Golden Eagle (RGE) has been accused of being linked to deforestation in its supply chain and to a huge new pulp plant in Indonesia which environmentalists say could threaten tropical rainforests.

The claims were made in the 'Pulping Borneo' report co-published by NGOs Greenpeace International, Yayasan Auriga Nusantara, Environmental Paper Network, Rainforest Action Network and Woods & Wayside International.

The authors claim that evidence including satellite imagery, shipment-level trade data, vessel tracking reports and supplier disclosure data shows that RGE has "deforestation in its pulp supply chain", despite the company's public sustainability commitments.

RGE produces viscose through subsidiaries Sateri and Asia Pacific Rayon, and also pulp, paper and packaging through Asia Pacific Resources International Limited (APRIL) in Indonesia, Asia Symbol in China, and Bracell in Brazil.

The report claims that RGE has "hidden links" to other companies which are accused of deforestation including PT Phoenix Resources International, the reported owner of a new "mega-scale" pulp mill

being built in Kalimantan, the Indonesian part of the island of Borneo.

Meanwhile, APRIL is reportedly increasing the capacity of its existing flagship pulp and paper mill in central Sumatra by more than 50%, the report claims.

"So far, APRIL has not adequately explained how it will increase pulpwood production to meet the additional wood fibre demand without driving further deforestation and conversion of natural forests and peatlands to pulpwood plantations," it says.

And the report claims that RGE's pulp mill in China has been using wood from companies that recently cleared large tracts of tropical rainforest in Kalimantan, Indonesia's territory on the island of Borneo where it was a habitat for orangutans.

Syahrul Fitra, senior forest campaigner for Greenpeace Indonesia, told *Ecotextile News* that the report's findings showed clear links between RGE and deforestation.

“Despite the group’s sustainability commitments, it is linked to forest clearing

Syahrul Fitra, senior forest campaigner, Greenpeace Indonesia

▼ Deforestation in PT Industrial Forest Plantation's concession area.



“Despite the group’s sustainability commitments, it is linked to forest clearing. It was important for us to make that connection public and we want the company to use its resources to launch an inquiry into our findings,” he said.

RGE subsequently issued a statement in which it “categorically refutes the overall premise of the report” and insists that “no such association, influence or control exists in relation to the two entities mentioned in the EPN report”.

“It is not therefore possible or appropriate for RGE to comment on matters related to those parties and unrelated to RGE,” said the statement.

But Nicole Rycroft, founder and executive director of the Canopy NGO which works to protect ancient and endangered forests, commented: “This isn’t the first exposé linking RGE-owned companies to deforestation to be published in the past couple of years.

“The days of viscose originating from high-carbon and biodiverse forests need to be firmly behind us and our experience is that market tolerance for controversy and potential supply risk is waning quickly. Reports like ‘Pulping Borneo’ underscore the imperative to accelerate the transition to low-carbon circular ‘next gen’ solutions.

“We will be unpacking these allegations in more detail with RGE, Sateri and APR as we work with them on their 2023 Hot Button profile over the coming months as well as with the NGOs who authored the report.” ■

Natural solution

A new report maps out how the fashion and textiles industry can implement the first science-based targets for nature



With more than 60 brands including H&M, Kering and LVMH among its first signatories, the Science Based Targets Network (SBTN) hopes its science-based targets for nature will become a global standard for corporate action.

The coalition of nearly 50 environmental organisations recently issued a new report at the Global Fashion Summit in Copenhagen which it hopes will serve as a primer for its ambitions to inspire projects across freshwater, land, ocean, biodiversity and climate.

Written by experts from the University of Cambridge Institute for Sustainability Leadership (CISL), the Fashion Pact and Conservation International, it aims to kickstart a two-year project, Transforming the Fashion Sector With Nature, funded by the Global Environment Facility (GEF) fund.

The report includes an introduction to the science-based targets for nature, an illustrative case study with guidance to show how targets are calculated and

set, and **actions companies can take now** to address nature loss.

The methods to set science-based targets for nature build upon the work of the Science-Based Targets initiative (SBTi) which has helped more than 2,600 companies set science-based targets to mitigate climate change.

Eliot Whittington, chief systems change officer at CISL, explained: “This primer offers the fashion sector clear guidance on what it needs to do – an essential tool for one of the industries most reliant on and engaged with natural systems.

“We hope this paves the way for a transformation of the fashion, textiles and apparel industry and that other sectors will swiftly follow suit.”

Helena Helmersson, CEO of H&M and co-chair of The Fashion Pact, commented: “Thanks to the SBTN programme, companies now have the chance of aligning biodiversity strategies with the latest available science and guidelines.

“As part of the pilot, we will continue providing industry-wide input to the development of the SBTN

These include:

- understanding impacts by determining where they occur
- understanding both the data and where the gaps exist
- starting to trace raw materials back to their source
- becoming part of collaborative actions to address nature loss

guidance to reduce the impact of our entire sector, and we hope this work will inspire many others to follow.”

Eva von Alvensleben, executive director and secretary general of the Fashion Pact, added: “Understanding the industry’s environmental impacts and enabling businesses to take actionable and measurable strategies on nature are critical first steps to system change.”

