

THESE SWEATSHIRTS ARE TRASH

Textile-technology startup Evrnu and others are spinning discarded clothes into recyclable fabric

Upcycling, the practice of creating [new garments from old](#), is getting one-upped. Evrnu, a Seattle-based textile-technology startup, is among a [host of companies](#) turning old clothes, blankets and other discarded fabrics into new fibers that can be used to make recyclable fabric for clothing. Because the process generates new fibers, it goes beyond simply [recycling old clothes](#) and sewing them into new ones.

While most such efforts are still being tested, Evrnu (pronounced EVER-new) is moving from the lab to the marketplace. The company said Friday that fiber made by its technology will debut in a limited run of recyclable, unisex hooded sweatshirts for adidas by Stella McCartney. The garments will be given to athletes but won't be available for purchase. Evrnu plans to bring the fiber to market in 2020 and make it available to fabric mills and clothing makers around the world.



Evrnu's fiber, above, is made of discarded textiles and can be spun into yarn, dyed and then woven into fabric. PHOTO: EVRNU

“Right now in the U.S., consumers dispose of about 80% of their textiles directly into their garbage can. That’s the behavior we’re really trying to tackle,” said Stacy Flynn, chief executive and co-founder of the five-year-old company. Evrnu’s process involves shredding and liquefying discarded clothing into a pulp. After the pulp is processed through a filter in Evrnu’s pilot facility, it is converted into a premium fiber. The fiber can be spun into yarn, dyed and then woven into fabric, the company said.



Stacy Flynn, Evrnu's chief executive, co-founded the company five years ago. PHOTO: EVRNU

Many consumers, especially millennials and members of Generation Z, say [concerns](#) about the [fashion industry's toll on the environment](#) influence their purchases. That has a number of companies working on “regenerating” used or discarded textiles into fibers that can be used to make recyclable clothes.

“We are in the midst of a ‘Material Revolution,’ ” said Julie Gilhart, a fashion consultant with an emphasis on environmental matters and a former fashion director at Barneys New York.

While the new fibers and fabrics seem to solve one environmental problem—reclaiming fabrics destined for landfills—they could create others. “The idea of taking waste and converting it is a solid solution, but at the end of the day, it is about [measuring the environmental impact](#) of the process,” Ms. Gilhart said.

Creating the fiber, Ms. Flynn said, “is not a zero-impact process.” In choosing chemicals to make the fiber, Evrnu aims to use commercially available solvents that are 98% recyclable. The process uses a fraction of the energy needed to create polyester, she said, because solvents used in regeneration don't require extreme temperatures or pressure. It also uses far less water than producing cotton, she said.

Ms. Flynn's career includes stints at Dupont and Target sourcing, testing and developing fabric, and at Eddie Bauer as a development manager. She started Evrnu after a trip to China in 2010, she said, while working for a Seattle-based startup that recycled polyester for use in clothing. During the trip, she got to see up close “how damaging my industry is to the environment and people living in that environment,” she said. After earning an MBA in sustainable systems, she co-founded Evrnu in 2014.

Initially, consumers should expect to pay more for garments made with the material. “Whenever we have new product launches, generally there’s a price premium usually for the first five years or so until economies of scale are hit and then the price starts to level out,” Ms. Flynn said. “Our goal is to have that happen within a five-year period.” The brands that Evrnu works with will determine prices for clothes made of the fiber.

In 2016, Evrnu worked with [Levi Strauss](#) & Co. on Levi’s 511 jeans fashioned in part from a prototype Evrnu fiber made of discarded cotton T-shirts. Paul Dillinger, head of global product innovation at Levi Strauss, wrote in an email: “We believe in the potential for technologies like Evrnu to help reduce our dependency on virgin materials.”



Evrnu and Levi Strauss & Co. worked together on jeans, above, made in part from recycled material. PHOTO: LEVI STRAUSS & CO.

Evrnu aims to raise the standard for clothes made of sustainable materials. “We wanted to demonstrate that we can create products that look better, feel better, perform better, using sustainable materials, than virgin materials can do on their own,” Ms. Flynn said.

Others are venturing into green fabrics. In June, Chanel invested in Evolved By Nature, a Boston-based company whose technology dissolves silk proteins into liquid form that can then be used to replace synthetics and other plastics in apparel.



An H&M blouse in a fabric made in part from recycled materials, including citrus-juice byproducts. PHOTO: H&M

The H&M Global Foundation holds an annual innovation challenge centered on sustainability. One of last year's winners, a wing of the Research Institutes of Sweden, developed a technology that uses mild chemicals to separate cotton and polyester from blended fabric to make both materials reusable.

Worn Again Technologies, of London, uses recycling technology that separates, decontaminates and extracts molecules from polyester and cellulose in the cotton in discarded textiles, bottles and packaging. It then transforms them into new raw materials. In May, Worn Again said a number of companies have signed up to use the materials once they are ready. Thus far, they include H&M, ASICS Europe and Kering Group, which owns Gucci, Balenciaga and other brands.



Used fishing nets, left, can be turned into a nylon yarn to make clothes such as these swim trunks by Outerknown. PHOTO: FROM LEFT: ECONYL; OUTERKNOWN

Italian firm [Aquafil S.p.A](#) . recycles waste like fishing nets and fabric scraps, which it processes into a nylon yarn called Econyl. Brands that have worked with Econyl include Stella McCartney and Outerknown, co-founded by [surfer Kelly Slater](#).

The companies' efforts go beyond recycling into precise engineering. For example, by extruding cotton fibers from discarded clothes, one can rebuild the fiber, adjust its fineness, then chop it to particular lengths and replicate yarns made from more expensive, extra-long staple fibers like Supima or Egyptian cotton, said Jeffrey Silberman, professor and chairperson of the textile development and marketing department at the Fashion Institute of Technology. (Evrnu's Ms. Flynn graduated from the school and sits on its advisory board.)

“It’s a communications issue,” Mr. Silberman said. “If it sounds to the consumer like it’s something new and exciting, that’s great. If it sounds to them like genetic modification, that’s not great. Can they convey that it’s new and exciting? That I don’t know.”