

Textechno
textile testing technology

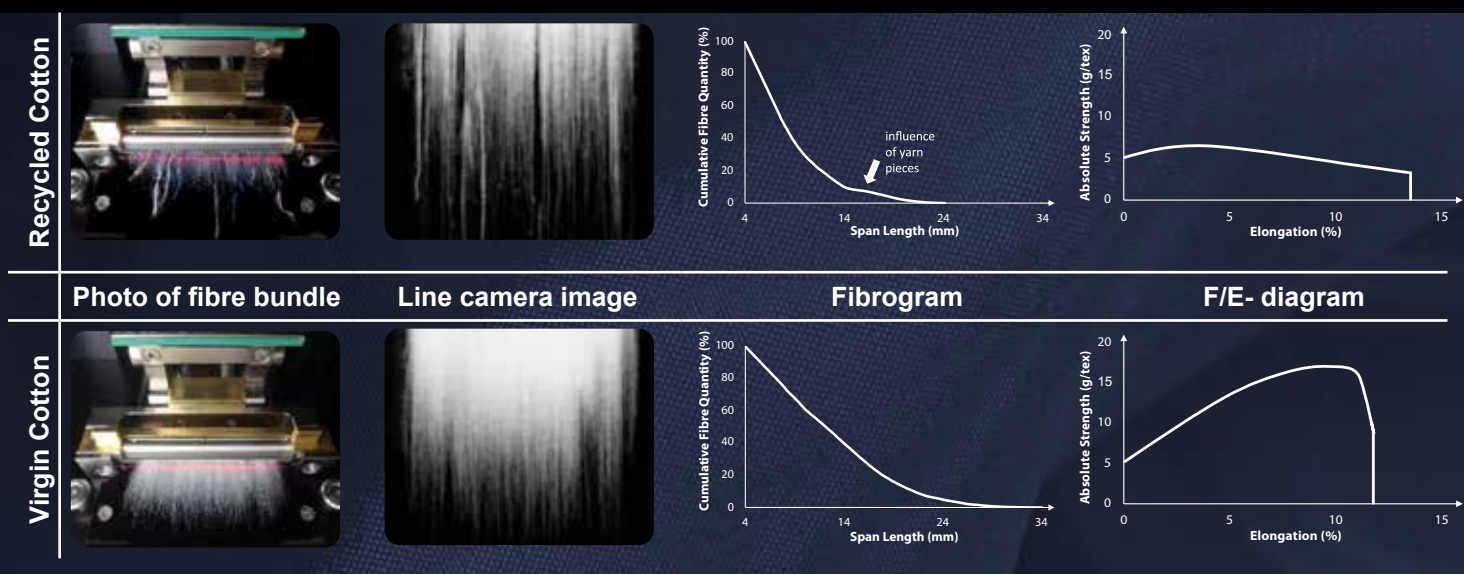
Testing Solutions for Recycled Fibres



Textile recycling is among the fastest growing textile sectors of the current decade. When garments are mechanically recycled back into fibres, various techniques can be applied, resulting in very different fibre properties. Knowledge of these properties is important for achieving a high-quality end product. Fibre length distribution and contaminations, e.g., from yarn remnants, fabric remnants and neps, are among the most important quality parameters of recycled fibres.

Textechno developed several testers for the spun yarn market, including Fibre Length- and Strength Tester FIBROTEST, Fibre Length Tester FIBROLENGTH, and Impurity and Spinnability Tester MDTA 4. During the development of these testers Textechno paid close attention to the flexibility and versatility of these instruments. In several studies and by industrial use the testers have also proven to be well suited for fibres coming from recycling processes of all kinds. This includes fibres from post-industrial as well as post-consumer waste, regardless of material, colour or chemical treatment.

FIBROTEST: Comparison of recycled and virgin cotton samples



General FIBROTEST workflow:

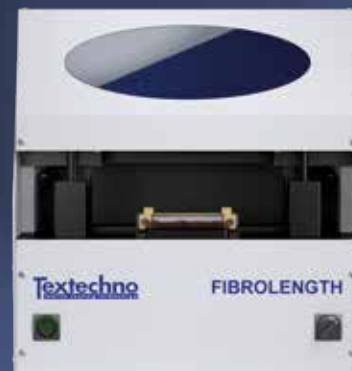
- Creation of a fibre bundle using the preparation station
- Insertion of the clamped bundle into the tester
- Automatic test of length, strength and weight of the fibre bundle



FIBROTEST

This tester incorporates both fibre length measurement and fibre-bundle strength test within one instrument. The sample mass is automatically determined, which enables calculating the exact and absolute value of the tenacity.

FIBROLENGTH
For customers who are only interested in length-related values of FIBROTEST, Textechno offers FIBROLENGTH as a cost-effective alternative.