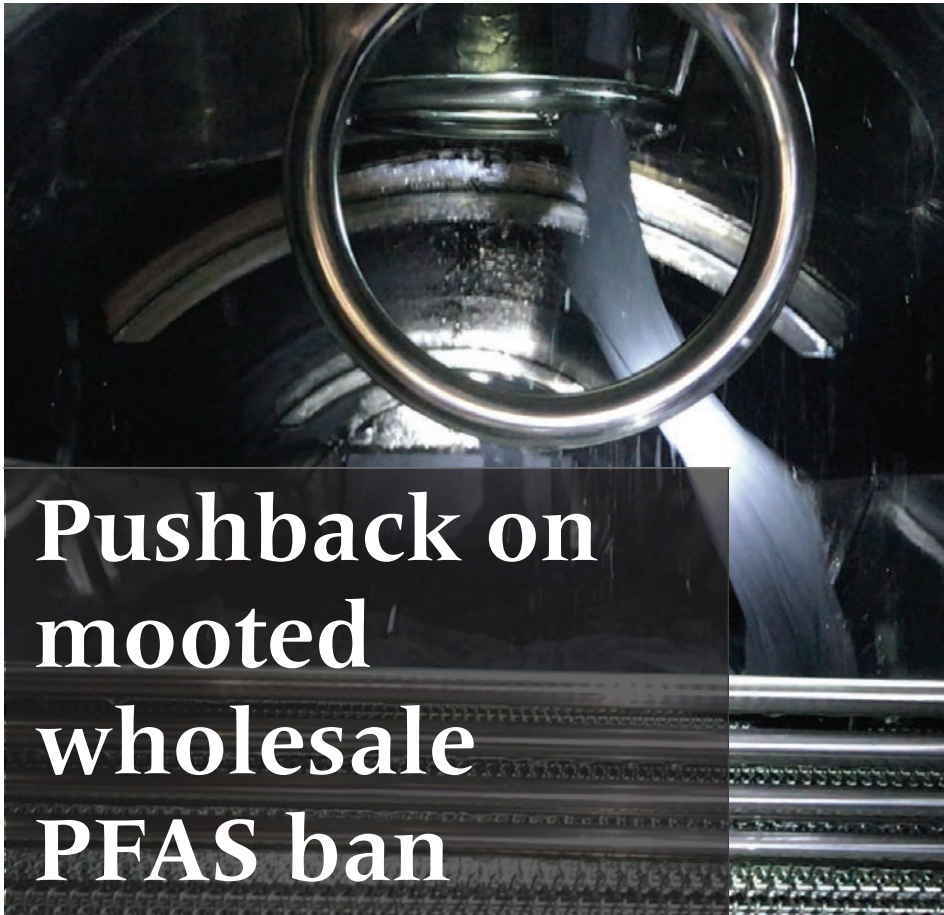
And Sebastian Troeng, executive vice president with Conservation International, said: “This report represents a major stride forward for fashion, offering companies a science-based roadmap for determining what they take from nature — and how they can give back.”

SBTN says its targets have been drawn up against a backdrop of scientific consensus which emphasised that limiting global warming to 1.5C could not be achieved without halting and reversing nature loss.

“We are in the midst of interconnected crises. We cannot limit global warming to 1.5C without addressing nature loss, and we cannot halt and reverse nature loss without a stable climate,” said Erin Billman, executive director of SBTN.

The guidance claims to draw on the best available science and includes collaboration with the Earth Commission on the upcoming Earth System Boundaries. It is also aligned with the goals of the Global Biodiversity Framework, Paris Agreement and UN Sustainable Development Goals.





Pushback on mooted wholesale PFAS ban

The proposed widespread ban on PFAS chemistry as part of the EU Green Deal is facing serious push-back from some industries – including the textile technology sector – on the basis that it could scupper the overall environmental goals of the European Commission

▲ Many of the latest low liquor ratio jet dyeing machines use PFAS components inside to help give huge savings in water, energy and chemicals.

So, for example, if a textile weighing 1 kg is to be dyed at a liquor ratio of 1:5, the volume of water required to dye it successfully would be 5 litres to ensure level shades.

At the recent ITMA in Milan, textile dyeing machine suppliers were touting the environmental credentials of their latest resource saving **low-liquor ratio** dyeing technology, where the latest machines can now dye fabrics at ultra-low ratios between the amount of water used and the weight of the fabric being dyed.

To get down to ultra-low liquor ratios of 1:2 that can save huge amounts of water, energy, steam, and chemicals during dyeing – many technology providers use PTFE coatings on sheets and components inside their machines – and fear this fluoropolymer could be outlawed at a stroke under new EU proposals.

“Our textile dyeing machines are world leaders and set standards in efficiency and sustainability,” noted Verena Thies, managing shareholder at German dyeing machine supplier Thies GmbH & Co. “They work under pressure at temperatures of up to

Countering these suggestions by the industry, the NGO ChemSec says that any fluoropolymer is no different from any other PFAS. “Every substance in this diverse group shares a common denominator – extreme persistency – which is the leading cause of concern. Due to the strong molecular bonds between fluor and carbon atoms, all PFAS, including fluoropolymers, shares this persistency.”

It also says PFAS is not safe to use because it’s assumed they are always used as intended (for example, nobody would overheat a Teflon frying pan). And even if the use phase would be unproblematic, ChemSec says that manufacturing fluoropolymers causes serious emissions of PFAS compounds: “Many places with the highest PFAS contamination are close to fluoropolymer manufacturing sites,” and it notes that incineration of fluoropolymers is also a grave concern.

“Vague promises have been made that the issues with both emissions from manufacturing and waste will be solved ‘in the future’. However, considering all the uncontrollable aspects, this is not realistic,” says ChemSec. “We recommend placing these innovation efforts and resources into developing safer alternatives instead.”

Some think the reason for the new proposals could be that the European Chemical Agency is sending out a huge warning to the industry so that end users can get a crystal-clear view on where and how fluoro-products are used, and it’s caught the attention of many other sectors too such as the semiconductor, aerospace, automotive, food and chemicals industries.

Phil Patterson concludes that the political battle by PFAS users and producers is all but lost – along with the scientific justification for their continued use. But he says, “We must be very, very wary of regrettable substitutions. Accelerating climate change to stop low levels of persistent chemicals entering the environment may not be the least bad option. We live in an imperfect world.”

140° C using highly acidic, highly basic and/or oxidative or even reductive chemicals. This is precisely why PFAS is needed, for example, in seals and rings, flaps as well as valves for long-lasting and high-quality machines – because there are no alternatives with qualitatively equivalent properties. In addition, PTFE semi-finished products enable a sliding and gentle contact with the textile fabric in ecologically important techniques in the transformation of textile wet finishing.”

PTFE components inside dyeing machines allow high friction, damp fabrics, to slide around jet machines ready to be pulled up by a winch in the absence of a bath of water.

“They save huge amounts of water, energy, and chemicals. The alternative is to go back to the days of 7 or 10:1 liquor ratios where fabrics ‘swim’ to the front of a machine,” notes our dyeing correspondent, Phil Patterson.

It’s feared that by outlawing the use of PFAS on these machines would negate any carbon footprint and water savings provided by new technology so that textile dyehouses – and by extension their retail and brand customers – could miss publicly stated environmental targets the EU Green Deal promotes.

