

# ICA Bremen Cotton Round Test 2018-3

in Cooperation with Bremer Baumwollbörse  
carried out by Bremen Fibre Institute (FIBRE)



**ICA Bremen**  
The Global Centre for Cotton Testing and Research

Bremen, 2019-08-26

## FINAL Evaluation of the Test Results 2018 / 3

Tested Cotton: **Cameroon** Number of Laboratories: **109**  
Cotton Number: **RM 44**

|                |    |               |   |
|----------------|----|---------------|---|
| Argentina      | 1  | Mauritius     | 1 |
| Australia      | 1  | Pakistan      | 3 |
| Bangladesh     | 1  | Poland        | 1 |
| Brazil         | 3  | Senegal       | 1 |
| China          | 21 | Serbia        | 1 |
| Czech Republic | 3  | Slovenia      | 2 |
| Egypt          | 2  | South Africa  | - |
| France         | 1  | Spain         | 4 |
| Germany        | 9  | Sudan         | 1 |
| Greece         | 6  | Switzerland   | 2 |
| India          | 22 | Taiwan        | 1 |
| Indonesia      | 1  | Tanzania      | 1 |
| Iran           | 1  | Thailand      | 1 |
| Israel         | 1  | Tunisia       | 1 |
| Italy          | 1  | Turkey        | 3 |
| Japan          | 2  | Uganda        | 1 |
| Kazakhstan     | -  | United States | 5 |
| Korea          | 1  | Uzbekistan    | 1 |
| Latvia         | -  | Vietnam       | 1 |
| Mali           | 1  |               |   |

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## Explanations

2018-3

### test material

The sample material is generally unprocessed cotton lint without additional homogenisation from varying origins with a wide spectrum of properties. The Bremen Fibre Institute (FIBRE) usually avoids origins with high result variations.

In this Round Test the cotton is: **Cameroon (RM 44)**

The variation of the utilized cotton was measured at the Bremen Fibre Institute (FIBRE) with an Uster HVI 1000 with 10 tests on samples from 10 different layers with the following results:

| HVI<br>HVICCS     | SD between bale layers<br>(based on 10 tests per layer) | SD between single tests<br>(based on 10 times 10 tests) |
|-------------------|---|---|
| Mic               | 0.014   | 0.034   |
| Strength, g/tex   | 0.197   | 0.678   |
| Length, UHM, inch | 0.005   | 0.015   |
| Length, UHM, mm   | 0.127   | 0.391   |

The test material is not suitable as a reference for calibration.

### result evaluation

The results of the participating laboratories for one test method and one parameter are grouped in one table implying that the used instruments yield comparable results despite different instrument types or different national standard test methods. The results are partitioned in different tables as soon as significant differences appear.

Based on the compilation of the results, an identification of outliers is carried out, which is according to Grubbs' Test for Outliers described in ISO 5725 with one slight modification: the algorithm is applied repeatedly to ensure that all outliers are excluded. All outliers are marked by putting the result in brackets. The statistical parameters for all tables and characteristics are calculated after the exclusion of outliers. For the usage of the statistical data, the different numbers of repetitions in each lab have to be considered.

### graphs

In all graphs, any values on the border between two classes are sorted to the lower class [Class Limit  $\leq$  x < Class Limit].

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## assessment of the laboratory performance

From the results, the bias of each laboratory can be calculated. Stability and repeatability cannot be assessed.

The ICA Bremen Cotton Round Test does not include any benchmarking or rating of the laboratories and their results. Rather the results can be used by each laboratory to evaluate its own performance.

- For estimating a bias to results of other laboratories, please calculate the difference between your result and either the average or the median of all laboratories (after exclusion of outliers).
- For evaluating the bias, the z-score calculation may be applied:

$$z = \frac{\text{your value} - \text{average (or median)}}{\text{StdDev}}$$

- If the z-score is between -1 and 1 your lab belongs to the better 68% of all labs and no measures are necessary. In the z-score range of -2 to 2 are 95 % of all values. The closer your z-score is to 2 (-2) the more urgently it is to take measures to improve performance. If your z-score is above 2 (below -2) a basic revision of all conditions will be necessary.
- For assessing permanent deviations, please monitor all deviations in subsequent ICA Bremen Round Tests or in comparison to other round trial programmes like the CSITC Round Trials or the USDA HVI Checktest.

## laboratory numbers

The laboratory numbers for each laboratory are confident. The numbers are usually kept constant for subsequent Round Tests. In case that any laboratory has doubts in the anonymity of its number, a new laboratory number should be requested.

In case of more than one instruments of the same type, an adjunct number or character is given (e.g. 123-1 and 123-2). In order to distinguish between your instruments, please provide specific adjunct characters for each of your instruments with your data sheet.

## registration and participation

To register a new laboratory to the ICA Bremen Round Test, please send the laboratory's contact details to Mrs Hannelore Gerardi – contact details provided below.



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In the case that a laboratory does not send any results back for a whole year's period, we have to exclude it from the participants.

## choice of test methods included in the round test

The ICA Bremen Round Test strives to include every commonly used test method.

- Test methods will remain included as long as sufficient participant numbers are given, although the Bremen Fibre Institute (FIBRE) maintains the right to exclude methods.
- Proposals for the inclusion of new methods/instruments/parameters are appreciated. For this, an adequate number of long term participants should be given.
- Test methods for stickiness are excluded due to difficulties in sample provision.

