

How to predict the quality, strength and uniformity of a fiber reinforced composite?

The length and other geometrical properties of rCF (recycled carbon fibers) are determinant parameters in the production of composite materials containing rCF. RCF staple fibers (fibers with finite length) are available as: roving snippets (fiber collectives) or single fibers.

★ Detect regularities or irregularities

Sampling inspection of purity or uniformity or the control of geometric characteristics help to improve later process steps.

★ Create a high-quality product

The measurement system **FibreShape** provides the user with the safety of a standardized quality measurement. FibreShape can be used for entrance control of the length and width of rCF as well as to control the fiber length as part of the processing chain.

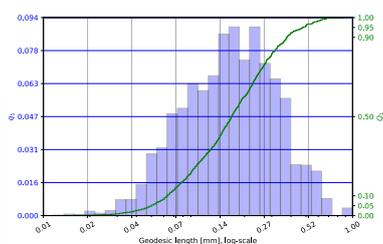
★ Consider that when working with short-fiber composites there is relatively little interface per fiber for the transfer of stress

The fiber length is a key characteristic important in the production. The so-called “critical length” of carbon fibers is approximately 5 mm. This length is necessary to ensure that the fiber can be stressed

rCF fiber: length & width



Single rCF scanned at 3200 dpi,
Material provided by the
Faserinstitut Bremen

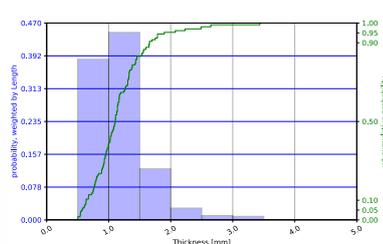


Distribution density (q1) of the
geodesic length, weighted by
length

rCF roving snippets: length & width



Roving snippets scanned at
3200 dpi,
Material provided by STFI

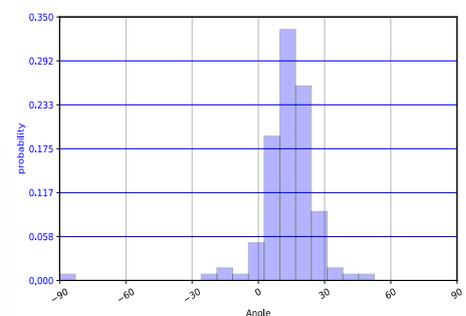


Distribution density (q1) of the
width, weighted by length

rCF-nylon-hybrid yarns: width, orientation & distance



rCF-nylon-hybrid yarns scanned in reflective
light mode at 1200 dpi.
Material provided by the DITF



Orientation - Distribution density (q1) of the
angles of the wrapper filaments.