“The EU Commission’s planned ban on more than 10,000 chemical substances of the PFAS group is setting off all the alarm bells in the SME-dominated mechanical and plant

The debate at ITMA around this ban was kickstarted on 7th February 2023, when the proposed new restriction was published by ECHA, seeking a ban on both the use and production of PFAS, with the European Commission looking to draft a definitive proposal for a member state vote. Any ban would enter into force in 2025, following the ongoing consultation process and a subsequent vote.

But for some in the industry, the problem with this ‘one-size-fits-all’ approach is that these substances differ considerably from one another in terms of their risk profiles, environmental impact, end-use applications, and their added socio-economic value. “Attempting to regulate substances in such a broad and general manner is like considering all hydrocarbons – from gasoline to olive oil – the same,” notes Gerardo Familiar, president of advanced performance materials at the Chemours Company, which makes PFAS compounds. “Critically, the proposal is based on existing technologies and risks blocking new innovation from happening in the future, when we will need it most.”

engineering sector,” said Sarah Brückner of the influential VDMA, which represents 3,600 German and European machinery and equipment manufacturing companies. Instead the VDMA calls for a ‘strict risk-based’ approach to regulation.

“In some cases, we would be thrown back to the development level of 1950 with the alternative materials currently available,” she said.

Proposals

The proposal to restrict PFAS – with a few derogations for essential use – is an enormous undertaking given the vast number of compounds involved, with estimates from the National Institute of Health in the USA saying it includes anything between 4,700 to 6 million unique chemical structures, so to propose a ban for so many substances all at once is truly exceptional. ■

Summary of the restriction proposal

Per- and polyfluoroalkyl substances (PFASs) defined as: Any substance that contains at least one fully fluorinated methyl (CF₃-) or methylene (-CF₂-) carbon atom (without any H/Cl/Br/I attached to it).

Conditions of restriction:

- ① Shall not be manufactured, used or placed on the market as substances on their own;
- ② Shall not be placed on the market in:
 - another substance, as a constituent;
 - a mixture,
 - an article

in a concentration of or above:

- 25 ppb for any PFAS as measured with targeted PFAS analysis (polymeric PFASs excluded from quantification)
 - 250 ppb for the sum of PFASs measured as sum of targeted PFAS analysis, optionally with prior degradation of precursors (polymeric PFASs excluded from quantification)
 - 50 ppm for PFASs (polymeric PFASs included). If total fluorine exceeds 50 mg F/kg the manufacturer, importer or downstream user shall upon request provide to the enforcement authorities a proof for the fluorine measured as content of either PFASs or non-PFASs.
- ③ Paragraphs 1 and 2 shall apply 18 months from entry into force of the restriction.

Summary from Eurofins

Coalition calls for more time on EPR bill

SACRAMENTO – An alliance of brands, retailers and textile recycling advocates have called for more time to work on legislation to introduce an extended producer responsibility (EPR) textile recycling and repair programme in California. Bill SB 707 would require producers of clothing and other textiles to implement and fund a state-wide collection and recycling programme for textiles. The American Apparel & Footwear Association (AAFA), American Circular Textiles (ACT) and Accelerating Circularity have now written a joint letter to the state assembly asking for it to be made a two-year bill.

It argued that extra time would allow stakeholders to learn from both California's own pilot textiles EPR programme, passed last year, as well as the European Union's EPR proposals. "We understand that there are further amendments forthcoming, but at this point, there is not enough time left in the legislative calendar to meaningfully address all the concerns we have either collectively or individually raised," the letter says.

The bill was passed by the senate in May and only needs the assembly's backing before it goes to state governor Gavin Newsom.

Puma commits to sustainable leather sourcing

HERZOGENAURACH – Sportswear giant Puma has committed to sourcing all of its bovine leather from verified deforestation-free supply chains by 2030 or earlier.

The move follows Puma's recent decision to join the Deforestation-Free Call to Action for Leather programme which, launched by global non-profits Textile Exchange and Leather Working Group, aims to create equitable, transparent and deforestation-free leather supply chains.

The cross-sector initiative is aimed at galvanising action from brands to end the deforestation and conversion of natural ecosystems linked to leather sourcing. In doing so, it hopes to protect wildlife habitat and biodiversity, preserve carbon stocks to mitigate climate change, and protect human rights.

According to Puma, all of the leather that it currently sources is from Leather Working Group certified tanneries which ensures that its products come

from manufacturers who are working to implement industry good practice standards of environmental management and traceability.

However, half of the leather used at Puma is suede, a byproduct of the full grain leather business. This raises concerns as most suede tanneries work with agents and intermediaries, as well as directly with tanneries, to guarantee a stable supply, which creates a challenge to have full traceability at cattle ranch level.

Worldly appoints Scott Raskin as new CEO

SAN FRANCISCO – Technology company Worldly, formerly Higg, has appointed Scott Raskin as its new CEO with immediate effect, while former CEO Jason Kibbey takes up a new position as the company's founder and president, based in Paris.

Raskin, formerly president at consumer goods digital marketing platform Quotient Technology, joins Worldly - the technology partner of the Sustainable Apparel Coalition (SAC) - less than two months after it relaunched under its new name. Worldly runs the Higg Index suite of tools for the SAC is now also developing its own tools, starting with its Factory Data

Wordly is also developing its own tools, starting with its Factory Data Solution.



Solution which aims to capture closer to real-time data from factories across the supply chain. "Joining the Worldly team at this pivotal time for both the company and our planet is genuinely exciting for me," commented Raskin on his new post.

"I eagerly anticipate my collaboration with the board and executive team to solidify and expand Worldly's robust market standing in the forthcoming chapter, ensuring we provide unparalleled

intelligence and insights to our customers promptly and on a global scale."

Jeff Tannenbaum, chairman of the board at Worldly, said: "Scott's strong leadership, extensive SaaS expertise and track record scaling businesses make him a perfect fit for Worldly's executive team and to lead the company to take the next big step in enabling businesses to improve their environmental and social impact more quickly."