## improvement of the ica bremen cotton round test

Any proposals for improving the Round Test are highly appreciated. For this, please contact Mr Axel Drieling – contact details provided below.

## important notes

Please take care to fill in all the necessary information on the test forms (e.g. the test methods, the instrument types and the number of repetitions for each test). Please provide one or two reliable e-mail addresses to Mrs Gerardi - contact details are provided in the last section.

## Contact

For any questions regarding the ICA Bremen Cotton Round Test, please contact:

- Mr Axel Drieling for general questions relating to the Round Test and cotton testing, Tel. +49 421 218 58650, e-mail: [axel@ica-bremen.org](mailto:axel@ica-bremen.org)
- Mrs Hannelore Gerardi for questions relating to the realization of the current tests, Tel. +49 421 218 58671, e-mail: [gerardi@faserinstitut.de](mailto:gerardi@faserinstitut.de)

With kind regards,

Axel Drieling  
Hannelore Gerardi



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## Micronaire (Stand Alone Instruments)

|            | Micronaire (Mic) | Instrument      | Standard Test Method | Repetitions |
|------------|------------------|-----------------|----------------------|-------------|
| Average    | 3.74             |                 |                      | 4.0         |
| Median     | 3.725            |                 |                      |             |
| Stddev     | 0.11             |                 |                      |             |
| CV         | 3.0              |                 |                      |             |
| Min        | 3.5              |                 |                      |             |
| Max        | 4.08             |                 |                      |             |
| n          | 27               |                 |                      |             |
| Laboratory | Micronaire (Mic) | Instrument      | Standard Test Method | Repetitions |
| 12-1       | 3.9              | USTER 775       | GB/T 6498-2008       | 2           |
| 16-1       | 3.71             | N/S GW208/08    | UNE 40214            | 12          |
| 17-1       | 3.5              |                 |                      |             |
| 22-1       | 3.57             | Fibronaire      |                      | 3           |
| 29-1       | 3.6              |                 | ISO 2403             | 4           |
| 32-1       | 3.62             | FFMM            |                      | 6           |
| 32-2       | 3.63             | FFMM            |                      | 6           |
| 44-1       | 3.77             | Uster           |                      | 10          |
| 44-2       | 3.71             | Premier         |                      | 10          |
| 56-1       | 3.79             | Fibronaire      | JIS                  | 2           |
| 67-1       | 3.708            | Fibronaire      |                      | 6           |
| 76-1       | 3.83             | Wira            |                      | 4           |
| 77-1       | 3.8              | Sheffield       |                      | 4           |
| 92-1       | 3.85             | DigiMic XT      | ASTM D1448           | 10          |
| 96-3       | 3.95             | GJC-01          | GB/T 6498-2008       | 3           |
| 100-1      | 3.83             |                 |                      | 12          |
| 112-1      | 3.84             | Fibronaire      | ASTM D 1448          | 2           |
| 131-1      | 3.7              | mic             | 1448-05              | 6           |
| 132-1      | 3.8              | Uster 775       | DIN 53941            | 3           |
| 142-1      | 3.88             | 80 400          | ISO                  | 3           |
| 155-1      | 3.7              | 275 Typ C       |                      |             |
| 162-1      | 3.7              | Wira            |                      | 6           |
| 169-1      | 3.75             |                 |                      | 3           |
| 177-1      | 4.08             | DPM 60          | DIN 53941            | 3           |
| 183-1      | 3.55             | Fibronaire      | ASTM 1448            | 6           |
| 186-1      | 3.7              | Wira            | ASTM                 | 6           |
| 211-1      | 3.74             | ATIRA Fin & Mat |                      | 3           |

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## Pressley - Strength

|                   | PI (0)        | Standard Test Method        | Repetitions |
|-------------------|---------------|-----------------------------|-------------|
| Average           | 6.83          |                             | 8.0         |
| Median            | 7.51          |                             |             |
| Stddev            | 1.64          |                             |             |
| CV                | 24.0          |                             |             |
| Min               | 4.4           |                             |             |
| Max               | 8.4           |                             |             |
| n                 | 8             |                             |             |
| <b>Laboratory</b> | <b>PI (0)</b> | <b>Standard Test Method</b> |             |
| 16-1              | 8.21          | UNE 40247                   | 12          |
| 29-1              | 8.4           | ISO 3060                    | 10          |
| 46-1              | 4.4           | DIN/ISO 3060 DIN 53942      | 10          |
| 56-1              | 8.1           | JIS                         | 5           |
| 100-1             | 6.96          |                             | 16          |
| 131-1             | 4.86          | 1445-05                     | 6           |
| 162-1             | 8.06          |                             | 6           |
| 177-1             | 5.61          | DIN 53942                   | 4           |

## Stelometer - Strength/Elongation

|                   | Bundle Strength (gf/tex)        | Bundle Elongation (%)        | Standard Test Method        | Repetitions |
|-------------------|---------------------------------|------------------------------|-----------------------------|-------------|
| Average           | 23.61                           | 6.51                         |                             | 6.0         |
| Median            | 23.5                            | 6.525                        |                             |             |
| Stddev            |                                 |                              |                             |             |
| CV                |                                 |                              |                             |             |
| Min               | 22.6                            | 6.0                          |                             |             |
| Max               | 25.45                           | 7.0                          |                             |             |
| n                 | 5                               | 4                            |                             |             |
| <b>Laboratory</b> | <b>Bundle Strength (gf/tex)</b> | <b>Bundle Elongation (%)</b> | <b>Standard Test Method</b> |             |
| 92-1              | 23.5                            | 6.0                          | ASTM D1445                  | 10          |
| 112-1             | 22.6                            | 6.39                         | ASTM D 1445                 | 3           |
| 131-1             | 25.45                           | 6.66                         | 1445-05                     | 6           |
| 162-1             | 22.8                            | 7.0                          |                             | 6           |
| 211-1             | 23.68                           |                              |                             | 4           |

