

CASE STUDY

PROJECT SIZE: MEDIUM (\$5,000 – \$15,000)

TIMEFRAME: 2 – 3 MONTHS



Evaluating Fibres Before and After Treatment

Client: A fibre processor was processing natural fibres by using a novel proprietary treatment.

Problem: They were evaluating new feedstocks and wanted to quantify the effect of the treatment on fibre properties critical to the composites industry.

Details:

- The client provided 14 samples; 7 untreated and 7 treated.
- They wanted to know the change in certain fibre properties after the treatment was applied.
- Different kinds of fibre testing were conducted on untreated and treated specimens.

Recommended Tests & Rationale:

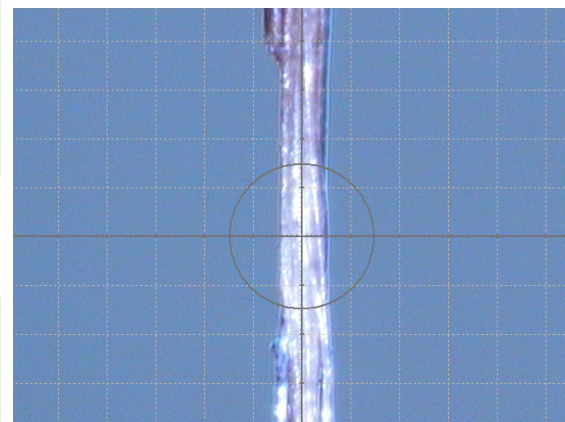
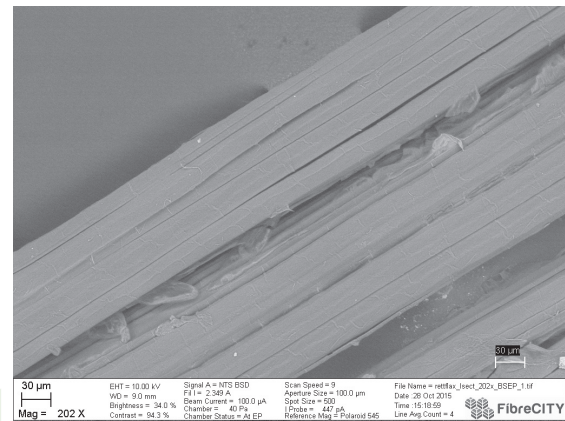
FibreCITY recommended doing less time-intensive tests on all of the samples and then selecting the most promising samples to undergo more intensive tests.

Initial evaluation (14 samples: 7 untreated/7 treated):

- **Tensile Test** – testing if the tensile strength has weakened or strengthened after the treatment
- **Moisture Test** – measuring the mass change of the sample in response to the change in humidity

Secondary evaluation (2 samples: 1 untreated/1 treated):

- **XRD Test** – determining if the treatment affected the crystallinity of the fibres
- **FTIR Test** – determining if there was any chemical component change caused by the treatment.
- **SEM Imaging** – identifying the surface morphological alterations caused by the treatment



Outcome

The investigation suggested that there was no apparent trend of tensile property change found after the treatment. However, it was found that some other properties (i.e. fibre width, surface cleanliness etc.) were changed as expected.