

WARP KNITTING

REDUCTION OF MICROPLASTICS

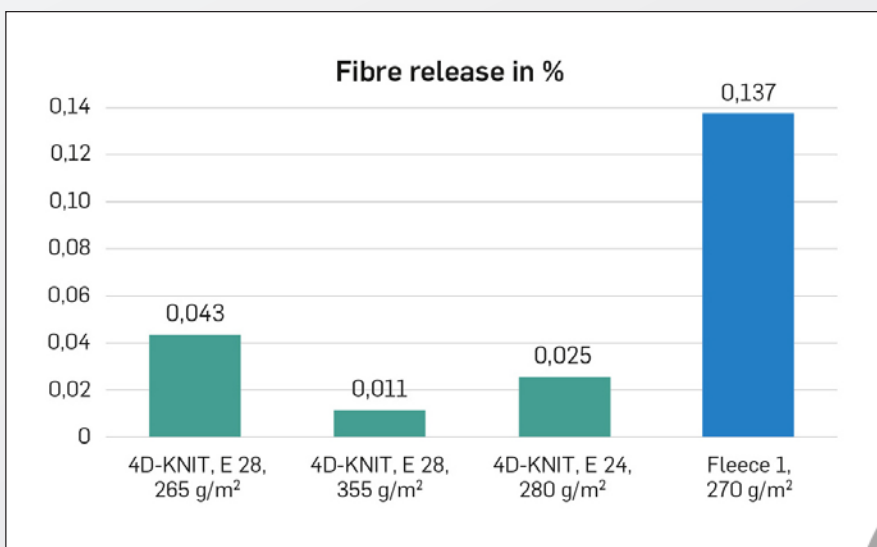


Fig 1: Results of quantitative determination of fibre release

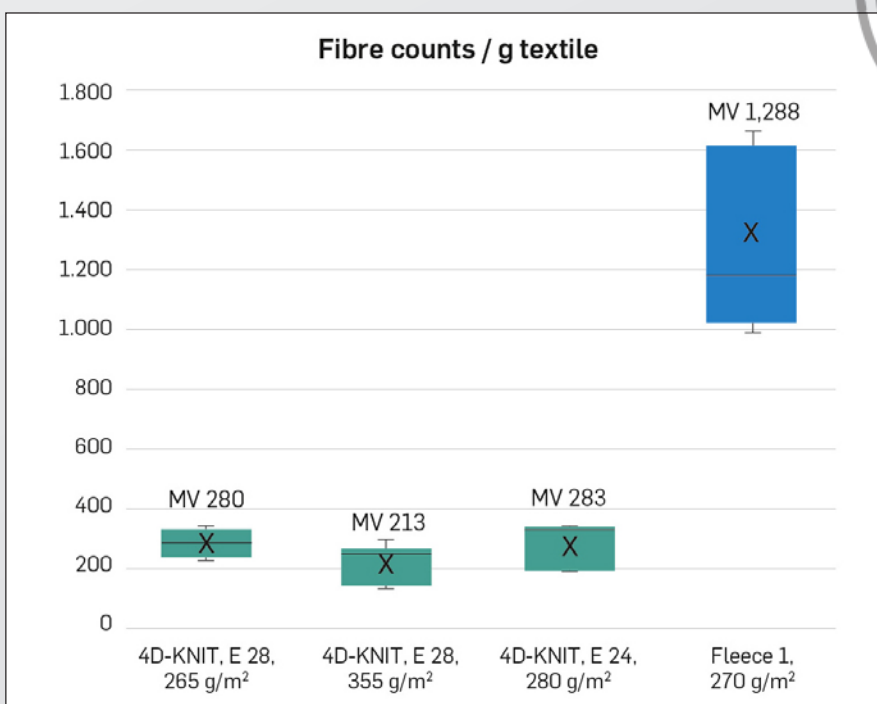


Fig.2: Results of quantitative fibre counts determined by dynamic image analysis

90% LESS MICROPLASTIC RELEASE

The total fibre abrasion of the most favourable warp knitted fabric variant was only about 10% of the fibre abrasion of the fleece counterpart.



UP TO 84% LESS FIBRES COUNTED

Fibres of various length ($\geq 50 \mu\text{m}$) and diameter ($\geq 7 \mu\text{m}$) were released from all samples.

From 4D-knit articles the maximum difference was as much as 84.5% lower than from the fleece fabric.

Performance solutions in 4D-KNIT with reduced microplastic emission

In addition to their good insulating properties and the completely new look, 4D-knit articles offer advantages in terms of environmental protection.

Hohenstein Laboratories in Boennigheim made a test to analyse the (micro)fibre shedding behaviour during laundry. Test report no. 21.8.4.0431

The different 4D-knit samples and a Fleece double-side brushed were tested with two different analysis methods:

- Fig.1: The microfibre consortium test method:
Quantification of fibre release from fabrics during domestic laundering by the filtration method (version 1.1 09.2021)
- Fig.2: Dynamic image analysis of fibre using a simulated washing process (SOP-QM-11.BM.03.104)

The results demonstrate a significant reduction in fibre release compared to brushed fleece fabrics:

- **90% less microplastic release**

The filtration method showed that most favourable warp knitted 4D-knit sample, only about 10% of the total mass filtered compared to the fleece counterpart.

- **Up to 84% less fibres counted**

For the 4D-knit fabrics, up to 84% fewer fibre counts were determined, the fleece sample had the highest number of fibres.



For more information

Contact:

- Gabriela Schellner: gabriela.schellner@karlmayer.com
- Yuji Yamamoto: yuji.yamamoto@karlmayer.com

www.4d-knit.solutions