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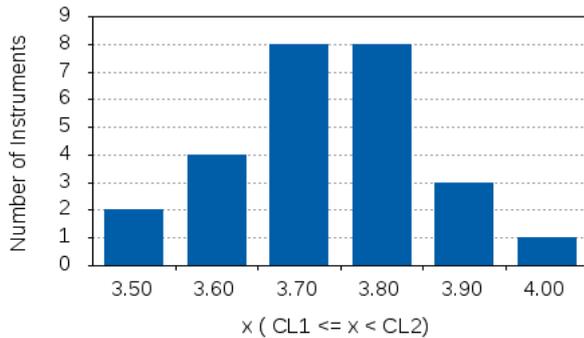
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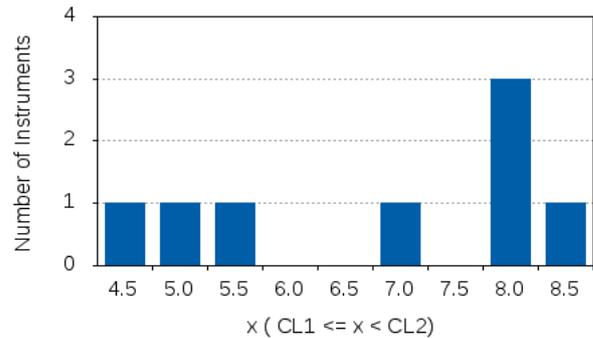


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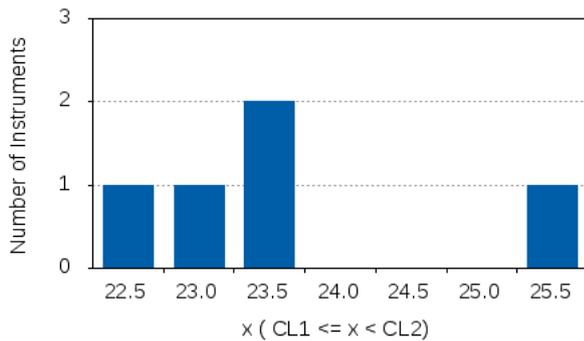
Micronaire (Stand Alone Instruments)



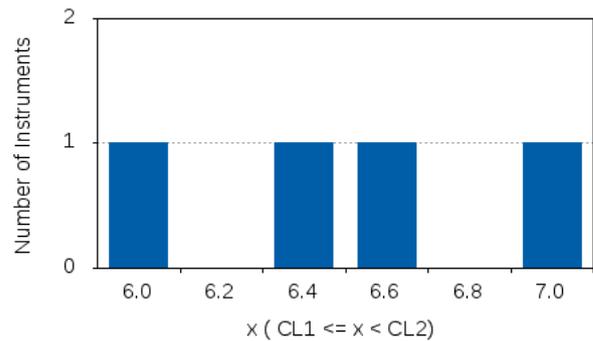
Pressley (0)



Stelometer Tenacity



Stelometer Elongation



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## Fibrograph - Span Length

|                | 2.5% SL<br>(inch) | 2.5% SL<br>(mm) | 50% SL<br>(inch) | 50%SL<br>(mm) | UR<br>(%) | SFC(N)<br>(%) | SFC(W)<br>(%) | SFI      | Instrument<br>Model | Standard Test<br>Method | Repeti-<br>tions |
|----------------|-------------------|-----------------|------------------|---------------|-----------|---------------|---------------|----------|---------------------|-------------------------|------------------|
| Average        | 1.086             | 27.58           | 0.508            | 12.91         | 47.0      |               |               |          |                     |                         | 6.0              |
| Median         | 1.075             | 27.3            | 0.506            | 12.84         | 47.0      |               |               |          |                     |                         |                  |
| Stddev         |                   |                 |                  |               |           |               |               |          |                     |                         |                  |
| CV             |                   |                 |                  |               |           |               |               |          |                     |                         |                  |
| Min            | 1.061             | 26.96           | 0.476            | 12.1          | 44.0      |               |               |          |                     |                         |                  |
| Max            | 1.119             | 28.43           | 0.557            | 14.16         | 50.0      |               |               |          |                     |                         |                  |
| n              | 5                 | 5               | 5                | 5             | 4         |               |               |          |                     |                         |                  |
| Laborator<br>y | 2.5% SL<br>(inch) | 2.5% SL<br>(mm) | 50% SL<br>(inch) | 50%SL<br>(mm) | UR<br>(%) | SFC(N)<br>(%) | SFC(W)<br>(%) | SFI      | Instrument<br>Model | Standard Test<br>Method | Repeti-<br>tions |
| 92-1           | 1.102             | 28.0            | 0.507            | 12.88         | 46.0      |               |               | 8.1      | DigiLen             | ASTM D5332              | 6                |
| 100-1          | 1.072             | 27.23           | 0.494            | 12.55         |           |               |               |          |                     |                         | 14               |
| 131-1          | 1.061             | 26.96           | 0.506            | 12.84         | 48.0      |               |               |          | 530                 | 1447-00                 | 6                |
| 143-1          | 1.075             | 27.3            | 0.476            | 12.1          | 44.0      |               |               |          | SPINLAB 330         | ABNT NBR 13154/94       | 2                |
| 211-1          | 1.119             | 28.43           | 0.557            | 14.16         | 50.0      |               |               | 6.7<br>7 | USTER 730           |                         | 10               |

