THE LATEST FACTS AND RESEARCH ON MICROPLASTICS FROM TEXTILES

Beirholm develops and tests textile types that retain polyester fibres

Textiles can release microplastics, so what are the standardised measurements and facts that can be presented in a serious debate on microplastic pollution of our planet?

“For Europe’s laundry industry, this is still a new area; which is why we continuously research, develop and test to find out more and validate measurement methods,” says Yahvi Frimand Paludan-Müller, project manager for sustainable solutions at Beirholms Væverier.

“We use our knowledge of textiles to help industrial operations, and look forward to the day that a testing method is developed, approved and agreed upon across the different markets. The laundries play an important role in this process, and we focus on supporting them, for example in their communication, because preventing the release of microplastics at all stages of the lifecycle is important for the environment.”

Test: BeirTex® is best at retaining fibres

The Hohenstein Institute in Bönnigheim, Germany, has tested the release of fibres in a number of polyester/cotton textiles. The BeirTex® technology was found to be significantly better at retaining polyester fibres compared to a corresponding market-standard textile.

“In the test, all released fibres were counted and divided into cotton and polyester,” explains Yahvi Frimand Paludan-Müller. “We provided three different textiles for the test: a good market-standard product, a BeirTex® product with virgin polyester and the same product with recycled polyester.”

The test produced two important results:

1. After the first wash, the BeirTex® virgin and recycled polyester products released 40% and 15% fewer microplastic fibres, respectively, compared to the good market-standard product
2. After five washes, the BeirTex® virgin and recycled polyester products only released half as many microplastic fibres compared to the good market-standard product

In other words, the BeirTex® textiles release much less microplastic in their lifetime compared to standard good-quality products.

Beirholm
Context Engineered Textiles

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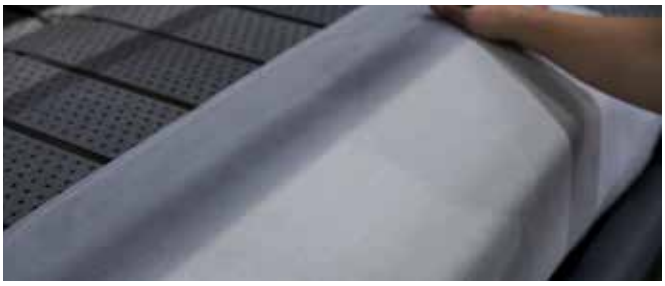

But why buy market textile technologies with polyester content instead of a product with 100% cotton content (where microplastics are not an issue) at all? From a lifecycle point of view, polyester/cotton products are better for the environment because:

Polyester significantly extends the life of the finished product. This reduces the need to produce and buy new textiles. It is an important factor to take into account, since a minimum of 25% of the textile's total CO_2e (carbon dioxide equivalent) emissions are released during the production of a new textile.

Polyester fibres dry faster than cotton fibres. Products with the BeirTex® technology dry even faster. This means that laundries can reduce their temperatures and increase their processing speed, thereby achieving lower energy consumption per washed item. This makes a big difference, since the remaining 75% of the textile's total CO_2e emissions are released in the laundry process.

The Higg MSI index (Materials Sustainability Index) shows a total impact score from the cotton field to the finished product of 44 and 98 for polyester and cotton, respectively. In other words, cotton scores more than twice as high as polyester on a scale where lower is better. The score takes into account the categories of global warming, eutrophication, water consumption, scarce fossil fuels and chemistry, thus giving a holistic picture of the eco-friendliness of polyester and cotton.

Laundries' wastewater treatment plants and textile production play an important role

A Swedish test has identified the extent of the release of microplastic fibres from laundries by focusing on their wastewater treatment plants and the textiles' production. The test involved washing textiles for the healthcare sector, workwear and textiles for hotels and restaurants.

The test showed that:

» Industrial laundries accounted for only 11-22% of the total release of microplastics caused by private and industrial washing

» Laundries with wastewater treatment plants released significantly less microplastics. The three laundries in the test reduced the release of microplastic fibres by 65%, 96% and 97%, respectively. The big difference was the treatment plants

» Hotel textiles released significantly fewer fibres compared to textiles for the healthcare sector. This may be because producers of hotel textiles choose well-spun yarns that have longer fibres and are more robust, and therefore release fewer microplastics when they go through the industrial laundering process

A Danish study published by the Ministry of Environment and Food showed that Danish municipal wastewater treatment plants only emitted 0.3% of the total microplastic fibre mass that entered the plants into the aquatic environment.

"The two studies show that the laundries' purchases of textiles, together with the quality of their own and the municipality's treatment plants, have a major impact on the release of microplastic fibres into the environment," says Yahvi Frimand Paludan-Müller from Beirholm. "We are on a journey towards greater sustainability, and the polyester-cotton mix has long since demonstrated its benefits, with its longer life span and lower consumption of resources in industrial laundering. The result is significantly lower emissions of CO_2, SO2, VOC and NO_x, and now we are working towards producing textiles that do not release any fibres at all."

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