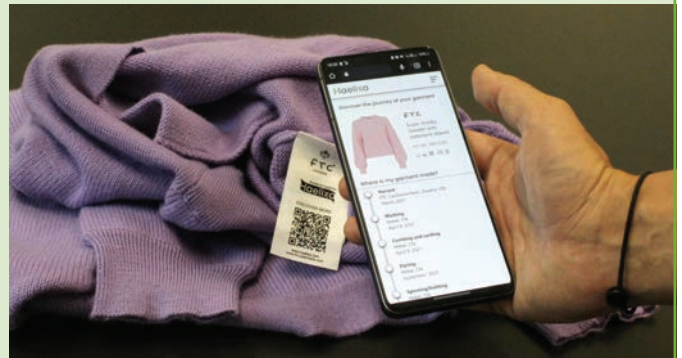
Physical Traceability for Minimizing Risk and Supporting Regulation

Physical traceability presents a possible solution to navigating new legislation around textiles, such as supply chain risk management, accountability, and fostering circular practices. The European Commission reports that over half of the “voluntary” green claims (53.3%¹) by brands were found to be vague, misleading, or lacking a proper justification, while 40%¹ were entirely unsubstantiated. As a result, consumer trust in brands has crashed, prompting the development of legislation to address these issues. Many European countries have already established their key objectives and have begun implementing diverse regulations to control claims in consumer goods and enforce due diligence practices.

To mitigate risks related to social and environmental issues, it is critical to ensure product-level information across the entire production process, from raw materials to finished products. An established way to trace products along the supply chain is by adding a DNA marking solution, like Haelixa’s patented technology. By performing forensic tests to detect the presence of the unique DNA markers corresponding to a specific location or raw material, companies can rely on objective data to uphold the identity of the materials throughout the supply chain, allowing them to reduce risk and optimize their sourcing operations.

Accountability is another key concern of the legislation. Companies are now required to disclose their suppliers and manufacturing processes. Value chain transparency enables regulators, non-governmental organizations (NGOs), and consumers to hold companies accountable for their actions. Physical traceability ensures product’s identity preservation, making it easier to identify responsible parties and allowing to take appropriate measures to address any violations or non-compliance.

The sourcing practices of brands and retailers have shifted, as they increasingly engage with suppliers beyond Tier 1. This change is encouraged by various governance offices that advocate for the adoption of responsible sourcing, which prioritize the acquisition of raw materials from ethical and environmentally conscious suppliers. For instance, the Uyghur Forced Labor Prevention Act (UFLPA) imposes restrictions on the entry into the United States of products made from raw materials, such as cotton, from specific regions with questionable labor practices into the borders of the United States. Within this context, physical traceability, like Haelixa’s DNA markers, are a critical tool in enforcing the legislation, since cotton can be blended or exchanged at any processing step. Haelixa’s solution offers security through a key-lock testing verification system, in order to test the DNA applied one must know for which sequence to screen. Each customer uses a unique marker that cannot be removed or tampered with after application. Through traceability, companies can effectively verify the origin and authenticity of their materials, thereby reducing the risk associated with sourcing from unsustainable or even illegal sources.



“Through transparency and accountability, we can build trust amongst stakeholders and support textile companies in their goals of being more ethically and environmentally conscious,” said Gediminas Mikutis, CTO and Co-Founder of Haelixa.

European legislation for textiles emphasizes a need to minimize risks, ensure accountability, and promote sustainability. The legislation drives positive change within the textile industry, making it more transparent, responsible, and environmentally friendly. By implementing the Haelixa DNA physical traceability solution, companies will be more sustainable in sourcing, utilizing eco-conscious materials, and contributing to the circular economy.

¹ Proposal for a Directive on green claims. (n.d.). Environment. https://environment.ec.europa.eu/publications/proposal-directive-green-claims_en

About Haelixa

Haelixa pioneers the development and commercialization of physical product traceability solutions to ensure full end-to-end supply-chain consumer goods traceability, focusing on sustainably manufactured products, such as organic or recycled textiles. Based on DNA markers, the Haelixa technology is physically applied to the material and remains embedded, providing a traceable physical fingerprint from producer to retail.

For more information, please visit
<https://www.haelixa.com>

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Report questions fashion's 'green credentials'

LONDON - Calls for retailers to work with their supply chain partners to improve traceability and environmental impacts are being made by think-tank Planet Tracker in its latest report. After analysing some 3,900 companies in the textile industry, the report, 'Following the thread', finds a "significant discrepancy between the distribution of negative environmental impacts and of capital within the supply chain". The think tank claims that while sales, profits and capital are evident within the the fashion brands and retailers, the majority of the negative environmental impact occurs in the supply chain. The most significant negative environmental impacts within the textile supply chain are seen at the fabric manufacturing stage. This finding is in line with the analysis presented in Planet Tracker's previous report, '*Dye Another Day*' which highlighted the large use of water and toxic chemicals at this stage in the manufacturing process. According to data provided by environmental sustainability consultancy, Quantis, there is very little impact associated with retail or post-sale. To move to a 'sustainable' industry fashion retailers and brands must "pivot to invest in their supply chain partners", the report says.

Lacoste accused of 'moral washing' over Russia

PARIS – Fashion brand Lacoste has been accused by the Moral Rating Agency (MRA) corporate watchdog of playing down its business interests in Russia following the military invasion of Ukraine.

In a statement to France's L'Express given in early June 2023, the fashion brand claimed that it had suspended shipments to Russia and didn't have any employees there.

The company said in the statement that it had

'disassociated itself' from Lacoste-branded products made in Russia, claiming they were handled under licence by independent partner Devanlay.

The implication of the statement, according to the MRA, was that Lacoste could not control Devanlay and should not be judged for its products being available in the country.

MRA is accusing the brand of 'double-talk' - claiming that Lacoste and Devanlay are both owned

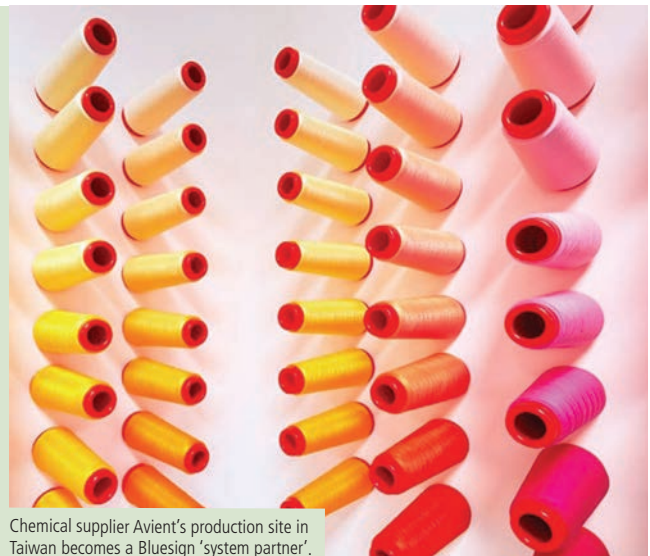
by the same operating group, MF Brands Group of Switzerland.

