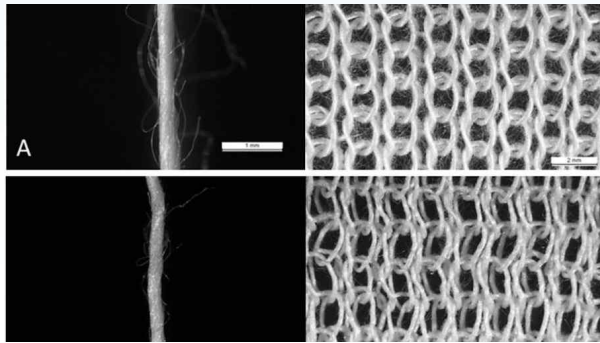


Fiber Composition and Yarn-Spinning Methods Influence Microfiber Release, Study Shows



COMPARISON OF YARN HAIRINESS FOR YARNS OF THE SAME LINEAR DENSITY (30 TEX) AND DIFFERENT SPINNING SYSTEMS (RING OR VORTEX). (A) PET-30-RING AND (B) PET-30-VORTEX (IMAGES TAKEN BEFORE LAUNDERING). HAZLEHURST, ALICE, MARK SUMNER AND MARK TAYLOR.

The way a garment is manufactured plays a critical role in determining the volume of microfibers it will release throughout a lifetime of wash and wear.

Fiber composition and yarn spinning systems have the “greatest influence” on microfiber release, according to a new study. The research—titled “Investigating the influence of yarn characteristics on microfibre release from knitted fabrics during laundering”—comes from the University of Leeds and was published in the peer-reviewed *Frontiers of Environmental Science* earlier this week.

The study investigated the influence of various yarn characteristics on microfiber release from knitted fabrics and explored the generation of microfibers during the knitting process.

Alice Hazlehurst, Dr. Mark Sumner and Dr. Mark Taylor, all from the School of Design at the University of Leeds, found that the most significant quantity of microfibers was released from ring-spun (when fibers are twisted in a metal ring) lyocell. By contrast, the lowest amount was released from vortex-spun (when fibers are twisted using jets of air in a vortex) polyester.

“The yarn spinning system was also found to have a significant influence, with vortex-spun yarns consistently demonstrating lower microfiber release than corresponding ring-spun yarns, likely due to the reduced hairiness of yarns spun in the vortex systems,” the paper said. The importance of fiber damage incurred during the knitting process was also studied. “Several yarns demonstrated significantly greater microfiber release in knitted form compared to loose, hank form, but the scale of difference was found to be dependent on the fiber composition.”

The researchers found that unknitted polyester released more microfibers than unknitted cotton. However, “similar amounts” were released when the polyester was knitted—signaling that polyester “suffered less damage” than cotton during the knitting process.

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Microfiber release was “reduced” in tightly knitted fabrics during laundering. Still, manufacturers should consider fiber-fly: the “visible fluff” that comes off fabrics as they are knitted in factories, which was shown to increase microfiber release in washing.

Overall, vortex-spun yarns displayed a lower microfiber release than ring-spun yarns, as ring-spun yarns tend to be “hairier” than the vortex-spun yarns, which has been shown to increase microfiber release in washing.

“Our findings show that the entire process of textile production, down to the way yarn is spun, is important in the effort to limit microfiber release,” Hazlehurst said. “Manufacturers should contain these details in specifications of yarn spinning, as well as the fiber type, to help clothing designers make more informed choices.”

The researchers agreed that changes to a yarn’s fiber composition, along with the yarn-spinning system used, would have the “greatest influence” in terms of reducing microfiber shedding. However, these details aren’t currently included in product specifications, making it more difficult for brands to decide what garments will or won’t release more microfibers.

“We know cotton produces more microfiber than polyester and people assume that

cellulose—from cotton—is less worrying than microplastic because it’s natural,” Dr. Taylor said. “But the truth is that we don’t have enough information about the impacts of these fibers on humans, aside from knowing they can take hundreds of years to biodegrade and can have a negative impact on marine life.”

Meanwhile, the University of California in San Diego and materials science company Algenesis have been working on combatting the impacts of microplastic pollution. And new research shows that the duo’s plant-based polymers biodegrade—including at the microplastic level—in under seven months, per a paper published in Nature Scientific Reports.

“We’re just starting to understand the implications of microplastics. We’ve only scratched the surface of knowing the environmental and health impacts,” said Michael Burkart, one of the paper’s authors and an Algenesis co-founder. “We’re trying to find replacements for materials that already exist, and make sure these replacements will biodegrade at the end of their useful life instead of collecting in the environment. That’s not easy.”