Textechno's instruments determine the following properties of recycled fibres:

- **Fibre length distribution** (FIBROTEST/FIBROLENGTH), mean length, short fibre content, uniformity index, etc. which are critical parameters for ensuring a trouble-free spinning process and a sufficient yarn quality
- **Fibre bundle strength** (FIBROTEST), absolute i.e., without calibration cotton, and relative to calibration cotton (minimum UHML of 19 mm)
- **Opening energy** (MDTA 4), indicates fibre cohesion, useful for predicting processing behaviour and for comparing different chemical treatments or dyes
- **Nep count and size** (CLIF), important for optimising the tearing process, to reduce yarn IPIs and optical defects in the fabric
- **Yarn count, size and weight percentage** (CLIF), indicates the degree of opening, a critical property between tearing and spinning. Correlates very well with manual measurements which consume about 60 times as much time
- **Micro-dust and fibre-fragments** (MDTA 4), determined gravimetrically. Tearing creates dust which can complicate the spinning process.

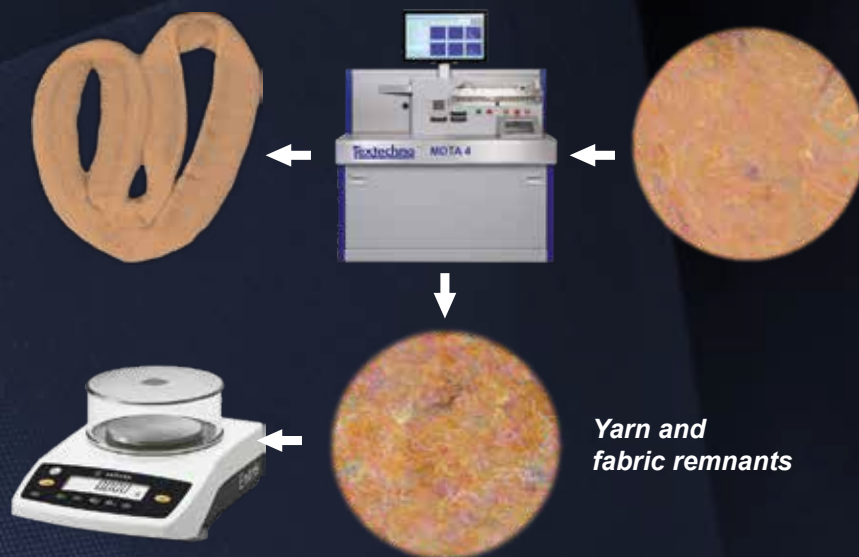
The slivers created with the MDTA 4 can be used in several ways:

- Optical impurity analysis (CLIF)
- Opening work measurements (MDTA 4)
- Cohesion analysis with static tensile tests on the sliver (STATIMAT)
- Spinning trials
- Colour inspection of blends

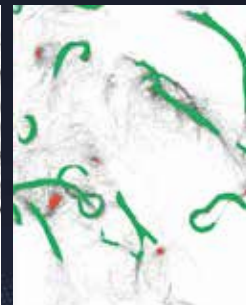
MDTA 4: Separation of fibres from yarn and fabric remnants

Fibres in sliver form

Input: Recycled material

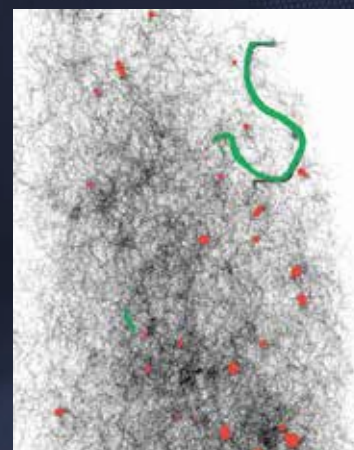
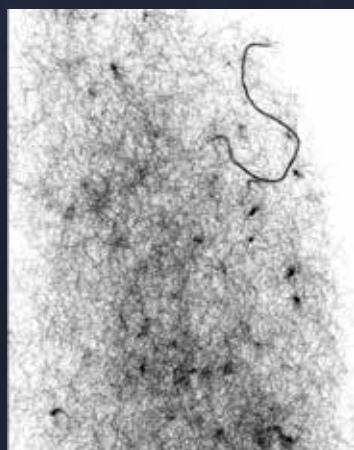


CLIF: Classification of Impurities in Fibres



Input image

Analysed image



Input image

Analysed image

■ Neps
■ Yarns

Textechno's Fibre Classifying System FCS consisting of:



FIBROTEST / OPTOTEST / FIBROFLOW



MDTA 4

THE TEXTECHNO GROUP

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