That meant that Lacoste's suggestion that the entity operating in Russia is independent is "far from an accurate and full disclosure of the facts", it claims.

MRA founder Mark Dixon said: "It is blatant moral-washing to suggest that Lacoste is not to blame for the Lacoste brand being available in Russia. The companies are part of the same group".

Avient doubles down on green chemistry

OHIO – Chemical supplier Avient has said that its production site in Taoyuan, Taiwan, is now among the first providers of dope-dyeing solutions to become a Bluesign 'system partner' and it has also been certified to version 4.0 of the Global Recycled Standard. Becoming a Bluesign system partner means that all the chemistry supplied by Avient for dope-dyeing now meets the stringent bluesign criteria in terms of approved chemical products and raw materials used in all steps of the manufacturing process. It also means these products automatically conform to level 3 of the ZDHC (Zero Discharge of Hazardous Chemicals) MRSL (manufacturing



Chemical supplier Avient's production site in Taiwan becomes a Bluesign 'system partner'.

restricted substance lists) for relevant products made at the Taoyuan site.

Avient says that its dope-dyeing (also known as spin-dyeing) solutions are a more 'eco-conscious alternative' to dyeing fibres or yarns given that traditional wet or bath-dyeing uses substantial amounts of water and energy. "Whereas with dope-dyeing, the colourant is in the form of

concentrate pellets added to the polymer pellets during the extrusion and melting process. The plastic mass is then shaped into filaments, spun, and texturised into an already-dyed yarn. No water is involved, and no wastewater is created, reducing the number of steps and, as a result, the amount of energy needed to add colour," said the company.

SPONSORED CONTENT

Filippa K | Lenzing | OnceMore | Riopele

Filippa K will be the first brand to premiere a new recycled and renewable material in its Spring/Summer 2024 collection this autumn. This was made possible through a collaboration with OnceMore® from Södra, TENCEL™ Lyocell x REFIBRA™ from Lenzing, and textile manufacturer Riopele. The innovative partnership represents a commitment to finding circular solutions in fashion, bringing together the strands of the industry to progress change.

Filippa K:
Elin Dahl Sandren, Responsibility Manager at Filippa K

What sort of volumes of apparel are being produced for Filippa K? Is it just a capsule collection or going into commercial volumes?

We've developed five styles in this innovative fabric for our SS24 collection in commercial volumes. Our aim is to continue our collaboration with these partners to make more sustainable fabrics using this technology, and discover the possibilities of increasing the amounts of the OnceMore® pulp and recycled cotton.

How does Filippa K intend to help consumers close the loop? Will it have a garment take-back programme for these garments? If so, how will it work?

Circularity is a key area of focus in our sustainability work – this involves pursuing circularity business models, circular design and longevity. These garments will go through our existing structure that supports customers in closing the loop, and they will be part of the next phase of development in this area as well.

One option for this is our Filippa K Preowned platform on our website. Here, customers in Sweden can easily upload and resell the used Filippa K pieces they own, and shop the pieces listed by other customers.

Additionally, we have been collecting used Filippa K garments from our customers at all our retail stores since 2015 in order to resell, donate or recycle them. We're currently in the process of developing a new platform with external tech partners that will allow us to digitally tag these garments. This will provide analytics that will facilitate better reuse and resale in the future.

What range of garments are these fabrics suitable for? And where are the fabrics made into garments? Portugal?

The fabric used for these garments is a crepe weave, which is slightly heavier than normal crepe. It has a twisted yarn that gives it a nice structure, and we've used it to create five summer styles for this collection: a dress, shirt, skirt, and shorts for womenswear, and a menswear shirt. The technology behind the fabric has the potential to be used in other types of fabrics, and we're looking forward to the possibility of exploring this in future collections. These garments are made by our manufacturers in Lithuania and Portugal.

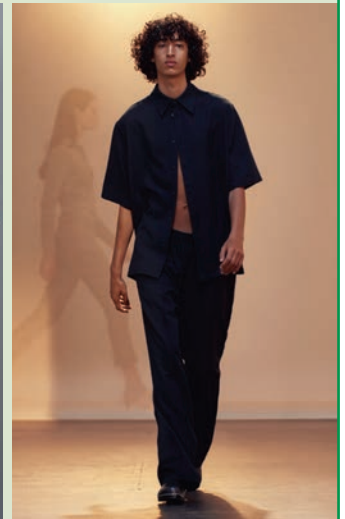
Lenzing:
Jutta Maria Schörghuber - Business Development Manager at the Lenzing Group for fashion brands and retailers in Scandinavia, Netherlands, North Eastern Europe

For Refibra is 70:30 (pulp/textile) still the limit for recycled content in these yarns? Are you working on a greater ratio of recycled textile waste and how's it going?

Södra and Lenzing joined forces with a partnership in 2021 to further enhance circularity in the textile industry. Currently TENCEL™ Lyocell x REFIBRA™ has a recycled content of 30 percent. Our target is by 2025 to have the recycled content by 50% in all our fibers, including TENCEL™ Modal and LENZING™ ECOVERO™ Viscose.



▲ OnceMore®



▲ Filippa K SS24



▲ Lenzing

It was back in September 2022 when Sustainability Director of Filippa K reached out to Lenzing with the idea to use TENCEL™ Lyocell x REFIBRA™ fibers with OnceMore® pulp to be the first brand to use this fiber for their SS24 collection. We were very excited about that as this is an amazing opportunity for all parties, Filippa K, Lenzing and Södra to enhance and communicate about circularity in the fashion industry. Underlining the sustainability story Filippa K then decided to get Riopele, based in Portugal on board. So the whole supply chain is within Europe. Riopele has been a reliable partner for Lenzing for many years already.

