

Short summary of the discussion session regarding fibre characterization

Stockholm
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It was decided to focus on methods for fibre characterization.

A key issue when discussing fibre characterization is heterogeneity. Three different ways of handling heterogeneity were discussed:

1. The 'statistical' approach, i.e. 'the need for speed', meaning that many measurements are needed for the result to be a statistically reliable estimate of the mean value of the population. This approach calls for fast, automatic methods. Regarding fibre dimensions, systems based on automatic image analysis (type FiberMaster) are already now available, but for mechanical properties this is not the case.
2. Fast, indirect measurements based on e.g. spectroscopy and chemometrics. This approach is only feasible if at least several hundred samples of the same type are to be measured under the same conditions (as in on-line control in an industrial application). Otherwise the initial cost and effort required is too high for establishing a reliable relationship between the spectroscopic output and the variable(s) to measure.
3. Establishing structure-function relationships based on measuring several properties in parallel for the exact same sample. In this way the effect of heterogeneity is to some extent 'short circuited'. This approach requires very well-defined samples (including their history) and well-defined conditions during measurements (e.g. temperature and humidity). The possibilities for standardization of single fibre testing and round-robin tests were discussed.