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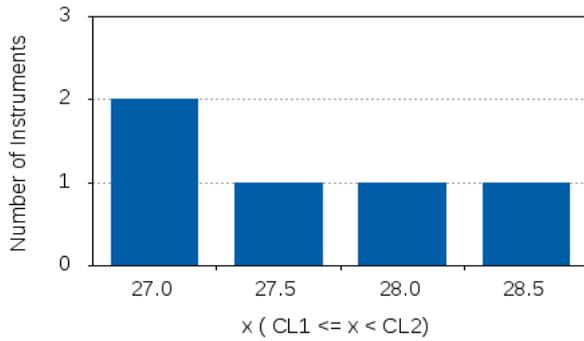
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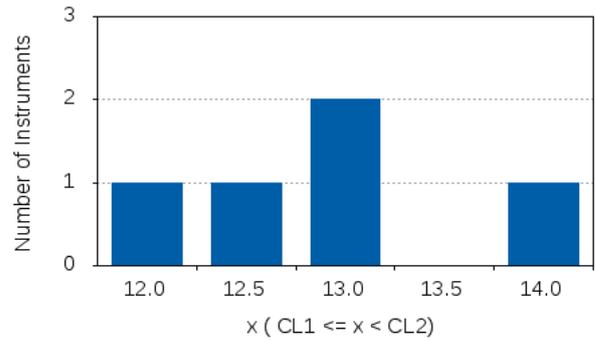


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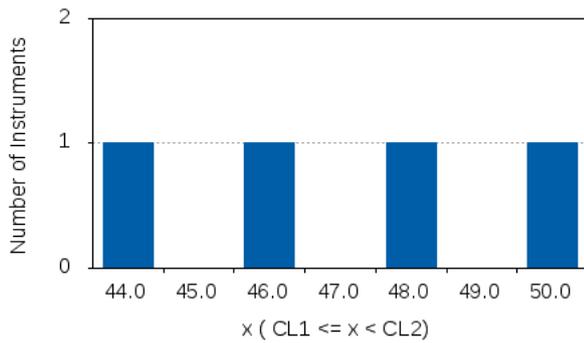
Fibrograph 2.5% SL (mm)



Fibrograph 50% SL



Fibrograph UR



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## Comb Sorter - Staple Length

|            | ML(W) (mm) | CV (%) | SFC < 12.5mm (%) | Instrument Model | Standard Test Method | Repetitions |
|------------|------------|--------|------------------|------------------|----------------------|-------------|
| Average    | 21.53      | 39.4   | 17.13            |                  |                      | 1.0         |
| Median     | 21.25      | 40.05  | 17.0             |                  |                      |             |
| Stddev     |            |        |                  |                  |                      |             |
| CV         |            |        |                  |                  |                      |             |
| Min        | 20.9       | 36.1   | 16.0             |                  |                      |             |
| Max        | 22.7       | 41.4   | 18.5             |                  |                      |             |
| n          | 4          | 4      | 4                |                  |                      |             |
| Laboratory | ML(W) (mm) | CV (%) | SFC < 12.5mm (%) | Instrument Model | Standard Test Method | Repetitions |
| 85-1       | 20.9       | 36.1   | 16.0             | Keisokki         | UNI 10170            | 1           |
| 85-2       | 21.3       | 39.9   | 18.5             | Keisokki         | UNI 10170            | 1           |
| 85-3       | 21.2       | 40.2   | 18.0             | Keisokki         | UNI 10170            | 1           |
| 85-4       | 22.7       | 41.4   | 16.0             | Keisokki         | UNI 10170            | 1           |

## Almeter - Staple Length

|            | ML(N) (mm) | CV(N) (%) | SFC(N) <12.5mm (%) | ML(W) (mm) | CV(W) (%) | SFC(W) <12.5mm (%) | Instrument Model | Standard Test Method | Repetitions |
|------------|------------|-----------|--------------------|------------|-----------|--------------------|------------------|----------------------|-------------|
| Average    |            |           |                    |            |           |                    |                  |                      |             |
| Median     |            |           |                    |            |           |                    |                  |                      |             |
| Stddev     |            |           |                    |            |           |                    |                  |                      |             |
| CV         |            |           |                    |            |           |                    |                  |                      |             |
| Min        |            |           |                    |            |           |                    |                  |                      |             |
| Max        |            |           |                    |            |           |                    |                  |                      |             |
| n          |            |           |                    |            |           |                    |                  |                      |             |
| Laboratory | ML(N) (mm) | CV(N) (%) | SFC(N) <12.5mm (%) | ML(W) (mm) | CV(W) (%) | SFC(W) <12.5mm (%) | Instrument Model | Standard Test Method | Repetitions |
| 58-1       | 17.1       | 44.9      | 35.5               | 20.5       | 38.6      | 19.3               | AL 101           | Internal             | 4           |
| 132-1      | 17.12      | 42.1      | 29.4               | 21.5       | 32.6      | 13.5               | Uster AL100      | DIN 53806            | 5           |

