



patagonia



SALOMON

The world's first 100% "fiber-to-fiber" biorecycled clothing unveiled by multi-brand consortium: CARBIOS, On, Patagonia, PUMA, PVH Corp. and Salomon

- For the first time, a piece of clothing is made entirely from textile waste – no bottles, no packaging, no virgin plastic. 100% biorecycled fibers.
- By developing and industrializing CARBIOS' enzymatic depolymerization technology to achieve 100% "fiber-to-fiber" recycling, the consortium collectively advances the textile industry's shift towards a circular economy

Clermont-Ferrand (France), 29 October 2024 (06.45am CET). CARBIOS, (Euronext Growth Paris : ALCRB), a pioneer in the development and industrialization of biological technologies to reinvent the life cycle of plastic and textiles, and its "fiber-to-fiber" consortium partners On, Patagonia, PUMA, Salomon, and PVH Corp., parent company of *Calvin Klein*, unveil **the world's first enzymatically recycled polyester garment made from 100% textile waste** using CARBIOS' pioneering biorecycling technology.

This technological feat contributes to advancing textile circularity when, today, the majority of recycled polyester is made from PET bottles, and only 1% of fibers are recycled into new fibers. The collective achievement marks an important milestone for the consortium's ultimate aim of demonstrating fiber-to-fiber closed loop using CARBIOS' biorecycling process at an industrial scale, and marks an important step forward for the textile industry's shift towards a circular economy.



Figure 1: This 100% fiber-to-fiber t-shirt paves the way for true circularity in textiles.

No ordinary t-shirt...

A plain, white T-shirt was a deliberate choice to showcase the technological achievement that made its production possible from mixed and colored textile waste. By using CARBIOS' biorecycling technology, polyester is broken down using enzymes into its fundamental building blocks which are reformed to produce biorecycled polyester whose quality is on par with oil-based virgin polyester.

Petroleum can now be replaced by textile waste as a raw material to produce polyester textiles, that will in turn become raw materials again, thus fueling a circular economy, with the added benefit of a lower carbon footprint and avoidance of landfill or incineration.

No ordinary journey...



Figure 2 : For the first time, a piece of clothing is made entirely from complex textile waste: mixed blends, treatments and dyes.

The t-shirt's production began with all consortium members (On, Patagonia, PUMA, PVH Corp. and Salomon) supplying rolls and production cutting scraps to CARBIOS in Clermont-Ferrand, France. This textile waste consisted of some mixed blends with cotton or elastane, as well as various treatments (such as durable water repellent) and dyes which render them complex to recycle using conventional methods. The collected waste was deconstructed into its original monomers, PTA¹ and MEG², using CARBIOS' biorecycling technology at its pilot facility. The resulting monomers were then repolymerized, spun into yarn and woven into new fabric by external partners, demonstrating the seamless integration into existing manufacturing processes. The resulting sports t-shirt made from

100% textile waste meets the quality standards and sustainability objectives of the apparel brands present in the "fiber-to-fiber" consortium.

CARBIOS' demonstration plant in Clermont-Ferrand, France, has been up and running since 2021, and its first commercial plant, the world's first industrial-scale enzymatic PET recycling plant, is currently under construction in Longlaville, France. In addition, CARBIOS recently announced several letters of intent with PET producers in Asia and Europe, confirming global interest in its biorecycling technology and advancing the international roll-out of its licensing model.

Emmanuel Ladent, CEO, CARBIOS : *"It may look like an ordinary t-shirt, but make no mistake, the technology behind it is extraordinary! To achieve "fiber-to-fiber" recycling is a technological feat. CARBIOS couldn't have done it alone, so thanks to the collaboration with our consortium partners, we have overcome many technical hurdles together to produce the world's first enzymatically recycled t-shirt made entirely from biorecycled fibers."*

Begüm Kürkçü, Director of Sustainability, On: *"We know that fiber-to-fiber recycling is a crucial step to drive our industry towards circularity, which is why we have dedicated energy and investment to researching this area. Achieving the proof-of-concept and creating the first T-shirt made out of 100% biorecycled fibers is an important milestone. Our engagement with CARBIOS and the other consortium members is an important step towards enabling the industry to game-changing circular technologies at scale."*

¹ Purified Terephthalic Acid

² Monoethylene Glycol

Anne-Laure Descours, Chief Sourcing Officer, PUMA: *“PUMA’s wish is to have 100% of our polyester coming from textile waste. Today’s announcement is an important milestone towards achieving this and making our industry more circular. We now need to work together to make sure we can scale up this technology to make the largest possible impact. We’re excited to be part of this breakthrough and setting new standards for fiber-to-fiber recycling.”*