Södra:
Angeline Elfström, Business Development Manager OnceMore®, Södra

Following on from the EU LIFE textile funding of 10 million euros, how will this be used to help scale up?

The LIFE TREATS project includes a scaling up of the OnceMore® process at Södra's mill in Mörrum, Sweden, as well as the joint development process. The plant that will be built, will combine 50 percent recycled content with 50 percent renewable wood from sustainable family forestry in Sweden and will be capable of processing 50,000 tons per year of blended post-consumer textile waste, meaning different colors and materials, to produce 60,000 tons dissolving pulp per year. Lenzing makes a decisive contribution here, especially with its know-how in the field of recycling.

The collaboration with Filippa K, Riopele and Lenzing is a great team-effort and connections and communication throughout the whole textile value-chain has made this possible. This is a great proof-of-concept of how we can join forces and drive change!

EU progress on circularity faltering?

BRUSSELS – The EU's transition to a circular economy, which has seen a €10 billion (US\$10.9 billion) spend and the initiation of two action plans, has shown little sign of meaningful progress so far, according to a report published by the European Court of Auditors. The report highlights how EU countries' progress has been halted in recent years, with insufficient focus on the circular design of products and of manufacturing processes, while the target of doubling the share of material recycled by 2030 now looks very challenging. Overall, the report states that the EU has made very little progress in its transition to a circular economy. Between 2015 and 2021, the average circularity rate for all 27 EU countries increased by only 0.4%. Seven of them – Lithuania, Sweden, Romania, Denmark, Luxembourg, Finland and Poland – even regressed during that time, leading auditors to conclude that the EU's ambition of doubling its share of material recycled and fed back into the economy by 2030 "will be very challenging". "Preserving materials and minimising waste are essential if the EU wants to become resource efficient and achieve the environmental objectives of its Green Deal," said ECA member Annemie Turtelboom.

Advansa and APF collaborate on 'biodegradable' polyester

HAMM – Advansa and Asia Pacific Fibers (APF) have joined forces to launch Remotion, a new fibre for the sports and activewear market made from recycled plastic bottles. Remotion is also said to be biodegradable with the fibres breaking-down in marine and landfill environments. *Ecotextile News* has contacted Advansa for further details on these claims.

Available in a range of

filament and staple options with two variants, Remotion Blue is made from ocean-bound plastic bottles and Remotion Green is made from domestically collected recycled plastic bottles.

Advansa and APF have also teamed up with Prevented Ocean Plastic, a global recycling initiative that helps people clean their coastlines, prevent ocean plastic pollution and earn additional income.

According to Advansa, Remotion can be recycled like standard polyester at the end of the garment's useful life. However, unlike traditional synthetic fibres, if they end up in landfill or marine environments, Remotion is modified to naturally break down over time, at a rate comparable with natural fibres - up to 40% within a year in landfill or in marine environment and over 90% within four years.

New study presents polyester circularity roadmap

LONDON – Proposals to achieve a high-circularity, low-emissions system for polyethylene terephthalate (PET) packaging and polyester textiles in Europe as well as key policy mechanisms have been outlined in a new report from sustainability consultancy Systemiq. Entitled 'Circular PET and Polyester: a circular economy blueprint for packaging and textiles in Europe', the study outlines six priority actions needed to transform the PET/polyester system. These actions, the report says, could slow consumption growth and establish complementary mechanical and chemical PET/polyester recycling

The study highlights the potential of complementary circular economy approaches.



systems that significantly increase recycling rates and the availability of high-quality recycled PET/polyester. The study highlights the potential of complementary circular economy approaches, including demand reduction, reuse, mechanical recycling and chemical recycling. By 2040 – compared to a continuation of historical trends – the report claims that these measures could reduce overall PET/polyester

consumption by one-third, waste volumes sent to landfill or incineration by around 70%, and greenhouse gas (GHG) emissions by half, while the supply of recycled content would be sufficient to meet the requirements of the EU's draft Packaging and Packaging Waste Regulation (PPWR). Moreover, they could generate 28,000 net new jobs and an additional €5.5 billion (US\$6 billion) per year in revenues for recycling industries.

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Brooks Running links up with Trove on resale

SEATTLE – Sportswear brand Brooks Running has launched a new resale programme in partnership with recommerce specialist Trove that will refurbish and resell lightly used Brooks footwear in the US.

Brooks says the ReStart initiative will reduce its environmental footprint by extending the life of its products and also by providing a revenue source for future sustainability initiatives.

“Recommerce allows us

to keep gear on the run while supporting our aim to take responsibility for the impact of our business,” said Dave Kemp, director of corporate responsibility at Brooks.

“The launch of ReStart is an important step in the brand’s long-term, science-backed approach to sustainability.”

The ReStart programme will incorporate three grade ranges – ‘like new’, ‘great’ and ‘good’ – in a variety of Brooks’

footwear styles, including consumer favourites such as Ghost, Glycerin and Hyperion. Prices start at 35% off retail.

“I’m incredibly excited to share the news of Brooks’ new recommerce programme in partnership with Trove,” said Melanie Allen, chief marketing officer at Brooks. “Through ReStart, we can create new pathways into the brand, and reach a growing community of conscientious consumers.”

MAS Holdings to invest in HeiQ’s AeoniQ yarn

COLOMBO / ZURICH – MAS Holdings, South Asia’s largest apparel and textile manufacturer, has announced a \$2.5 million investment in Swiss textile innovator HeiQ’s AeoniQ ‘climate-positive’ cellulosic yarn. The company has invested an initial \$1.5 million, with a further \$1 million to follow upon reaching a mutually agreed milestone, in HeiQ AeoniQ, the subsidiary of HeiQ Group that will produce AeoniQ. Subject to conditions, MAS has also agreed to order US\$100 million of the new yarn over a five-year period - 3,000 tons in 2025 and then 5,000 tons per year from 2026 to 2029 in a non-binding offtake agreement. AeoniQ is described as a new class of cellulosic biopolymer-

MAS has invested an initial \$1.5 million, with a further \$1 million to follow.



based filament derived from multiple sources of textile waste such as recycled textiles, algae and bacterial cellulose, as well as conventional wood pulp. It is said to be designed for circularity and claims performance qualities which the company says could see it one day replace synthetics such

as nylon and polyester. Hugo Boss invested US\$5 million in AeoniQ last year but MAS becomes the first major manufacturer to put money into the project. Its investment is part of its ‘Plan for Change’ strategy to generate half of the company’s revenue through sustainable products by 2025.