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## Causticaire (18% NaOH) - Maturity

|            | Maturity (%) | Instrument Model | Standard Test Method | Repetitions |
|------------|--------------|------------------|----------------------|-------------|
| Average    |              |                  |                      |             |
| Median     |              |                  |                      |             |
| Stddev     |              |                  |                      |             |
| CV         |              |                  |                      |             |
| Min        |              |                  |                      |             |
| Max        |              |                  |                      |             |
| n          |              |                  |                      |             |
| Laboratory | Maturity (%) | Instrument Model | Standard Test Method | Repetitions |
| 56-1       | 82.0         | Micronaire       | JIS                  | 2           |

## Microscopic Test - Maturity

|            | Maturity (ASTM) (%) | Maturity (BS) (%) | Instrument  | Standard Test Method | Repetitions |
|------------|---------------------|-------------------|-------------|----------------------|-------------|
| Average    |                     |                   |             |                      |             |
| Median     |                     |                   |             |                      |             |
| Stddev     |                     |                   |             |                      |             |
| CV         |                     |                   |             |                      |             |
| Min        |                     |                   |             |                      |             |
| Max        |                     |                   |             |                      |             |
| n          |                     |                   |             |                      |             |
| Laboratory | Maturity (ASTM) (%) | Maturity (BS) (%) | Instrument  | Standard Test Method | Repetitions |
| 131-1      | 89.0                |                   | leica queen | 2130-82              | 10          |

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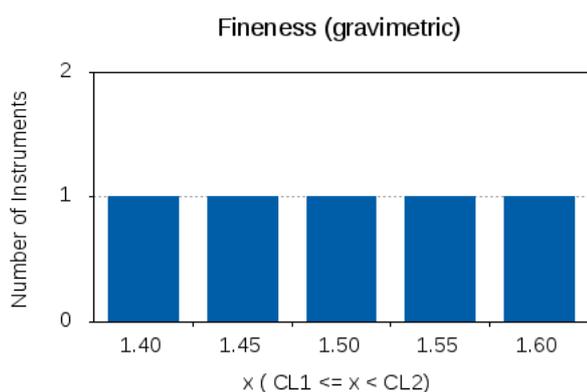
in Cooperation with Bremer Baumwollbörse  
carried out by Bremen Fibre Institute (FIBRE)



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## Gravimetric Fineness

|            | Grav. Fineness (dtex) | Std. Test Method | Repetitions |
|------------|-----------------------|------------------|-------------|
| Average    | 1.5                   |                  | 8.0         |
| Median     | 1.52                  |                  |             |
| Stddev     |                       |                  |             |
| CV         |                       |                  |             |
| Min        | 1.42                  |                  |             |
| Max        | 2.02                  |                  |             |
| n          | 6                     |                  |             |
| Laboratory | Grav. Fineness (dtex) | Std. Test Method | Repetitions |
| 85-2       | 1.6                   | UNI EN ISO 1973  | 10          |
| 85-3       | 1.52                  | UNI EN ISO 1973  | 10          |
| 85-4       | 1.43                  | UNI EN ISO 1973  | 10          |
| 112-1      | 2.02                  |                  | 3           |
| 131-1      | 1.42                  | 3818-86          | 6           |
| 177-1      | 1.55                  | ASTM D 1577/90   | 4           |



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Web: www.ica-bremen.org Email: info@ica-bremen.org

Registered in Germany no: HRB 27431 HB VAT-ID: DE280079445

Managing Director: Bill Kingdon

Place of jurisdiction: Bremen

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## IIC/Shirley FMT - Fineness/Maturity

|            | PM (%) | MAT   | FIN (mtex) | Instrument Model | Standard Test Method | Repetitions |
|------------|--------|-------|------------|------------------|----------------------|-------------|
| Average    | 78.5   | 0.88  | 151        |                  |                      | 6.0         |
| Median     | 75.88  | 0.855 | 152.0      |                  |                      |             |
| Stddev     |        |       |            |                  |                      |             |
| CV         |        |       |            |                  |                      |             |
| Min        | 73.23  | 0.83  | 142.0      |                  |                      |             |
| Max        | 89.0   | 0.99  | 156.0      |                  |                      |             |
| n          | 4      | 4     | 4          |                  |                      |             |
| Laboratory | PM (%) | MAT   | FIN (mtex) | Instrument Model | Standard Test Method | Repetitions |
| 32-1       | 73.4   | 0.83  | 155.0      | FFMM             |                      | 6           |
| 32-2       | 73.23  | 0.83  | 156.0      | FFMM             |                      | 6           |
| 102-1      | 78.36  | 0.88  | 149.0      | MICROMAT         | ASTM-5667            | 2           |
| 131-1      | 89.0   | 0.99  | 142.0      | FMT              | 3818-86              | 6           |

