

CASE STUDY

PROJECT SIZE: SMALL (<\$5,000)

TIMEFRAME: 3 – 4 WEEKS



Evaluating the Strength of Fibres

Client: A manufacturer of fibre mats had received two shipments of fibres and felt that one shipment of fibres seemed to be weaker than the other.

Problem: The client has a variety of product lines that utilize certain types of fibres. If the poorer performing fibres were flawed because of mechanical damage, they could still be used in a product that does not need a long fibre length; however, if caused by inherent properties, such as being over-retted, the fibres could not be used.

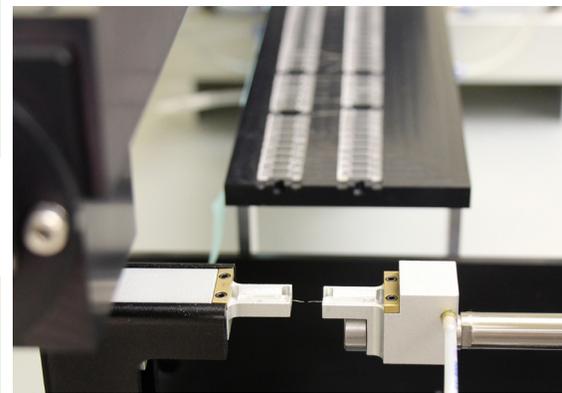
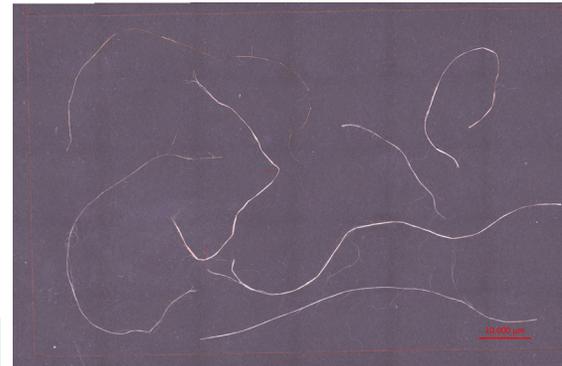
Details:

- The two shipments needed to be compared to verify that one had a lower tensile performance than the other.
- If there was a difference in performance, investigation into the source of the difference should be undertaken to determine if the material was still useable.

Recommended Tests & Rationale:

FibreCITY works with clients to provide assurances that their material will perform to specified standards. To be able to determine those results, FibreCITY used a customized combination of tests based on the information the client needed to know.

- **Single Fibre Tensile Testing** – determining if there was a meaningful difference in the overall strength of the two samples
- **Data Analysis** – investigating the distribution of single fibre test results to determine if the weaker sample was underperforming throughout or if a small component in the sample might be contributing to the reduced overall performance
- **Crimp And Kink Analysis** – measuring the abrupt angle changes along the fibre axis to determine if one sample exhibited more processing damage than the other



Outcome

Based on the assessment, it was determined that one shipment did have an overall weaker tensile average. The source of the weakness was attributed to approximately 10% of the fibres in the batch having lower tensile strength that was not linked to a difference in mechanical processing damage.

