

**FEASIBILITY OF PRODUCING REFERENCE COTTONS TO
CALIBRATE STICKINESS MEASURING INSTRUMENTS**
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Abstract

Preparing reference cottons for the calibration of stickiness measuring instruments requires full control over the variability of the number of sticky points and an appropriate mixing method to obtain sufficient homogeneity in the fiber masses to be used.

The reference cottons produced are intended for use both within the same laboratory and in different laboratories. In the first case, the objective is to guarantee that stable counts are obtained by a given machine under the operating conditions used in that laboratory. Here, the availability of sufficiently homogeneous and stable reference cottons enables the operators to detect any drift and make the necessary adjustments (calibration verifications).

In the second case, the aim is to guarantee correspondence between the results obtained by different machines and therefore by different operators. As well as providing each user with cotton that within the batch is homogeneous and stable, it is important to guarantee that the different batches of reference cotton are also homogeneous one with another.

A preliminary laboratory study to evaluate the variability of the stickiness and the effect of the preparation process on the homogeneity of the mixtures was conducted using a small amount of cotton (a few kg). The results obtained are not therefore necessarily extendable to the industrial scale.

A second study focused on the variability of the stickiness after the different opening and mixing steps on the industrial scale, using an entire bale. This corresponds to the final objective of the project, i.e. to homogenize entire bales of cotton in order to produce sufficient quantities of reference cottons.

The High Speed Stickiness Detector (H2SD) was used to determine mean stickiness and its variability in the samples selected as possible future reference cottons.

The results of the laboratory study and those obtained on the industrial scale (ongoing) show that i) mean stickiness decreases slightly with the number of preparation operations, ii) the distribution of the sticky points more closely approaches a Poisson distribution from the second opening step onward.

At this stage in the study, it would therefore appear possible to produce reference cottons for the periodic verification of H2SD stickiness measuring instruments.