Link

<https://sourcingjournal.com/sustainability/sustainability-materials/research-sheds-light-microfiber-release-university-of-leeds-microplastic-pollution-spinning-504333/>

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Why YKK Is Changing Its Zipper Material



A YKK ZIPPER. COURTESY

YKK Corporation announced this week it will begin transition from conventional aluminum alloy zippers to eco-friendly zippers which use low-carbon aluminum.

The Japanese fastener company entered into an agreement with Sumitomo Electric Industries, Ltd. and Sumitomo Electric Toyama Co., Ltd. to purchase the low-carbon aluminum beginning in fiscal year 2024. YKK will use the materials in aluminum alloy zippers and gradually expand their application.

The transition reinforces company's commitment to achieving climate neutrality by 2025. The YKK Sustainability Vision 2050 set targets under the five themes of climate change, material resources, water resources, chemical management, and respect people.

YKK is striving to cut greenhouse gas (GHG) emissions within the company and across the YKK supply chain, with the goal of reducing Scope 1 and Scope 2 emissions by 50 percent and Scope 3 emissions by 30 percent by 2030.

Up to this point, YKK has been working to reduce GHG emissions by increasing the use of recycled materials like recycled polyester and plant-based materials in textile materials for zippers. However, the adoption of low-carbon aluminum as a material for zippers is one of YKK's initiatives to achieve the reduction target for Scope 3 emissions.

YKK, which achieved for the first time the "A List" rating in the 2023 Climate Change survey conducted by the CDP earlier this year, is working toward accelerating its efforts to create a sustainable network. "We will continue to work with our business partners to reduce our environmental impact throughout the supply chain," said Terry Tsukumo, VP of product strategy division, global sales headquarters, YKK Corporation.

Link

<https://sourcingjournal.com/denim/denim-sustainability/ykk-transitioning-low-carbon-aluminim-alloy-zippers-climate-neutrality-505601/>

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For the First Time, EPA Sets Limits on PFAS in Drinking Water



ANTONIO PEREZ/CHICAGO TRIBUNE/TRIBUNE NEWS SERVICE VIA GETTY IMAGES

The Environmental Protection Agency (EPA) has taken its stance against PFAS further with new drinking water standards limiting exposure to six forever chemicals.

This marks the first time that drinking water standards have been finalized for a new chemical under the Safe Drinking Water Act since it was updated nearly 30 years ago in 1996.

Granted, it only covers 0.05 percent of known PFAS chemicals—of which there are more than 12,000—but the restricted six have had animal and human studies, thus giving the EPA “confidence” in making estimations regarding what are safe levels of consumption, a former EPA official told NPR.

The agency estimated that it will cost \$1.5 billion annually for water companies to comply with the new regulation—a cost that will continue to incur until PFAS no longer show up in the drinking water. All public water systems have three years to complete their initial monitoring. But the implementation will, per the EPA, prevent PFAS exposure for approximately 100 million people.

“Drinking water contaminated with PFAS has plagued communities across this country for too long,” EPA administrator Michael S. Regan said in a statement. “That is why President Biden has made tackling PFAS a top priority, investing historic resources to address these harmful chemicals and protect communities nationwide. Our PFAS Strategic Roadmap marshals the full breadth of EPA’s authority and resources to protect people from these harmful forever chemicals.”

While the Biden administration has the right idea, the textile industry has been crusading against said forever chemicals for quite some time.

Four states—California, Maine, Massachusetts and Minnesota—have legislation banning the sale or distribution of carpets, rugs, fabric treatments, upholstered furniture and textiles using PFAS. California is also phasing out the forever chemicals from any new (not previously owned) apparel, handbags, footwear, upholstery, curtains, towels and bedding by 2025. Next year, New York’s ban on PFAS in carpeting sold in the state will take effect. Vermont has followed suit and is currently considered a law that “mirrors” those measures.

Retailers and brands are also fighting for regulation and aligning with state-level efforts. Patagonia, REI and Levi’s are among the leading brands actively phasing out PFAS. Last summer, Canada Goose committed to ditching forever chemicals, starting with its core “Arctic Tech” material, while American Eagle confirmed plans to eliminate all PFAS in use by 2024.

Earlier this year, Oeko-Tex instituted a new limit value for total fluorine, replacing the outdated limit value for extractable organic fluorine. The Swiss chemical management company said the decision was made based on its interest in enforcing “a more effective ban on the use of PFAS.”

Link

<https://sourcingjournal.com/sustainability/sustainability-compliance/for-the-first-time-epa-sets-limits-on-pfas-in-drinking-water-forever-chemicals-biden-504817/>

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