Textile Exchange organic cotton report flawed?

LUBBOCK – Textile Exchange should withdraw its Organic Cotton Market Report 2022 and issue a revised version which provides a more realistic picture, according to a leading figure in the industry. Terry Townsend, a consultant and former executive director of the International Cotton Advisory Committee (ICAC), says Textile Exchange’s claim that organic cotton production grew by 37% in 2020/21 is not credible. Textile Exchange, responding to views expressed by Townsend in a lengthy post on LinkedIn, insisted its data was the best available and that it had been open about its reservations on some of the figures claimed. Townsend conceded that Textile Exchange had prefaced its claims with pages of disclaimers about the quality of the data, devoting a whole page to the 10 steps it was taking to “improve traceability and prevent fraud”. But he added: “Then, after all these disclaimers, the Textile Exchange went ahead and reported 37% growth, secure in the knowledge that most readers would focus on that headline number.”

SAC announces return of Manufacturer Forums

SAN FRANCISCO – The Sustainable Apparel Coalition (SAC) has confirmed the return of its Manufacturer Forums, a series of events aimed at bringing together business leaders and stakeholders to learn how they can use the Higg Index suite of tools and industry programmes to drive sustainability improvements throughout their global supply chains.

Under the theme, 'catalyst for change', the first forum will take place in Shenzhen, China on July 25 at Sheraton Shenzhen Futian Hotel and will be the first in-person Manufacturer Forum the SAC has hosted since 2019. The event will feature sessions on policy, supply chain dynamics, decarbonisation, standardising facility data collection and verification. The Manufacturer Forum will also offer attendees a chance to learn about the SAC and how its member organisations work together to drive improvements in the apparel, footwear and textile industry. Attendees will learn how to use the Higg Index suite of tools and stay up-to-date on recent tool updates such as the Facility Environmental Module (FEM) 4.0, which, scheduled to launch later this year, is a key tool for measuring facilities' environmental performance, as well as industry programmes such as SAC's newly launched Decarbonization Program.

European Parliament backs 'ecodesign' law

BRUSSELS - The European Parliament has voted in favour of a proposed 'ecodesign' law which would require all products to be made to last longer and be easier to repair, upgrade and recycle.

Textiles would be among sectors which would be prioritised under the Ecodesign for Sustainable Products Regulation (ESPR) approved today by MEPs in a plenary session of the full parliament.

The proposed ESPR includes a ban on the

destruction of unsold textile products and will now form the parliament's negotiating position in talks with European Union (EU) member governments on the final shape of the legislation.

A new "product passport" containing accurate and up-to-date information would also be set up to increase transparency and enable consumers to make informed purchasing choices.

Some 473 MEPS in the

plenary session voted to back the proposal, agreed last month by the parliament's environment committee (ENVI), with 110 against and 69 abstentions.

Talks will now begin with member state governments on the ESPR proposals which were originally unveiled by the European Commission in March 2022 as part of a circular economy package which also includes the EU Strategy for Sustainable Textiles.

AAFA reiterates call for digital product labels

WASHINGTON, D.C - The American Apparel & Footwear Association (AAFA) and the International Apparel Federation (IAF), along with 128 additional organisations, have written an open letter to authorities around the world to urge them to modernise domestic textile and footwear labelling requirements and legally allow the use of more sustainable and economic digital labels. The letter from 130 signatories from across the global fashion and sportswear industry states that, "Shifting to the use of digital labels would significantly reduce labelling waste and significantly aid in decarbonisation efforts, resulting in the elimination of

An open letter to global authorities urges them to modernise domestic textile labels



at least 343,000 MT of CO₂e from industry supply chains." The letter also notes that with greater demand for more traceability, transparency and accountability from all stakeholders in the global supply chain, the time for supranational, national and local authorities to act and update these outdated, inflexible, and complex requirements through greener e-labelling is now.

This latest appeal from AAFA president and CEO Steve Lamar follows a 2022 letter to US

Congress, asking it to direct the Federal Trade Commission (FTC) to allow for mandated digital labelling information on clothes. "Consumers today want more information with less waste," he said, highlighting how purchasers will gain access to more detailed and accurate information about the textiles, garments, footwear, and related accessories they are considering buying, such as more in-depth materials and origin information."

H&M brand signs up to circularity research

LONDON - The COS fashion brand, part of the H&M Group has teamed up with the Ellen MacArthur Foundation and Visa in a behavioural science-based project that aims to support sustainable consumer choices and accelerate the transition to a circular economy.

Other partners in the Recommerce Behavioural Insights Lab include the United Repair Centre, behavioural design consultancy Mindworks and fintech specialist Twig.

With 92% of consumers surveyed by Visa claiming they want to live a more sustainable life, but only 16% taking active steps to change their behaviour, the programme will research how to bridge this gap.

The first two experiments will be run in partnership with COS and the United Repair Centre, and will take place in various locations across Europe. Initial countries where early experiments are likely to take place include France, the

Netherlands and Germany, as well as the UK.

COS says it will explore the motivations and compelling experiences that increase consumer participation in the resale market, an important part of fashion's shift to circularity and a growing commercial activity.

However, with only 47% of consumers participating in resale activities more than once a year, many brands are still learning the many motivations and novel barriers that affect customer interest.

NGO calls for animal-free materials

LONDON – A new report has outlined the environmental cost of the use of animal-derived materials in the fashion industry, while urging consumers to explore alternatives.

The first section of the two-part report, Taming Fashion, from animal welfare organisation, Four Paws, notes that while animal-derived materials such as wool, fur and down are widely perceived as being 'natural', the production of these materials can involve the release of toxic chemicals into the environment, cause major land use change and have animal welfare implications. While calling for the industry to drastically reduce production overall, the report also highlights how consumers are often unaware of what to look for when considering recycled or 'next-gen' materials such as bio-based faux fur or faux down made from fermented plant fibres.

