

4 Interpreting and Applying the USTER® STATISTICS

The USTER® *STATISTICS* for slivers consists of several parts, each addressing a specific quality aspect in the production sequence of fiber slivers in the short-staple spinning mill. The different sections are arranged according to the material composition. Each section is subdivided into distinct quality characteristics (e.g. mass variation, etc.) which were recorded with USTER® *SLIVERGUARD*. These parameters are presented in graphic form. A register is provided for quick reference to the sections of interest.

The most important elements of these USTER® *STATISTICS* are the nomograms with the percentile curves, which were already used with the USTER® *STATISTICS* for fibers and yarns. The width of the percentile curves intentionally imposes certain restrictions on accuracy, but it is also an indication of the pronounced variability of most textile measurements. The x-axis should be the starting point of any analysis. The percentile curves refer to the percentage of the total world production that equals or exceeds the measurement value given for a particular sliver count. An example:

The coefficient variation of sliver mass of a Ne 0.12 (4.9 ktex, 69 gr/yd) finisher drawframe sliver of combed cotton is measured at $CV_m = 2.0 \pm 0.04\%$ by the USTER® *SLIVERGUARD*. A vertical line drawn from the x-axis at Ne 0.12 intersects with the two horizontal lines drawn from the y-axis at 1.96% and 2.04% (lower and upper confidence range) right at the 25% line. Hence, only 25% of all Ne 0.12 combed cotton drawframe slivers produced worldwide have a CV_m of 2.0% or better. Vice versa, 75% of the total world production of comparable Ne 0.12 drawframe slivers have a CV_m higher than 2.0%.

The 50% line corresponds to the median. In general terms, the median is the middle number when the measurements in a data set are arranged in ascending (or descending) order. This means that 50% of all observations exceed this value and the other 50% lie below. Depending on whether the frequency distribution of a given quality parameter is symmetric or skewed, the median may or may not be different from the arithmetical mean value.

Some USTER® *STATISTICS* nomograms are labeled 'provisional' to indicate that the respective data are based on less than 100 samples. As with the USTER® *STATISTICS* for fibers and yarns, the limiting sample size of 100 was chosen arbitrarily but applied consistently. With sample sizes lower than 100 and greater than normal spread of the data, only the 5%, 50%, and 95% line is shown. Diagrams that are labeled 'provisional' are neither inaccurate nor considered unimportant, they are simply subject to change in the form of a partial revision at a later date.