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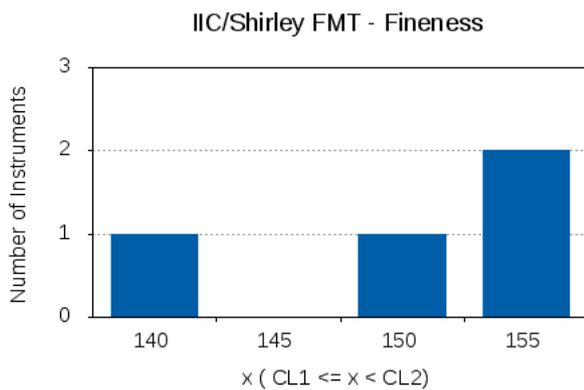
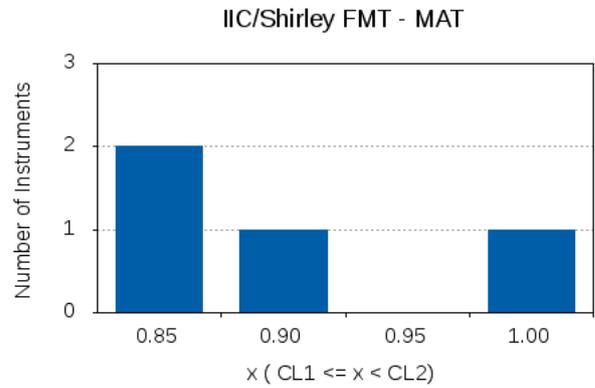
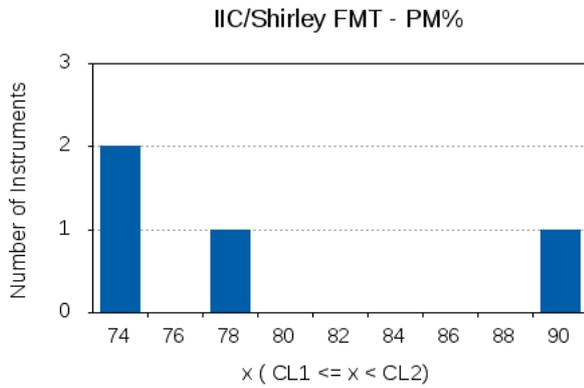
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## HVI (HVICCS Calibration): Micronaire / Strength

|            | Micronaire (Mic) | Mat. Index | PM% (%) | Strength (gf/tex) | Elong. (%) | Manuf.  | Model     | Std. Test Method                | Repetitions |
|------------|------------------|------------|---------|-------------------|------------|---------|-----------|---------------------------------|-------------|
| Average    | 3.8              | 0.846      | 84.4    | 28.73             | 6.78       |         |           |                                 |             |
| Median     | 3.8              | 0.85       | 85.0    | 28.7              | 6.7        |         |           |                                 | 6.0         |
| Stddev     | 0.09             | 0.02       | 2.5     | 1.06              | 0.8        |         |           |                                 |             |
| CV         | 2.3              | 1.8        | 2.9     | 3.7               | 12.4       |         |           |                                 |             |
| Min        | 3.52             | 0.77       | 72.0    | 24.8              | 3.2        |         |           |                                 |             |
| Max        | 4.08             | 0.89       | 88.0    | 33.1              | 9.8        |         |           |                                 |             |
| n          | 103              | 69         | 19      | 101               | 72         |         |           |                                 |             |
| Laboratory | Micronaire (Mic) | Mat. Index | PM% (%) | Strength (gf/tex) | Elong. (%) | Manuf.  | Model     | Std. Test Method                | Repetitions |
| 3-1        | 3.79             | 0.86       |         | 29.1              | 6.5        | Premier | ART 2     | ASTM                            | 6           |
| 5-1        | 3.86             | 0.85       |         | 29.5              | 5.7        | USTER   | 1000      | CCAA                            | 12          |
| 5-2        | 3.83             | 0.85       |         | 28.7              | 5.7        | USTER   | 1000      | CCAA                            | 12          |
| 6-1        | 3.83             | 0.86       |         | 28.0              | 4.8        | USTER   | 1000      | GB/T 20392-2006                 | 4           |
| 9-1        | 3.71             |            |         | 30.5              |            | PREMIER | ART       | ASTM-D6857-2012e1               | 4           |
| 10-1       | 4.08             |            | 85.0    | 27.6              |            | Uster   | HVI1000C  | GB20392-2006                    | 5           |
| 10-2       | 3.8              |            | 86.0    | 28.8              |            | Uster   | HVI1000C  | GB20392-2006                    | 5           |
| 10-3       | 3.86             |            | 84.0    | 27.4              |            | Uster   | HVI1000C  | GB20392-2006                    | 5           |
| 10-4       | 3.88             |            | 86.0    | 27.4              |            | Uster   | HVI1000C  | GB20392-2006                    | 5           |
| 10-5       | 3.8              |            | 88.0    | 28.6              |            | Uster   | HVI1000C  | GB20392-2006                    | 5           |
| 10-6       | 3.89             |            | 85.0    | 28.1              |            | Uster   | HVI1000C  | GB20392-2006                    | 5           |
| 10-7       | 3.9              |            | 82.0    | 29.1              |            | Uster   | HVI1000C  | GB20392-2006                    | 5           |
| 10-8       | 3.91             |            | 84.0    | 27.5              |            | Uster   | HVI1000C  | GB20392-2006                    | 5           |
| 10-9       | 3.9              |            | 79.0    | 27.8              |            | Uster   | HVI1000C  | GB20392-2006                    | 5           |
| 10-10      | 3.8              |            | 86.0    | 26.8              |            | Uster   | HVI1000C  | GB20392-2006                    | 5           |
| 10-11      | 3.81             |            | 86.0    | 26.9              |            | Uster   | HVI1000C  | GB20392-2006                    | 5           |
| 10-12      | 3.94             |            | 85.0    | 27.0              |            | Uster   | HVI1000C  | GB20392-2006                    | 5           |
| 12-1       | 3.93             | 0.84       |         | 28.5              | 7.2        | USTER   | Spectrum  | GB/T 20392-2006                 | 12          |
| 18-1       | 3.84             | 0.85       |         | 28.7              | 6.1        | USTER   | 1000      | SYSTEM TESTING-INDIVIDUAL TESTS | 21          |
| 19-1       | 3.79             | 0.85       |         | 28.2              | 6.0        | USTER   | 1000      | GB/T 20392-2006                 |             |
| 23-1       | 3.6              |            |         | 30.5              | 7.6        | USTER   | 900       |                                 | 10          |
| 24-1       | 3.69             | 0.84       |         | 28.6              |            | USTER   | Spectrum  |                                 |             |
| 27-1       | 3.8              | 0.85       |         | 29.2              | 7.9        | USTER   | HVI 900 A | ASTM- D5867-2012                | 6           |
| 32-1       | 3.75             |            |         | 27.6              | 6.8        | USTER   | 900       |                                 | 10          |
| 32-2       | 3.72             |            |         | 27.5              | 6.7        | USTER   | 900       |                                 | 10          |
| 33-1       | 3.85             |            |         | 28.9              |            | USTER   | 1000      | GB/T20392                       | 6           |
| 34-1       | 3.75             |            | 85.0    | 28.3              | 6.4        | USTER   | 1000      | GB/T 20392-2006                 | 3           |
| 36-1       | 3.64             |            |         | 30.8              | 6.9        |         |           |                                 |             |
| 38-1       | 3.82             | 0.83       |         | 30.5              | 3.2        | USTER   | 1000      | ASTM                            | 7           |
| 39-1       | 3.72             | 0.85       |         | 28.6              |            | Premier | ART 2     | HVI                             | 6           |
| 41-1       | 3.96             | 0.88       |         | 27.1              | 8.9        | USTER   | Spectrum  |                                 | 5           |
| 43-1       | 3.76             |            |         | 28.7              | 6.6        | USTER   | 1000      |                                 | 10          |
| 43-2       | 3.84             |            |         | 27.6              | 8.4        | Uster   | 1000      | ASTM- D1234- 2012               | 10          |
| 44-1       | 3.77             | 0.89       |         | 30.0              |            | USTER   | Spectrum  |                                 | 10          |
| 44-2       | 3.71             | 0.85       |         | 28.1              |            | Premier | ART 2     |                                 | 10          |
| 45-1       | 3.69             |            | 86.0    | 28.7              |            | USTER   | 1000      |                                 | 5           |
| 49-1       | 3.74             | 0.84       |         | 28.8              | 7.4        | USTER   | 1000      | ASTM D 1776                     | 10          |

