

New enzyme technology boosts sustainability of plant-based fibers

New enzyme helps textile producers produce garments that last longer

At a time when 61% of consumers are worried about climate change¹, a new solution from Novozymes makes it possible for the first time to extend the life of plant-based fabrics by 20%, wash after wash. This Livelong® effect saves substantial water, chemicals and energy by reducing textile waste.

In a process called biopolishing, enzymes are used to extend the lifetime of fabrics. Until now, the enzyme technology process has only worked on cotton.

But now with the launch of a new enzyme solution, Novozymes Fiberlife®, it is possible to achieve the Livelong® effect with additional fabrics including viscose/rayon, modal and lyocell/Tencell®.

“All textile manufacturing and brands – even with eco-friendly fibers – have a hefty environmental impact. Brands should seriously consider the opportunity of offering consumers the sustainable choice of longer-lasting garments. Because buying clothes that last longer is one of the best and easiest things that consumers can do to make an eco-friendly choice,” says Jens Kolind, vice president at Novozymes.

In addition, viscose, modal and lyocell are made from fibers widely recognized as more sustainable than conventional cotton, which requires high levels of water and pesticides to produce. The newer plant-based fibers are generally more sustainable, but they haven't been particularly durable. Novozymes' Fiberlife® solution can extend the lifetime of all plant-based fibers. Novozymes calls this effect Livelong®, a way for brands and consumers to easily understand the benefit of longer-lasting clothes.

Environmental impact of the textile industry

Novozymes is launching the Fiberlife® solution with the Livelong® effect this week at ITMA, the world's largest textile and garment technology exhibition, which starts today in Barcelona. The textile industry is one of the most polluting in the world and is under pressure to address critical environmental issues. Novozymes' new enzyme technology Fiberlife® that gives the Livelong® effect are expected to help fill the gap.

More ways to save the planet

In addition to Fiberlife® and Livelong®, Novozymes will present two solutions at ITMA that also save water, time and energy:

- In jeans production, laundries can save 90% water and reduce chemicals and energy with the newest denim-abrasion process with enzymes called DeniSafe®.
- To get reliable dyeing results, cotton mills can save 67% water, 50% energy and 50% time on pretreatment with enzymes, a process called biopreparation.

Read more at www.novozymes.com/textiles

1 Euromonitor

2 <https://textileexchange.org/downloads/2018-organic-cotton-market-report/>

3 LCA details [here](#)

BOX 1 AT BOTTOM

If all cotton T-shirts lasted 20% longer

Every second, the equivalent of one garbage truck of textiles is landfilled or burned, according to the Ellen Macarthur Foundation. An estimated USD 500 billion value is lost every year due to clothing being barely worn and rarely recycled. If nothing changes, by 2050 the fashion industry will use up a quarter of the world's carbon budget.

A Novozymes Life Cycle Assessment³ shows that if all cotton T-shirts produced in the world lasted 20% longer, this would save 24 million tons CO₂ per year, which corresponds to the annual emissions of 10 million medium-sized cars. It would also save 27 billion m³ of water per year. This corresponds to the annual consumption of 700 million people in India.

Imagine if the same was done for all plant-based fibers.

BOX 2 AT BOTTOM

Sustainable solutions in textiles

Enzymes are found in all living things on earth. The textile industry has used enzymes for years to improve performance and reduce the environmental impact of various production steps. This has a big environmental impact.

In 2018, sales of Novozymes products reduced the need for:

-Water – The need for clean water was reduced by 8.1 billion m³, the same amount used by 140 million households each year.

-Energy – By using enzymes, textile mills used less energy and reduced their CO₂ emissions by 12 million tons. That is the equivalent of removing 5.2 million cars from the roads per year.

-Chemicals – The need for chemicals was reduced by approximately 1.4 million tons.

Calculations are based on Novozymes' Life Cycle Assessments, which are validated by third party assessments. The numbers per year are based on Novozymes sales of textile enzymes in 2018 recalculated from the data we have for an average size textile mill. An average European consumes approximately 60 m³ of fresh water per household per year, and an average passenger car emits around 2.4 tons of CO₂ per year.

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About Novozymes

Novozymes is the world leader in biological solutions. Together with customers, partners and the global community, we improve industrial performance while preserving the planet's resources and helping build better lives. As the world's largest provider of enzyme and microbial technologies, our bioinnovation enables new textile solutions and low-temperature washing, higher agricultural yields, energy-efficient production, renewable fuel and many other benefits that we rely on today and in the future. We call it Rethink Tomorrow. www.novozymes.com