Emily Wilson, head of campaigns at Four Paws UK said: "This report series aims to accelerate brands and consumers to think beyond 'industry spin' and choose a future where animals are not exploited while the fashion conscious among us can still dress to impress.

"The environmental impact of animal-derived materials, including their greenhouse gas emissions, has comparatively proved to be performing the worst against the production of similar materials."

'Long way to go' - Fashion Transparency Index

LONDON - The fashion industry still has a long way to go to address inequality and the climate crisis, according to the latest Fashion Transparency Index from the Fashion Revolution initiative.

For the first time since it was first published in 2017, two out of 250 major fashion brands scored 80% or higher but the average score was just 26% in the 2023 report, only 2% up on last year.

The overwhelming majority - 99% - of major fashion brands still did not disclose the number of workers in their supply chains being paid a living wage - and only 18% disclosed how much executive pay was tied to sustainability targets.

99% - of major fashion brands still did not disclose the number of workers in their supply chains being paid a living wage



And, with concern over Scope 3 emissions - where the bulk of the industry's carbon footprint lies - mounting, the report revealed that 94% of brands did not disclose what fuels were used in the manufacturing of their clothes.

Liv Simpliciano, Fashion Revolution's policy and research manager, said: "As activists, it is maddening to have to continually push for what ultimately is the bare minimum of what we should expect from major fashion brands."

ReCircled and Kaltex link up on denim recycling

NEW YORK - Textile recycling start-up ReCircled and vertically integrated denim manufacturer Kaltex have announced a new initiative that will collect and sort used denim garments and then recycle them back into new products.

Under the terms of the partnership, ReCircled will administer a series of take-back programmes and work with brands and retailers on unsold items. Once the products have been sorted, cleaned and de-trimmed, they will then move to Kaltex for recycling into new denim fabrics and garments.

Announcing the programme, Scott Kuhlman, CEO of ReCircled said that the textile-to-textile process would provide brands and retailers with the ability to create circular denim garments with the system handled from beginning to end by ReCircled and Kaltex. "From the beginning we knew that collaboration was needed to build the systems that allow for recycling textiles at the highest level," said. "With the system we now have in place, it's finally a reality."

Eric Goldstein, EVP Kaltex Apparel added: "Kaltex has been recycling cotton for 15 years but now we are truly circular with the infrastructure to pick up cotton products from almost any place in the USA and transport to our facility where we are vertical from fibre to finished goods."

Nike commits to Responsible Wool Standard

LONDON – Nike has made a significant change to its corporate and social responsibility policy that will see the sportswear giant commit to only using wool certified to the Responsible Wool Standard (RWS).

The changes to its Chemistry Playbook and restricted substances list (RSL) will see Nike only source wool from non-mulesed sources, bringing it into line with competitors such as Adidas and Puma.

The RWS includes guidance on progressive methods of land management to protect soil health, biodiversity, and native species, as well as social welfare, working conditions, and the health and safety of workers.

"We congratulate Nike on this important commitment which will benefit millions of lambs," said Rebecca Picallo Gil, head of the wool campaign at Four Paws.

"With the upcoming mulesing season in Australia due to start, this news comes at a crucial time and sends a strong signal to the wool producers, being an influential brand with potential to inspire the entire apparel market. This win was only possible with the help of tens of thousands of supporters fighting together with Four Paws for better animal welfare in the sports apparel market."

Study seeks truth about circular fashion design

HONG KONG – Apparel industry NGO Redress is inviting fashion design professionals working with manufacturers in China and Southeast Asia to contribute to a new circular design research project. The study aims to assess the current state of play in the design phase, investigating the remit, influence and limitations currently experienced by industry creatives in roles such as fashion designers, product developers, merchandisers and pattern design technicians. Eligible industry professionals were invited to complete a survey as part of wider interdisciplinary research supported by the VF Foundation, the philanthropic arm of VF Corp. Redress says it has conceived the study as a way of yielding actionable recommendations

The study aims to assess the current state of play in the design phase.



which can be promoted by fashion designers, in academia and throughout the entire fashion industry.

It is hoping that a minimum of 200 fashion design specialists will complete the 15-minute survey, the findings of which will form a pillar of the eventual research publication. "We know that circular fashion design is a key tool to

leverage to clean up fashion's act," Dr Christina Dean, founder and chair of Redress, told *Ecotextile News*.

"Whilst we hear much talk about the transition towards a circular design, we don't really understand what fashion design teams themselves are up to. We want to get a lay of the land in terms of what's happening at the design stage now."



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GLOBAL TRADE SHOWS & EVENTS OVER THE COMING MONTHS

03 – 05 August Gartex Texprocess India Delhi, India https://www.gartexindia.com/		04 – 05 October Performance Days Munich, Germany www.performancedays.com	
28 – 30 August Intertextile Shanghai Apparel Fabrics Shanghai, China www.hk.messefrankfurt.com		11 – 12 October Hong Kong Fashion Summit Hong Kong https://www.fashionsummit.hk	
29 – 31 August SpinExpo, Shanghai Shanghai, China http://www.spinexpo.com/shanghai/		17 – 19 October TITAS Taipei, Taiwan https://titas.tw/en-us/	
13 – 14 September View Premium Selection Munich Fabric Start Munich, Germany www.munichfabricstart.com/en/		18 – 19 October Textile Forum London, England www.textileforum.org.uk	
13 – 15 September Dornbirn Global Fiber Congress Dornbirn, Austria https://www.dornbirn-gfc.com/en/		18 – 19 October Kingpins Amsterdam, Netherlands https://kingpinsshow.com/shows	
19 – 21 September CINTE Techtextil China Shanghai, China https://cinte-techtextil-china.hk.messefrankfurt.com		23 – 27 October Textile Exchange Sustainability Conference London, England https://textileexchange.org/2022-conference/	
25 – 26 September Sustainable Apparel Coalition Annual Member Meeting, Boston, Massachusetts https://apparelcoalition.org/		02 – 03 November Functional Fabric Fair Oregon, USA www.functionalfabricfair.com/portland/en-us.html	

Although every care is taken over the compilation of this diary to ensure accuracy of the dates, these can sometimes be changed due to local circumstances. It is therefore advisable to check with the appropriate organisers before travel arrangements are made.

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