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|       | Micronaire (Mic) | Mat. Index | PM% (%) | Strength (gf/tex) | Elong. (%) | Manuf.             | Model           | Std. Test Method       | Repetitions |
|-------|------------------|------------|---------|-------------------|------------|--------------------|-----------------|------------------------|-------------|
| 55-1  | 3.7              | 0.77       |         | 29.0              | 5.5        | MAG                | OTHER           | ASTM-D:5867-12         |             |
| 56-1  | 3.67             |            |         | 27.2              | 6.7        | USTER              | SpectrumI       | HVI Test Method        | 5           |
| 58-1  | 3.86             | 0.84       |         | 29.2              | 7.3        | USTER              | 1000            | Internal               | 10          |
| 60-1  | 3.78             | 0.85       |         | 29.4              | 6.8        | USTER              | M1000           | ASTM-D 1234-2012       | 6           |
| 61-1  | 4.0              |            |         | 25.9              | 5.7        | MAG                | HVT Expert 1201 | ASTM-5867-2005         | 4           |
| 63-1  | 3.65             | 0.77       |         | 29.8              | 6.8        | MAG                | Other           | ASTM-D-5867-12         |             |
| 68-1  | 3.92             | 0.85       |         | 28.1              | 8.4        | HVI 1000           | Other           | ASTM D5867             | 10          |
| 69-1  | 3.92             | 0.84       |         | 29.2              |            | MAG SOLVIS PVT LTD | Other           | ASTM:D-5867-12         | 6           |
| 71-1  | 3.81             | 0.83       |         | 28.8              | 8.5        | USTER              | 1000            | GB/T 20392-2006        | 6           |
| 72-1  | 3.91             | 0.86       |         | 28.5              |            | USTER              | 1000            | ASTM-D1776             | 10          |
| 73-1  | 3.91             | 0.85       |         | 30.0              | 6.7        | USTER              | 1000            | ASTM-D5867-12          | 6           |
| 75-1  | 3.83             | 0.85       |         | 29.1              |            | USTRE              | SPECTRUM        | GB/T20392-2006         |             |
| 78-1  | 3.92             |            | 85.0    | 27.5              | 7.1        | USTER              | 1000            |                        | 6           |
| 86-1  | 3.87             | 0.85       |         | 28.7              | 6.7        | USTER              | 1000            | GB/T 20392-2006        | 3           |
| 90-1  | 3.71             | 0.84       |         | 30.4              | 7.2        | USTER              | HVI1000         | ASTM-D 5867            | 10          |
| 91-2  | 3.73             | 0.85       |         | 27.5              | 6.1        | USTER              | 1000            | ASTM-D 5867-12         | 6           |
| 91-3  | 3.7              |            |         |                   |            | USTER              | 975             |                        | 6           |
| 92-1  | 3.85             | 0.84       |         | 30.0              | 6.5        | MAG                | Other           | ASTM D5867             | 6           |
| 96-1  | 3.8              |            |         | 29.6              | 6.7        | Premier            | HFT             | GB/T 20392-2006        | 10          |
| 96-2  | 3.9              |            |         | 29.2              | 6.7        | Premier            | HFT             | GB/T 20392-2006        | 10          |
| 96-3  | 3.8              |            |         | 28.6              | 6.1        | USTER              | HVI1000         | GB/T 20392-2006        | 10          |
| 100-1 | 3.78             | 0.86       | 78.0    | 30.4              | 7.9        | Textechno          |                 |                        | 16          |
| 101-1 | 3.83             | 0.85       |         | 28.4              | 6.7        | USTER 1000         |                 | ASTM 5687-2012         | 6           |
| 102-1 | 3.87             | 0.84       |         | 29.0              | 7.5        | USTER              | 1000            | ASTM-5867              | 6           |
| 103-1 | 3.82             | 0.85       |         | 29.4              | 6.3        | USTER              | 1000            | GB/T 20392-2006        | 6           |
| 104-1 | 3.85             | 0.85       |         | 28.1              | 6.0        | USTER              | 1000            | GB/T 20392             | 6           |
| 105-1 | 3.8              | 0.85       |         | 29.1              | 6.3        | USTER              | 1000            | ASTM D1776, ASTM D5867 | 10          |
| 108-1 | 3.8              | 0.85       |         | 29.7              | 6.4        | USTER              | 1000            | ASTM D5867-12          | 10          |
| 111-1 | 3.76             | 0.85       |         | 28.3              | 6.4        | USTER              | 1000            | Internal               | 16          |
| 112-1 | 3.85             | 0.84       |         | 27.7              | 8.2        | USTER              | 1000            | ASTM D 5867            | 6           |
| 113-1 | 3.91             | 0.84       |         | 28.2              | 6.5        | MAG                | Other           | ASTM-D-5867-12         |             |
| 114-1 | 3.65             | 0.86       |         | 30.8              | 6.6        | Premier            | ART 2           |                        | 5           |
| 118-1 | 3.8              | 0.82       |         | 29.3              |            | USTER              | 1000            | D 867-12               |             |
| 119-1 | 3.83             | 0.85       |         | 28.2              | 6.5        | USTER              | 1000            | GB/T 20392             | 3           |
| 121-1 | 3.93             | 0.84       |         | 28.2              | 7.9        | USTER              | 1000            | GB/T20392-2006         | 2           |
| 124-1 | 3.79             |            | 85.0    | 28.0              |            | USTER              | 1000            |                        |             |
| 126-1 | 3.8              |            |         | 27.9              |            | Premier            | HFT             | ASTM                   | 2           |
| 130-1 | 3.9              | 0.87       |         | 30.8              | 6.5        | Premier            | ART 3           |                        | 6           |
| 131-1 | 3.8              | 0.88       |         | 33.1              |            | USTER              | Spectrum        | 5867-05                | 10          |
| 138-1 | 3.69             | 0.86       |         | 31.6              | 7.6        | USTER              | Spectrum        | ASTM D 5867-2012e1     | 6           |
| 139-1 | 3.6              |            |         | 30.0              | 6.7        | Premier            | ART2            | ASTMD5867-05           | 12          |
| 141-1 | 3.87             | 0.85       |         | 29.3              | 6.4        | USTER              | 1000            | Mode 4                 | 1           |
| 143-1 | 3.75             | 0.85       |         | 29.5              | 6.4        | USTER              | Spectrum        |                        | 6           |
| 143-2 | 3.72             | 0.81       |         | 28.7              | 6.8        | Premier            | ART             |                        | 6           |
| 144-1 | 3.77             | 0.84       |         | 29.4              |            | USTER              | Spectrum        | ASTM                   | 6           |
| 145-1 | 3.73             |            |         |                   |            |                    |                 |                        |             |
| 148-1 | 3.7              | 0.85       |         | 26.5              | 6.4        | USTER              | HVI 1000        | ASTM-D5867             | 6           |