Guillaume Meyzenq, Chief Product Officer Softgoods, Salomon: *“This T-shirt is the first tangible result of our ‘fiber to fiber’ consortium with CARBIOS, overcoming textile challenges to create a garment from enzymatically recycled waste with the same quality as virgin fibers. It builds on Salomon’s commitment to material circularity, following Index - the first recyclable running shoe, and highlights our dedication to reducing factory waste and our engagement to reduce by 30% our carbon footprint by 2030. This project, in collaboration with footwear and apparel Brand partners, reflects our shared leadership and vision for a more sustainable footwear and textile industry.”*

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About CARBIOS:

CARBIOS is a biotech company developing and industrializing biological solutions to reinvent the life cycle of plastic and textiles. Inspired by nature, CARBIOS develops enzyme-based processes to break down plastic with a mission to avoid plastic and textile pollution, and accelerate the transition to a circular economy. Its two disruptive technologies for the biorecycling of PET and the biodegradation of PLA are reaching industrial and commercial scale. Its biorecycling demonstration plant has been operational since 2021 and a first industrial plant, in partnership with Indorama Ventures, is currently under construction. CARBIOS, founded in 2011 by Truffle Capital, has received scientific recognition, notably with the cover of Nature, and is supported by prestigious brands in the cosmetics, Food & Beverage and apparel industries to enhance their products’ recyclability and circularity. Nestlé Waters, PepsiCo and Suntory Beverage & Food Europe are members of a packaging consortium founded by CARBIOS and L’Oréal. On, Patagonia, PUMA, PVH Corp. and Salomon collaborate with CARBIOS in a textile consortium.

Visit www.carbios.com/en to find out more about biotechnology powering plastic and textile circularity.

For latest news and media assets, visit our newsroom: www.carbios.com/newsroom/en/

LinkedIn: [CARBIOS](https://www.linkedin.com/company/carbios) / Instagram: [insidecarbios](https://www.instagram.com/insidecarbios)



Information on CARBIOS shares:

ISIN Code:	FR0011648716
Ticker Code:	Euronext Growth: ALCRB
LEI:	969500M2RCIWO4NO5F08

CARBIOS is eligible for the PEA-PME, a government program allowing French residents investing in SMEs to benefit from income tax rebates.

About On:

On was born in the Swiss Alps in 2010 with the mission to ignite the human spirit through movement – a mission that still guides the brand today. Fourteen years after market launch, On delivers industry-disrupting innovation in premium footwear, apparel and accessories for high-performance running, outdoor, training, all-day activities and tennis. On’s award-winning **CloudTec®** innovation, purposeful design and groundbreaking strides within the **circular economy** have attracted a fast-growing global fan base – inspiring humans to explore, discover and Dream On. On is present in more than 60 countries globally and engages with a digital community on www.on.com.

About Patagonia

We're in business to save our home planet. Founded by Yvon Chouinard in 1973, Patagonia is an outdoor apparel company based in Ventura, California. As a certified B Corporation and a founding member of 1% for the Planet, the company is recognized internationally for its product quality and environmental activism, as well as its contributions of more than \$230 million to environmental organizations. Its unique ownership structure reflects that Earth is its only shareholder: Profits not reinvested back into the business are paid as dividends to protect the planet.

About PUMA:

PUMA is one of the world's leading sports brands, designing, developing, selling and marketing footwear, apparel and accessories. For more than 70 years, PUMA has relentlessly pushed sport and culture forward by creating fast products for the world's fastest athletes. PUMA offers performance and sport-inspired lifestyle products in categories such as Football, Running and Training, Basketball, Golf, and Motorsports. It collaborates with renowned designers and brands to bring sport influences into street culture and fashion. The PUMA Group owns the brands PUMA, Cobra Golf and stichd. The company distributes its products in more than 120 countries, employs about 16,000 people worldwide, and is headquartered in Herzogenaurach/Germany.

About PVH Corp.:

PVH is one of the world's largest and most admired fashion companies, connecting with consumers in over 40 countries. Our global iconic brands include *Calvin Klein* and *TOMMY HILFGER*. Our 140-year history is built on the strength of our brands, our team and our commitment to drive fashion forward for good. That's the Power of Us. That's the Power of PVH.

About Salomon:

Born in the French Alps in 1947, Salomon is committed to pushing the boundaries of mountain sports through the creation of innovative equipment that allows people to play, progress and challenge themselves in their chosen outdoor sports. The company produces and sells premium footwear, winter sports and mountaineering equipment, hiking equipment, and apparel specifically designed for all those disciplines. Products are developed in the company's Annecy Design Center, where engineers, designers and athletes collaborate to create innovative solutions that continually improve the outdoor experiences of those who see nature as a vast playground.

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