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|       | Micronaire<br>(Mic) | Mat.<br>Index | PM%<br>(%) | Strength<br>(gf/tex) | Elong.<br>(%) | Manuf.    | Model | Std. Test Method                 | Repeti-<br>tions |
|-------|---------------------|---------------|------------|----------------------|---------------|-----------|-------|----------------------------------|------------------|
| 154-1 | 3.7                 | 0.86          |            | 29.5                 | 7.0           | USTER     | 900   |                                  | 10               |
| 158-1 | 3.7                 | 0.84          |            | 29.0                 | 5.1           | USTER     | 900   |                                  | 6                |
| 158-2 | 3.7                 | 0.85          |            | 29.0                 | 5.8           | USTER     | 900   |                                  | 6                |
| 162-1 | 3.75                |               |            | 29.5                 | 6.5           | Uster     | 900   |                                  | 6                |
| 176-1 | 3.85                | 0.84          |            | 27.6                 | 7.1           |           |       |                                  | 10               |
| 179-1 | 3.85                | 0.85          |            | 29.3                 | 6.6           | USTER     | 1000  | GB/T 20392-2006                  | 10               |
| 183-1 | 3.76                | 0.86          |            | 30.0                 | 5.2           | USTER     | 1000  | ASTM D 5867-05                   | 6                |
| 186-1 |                     | 0.81          | 72.0       | 27.9                 | 9.0           | Textechno | CCS   | ASTM                             | 10               |
| 201-1 | 3.83                | 0.84          | 84.0       | 27.0                 | 7.4           | USTER     | 1000  | GOST 10681 UzRH 71-01:2001       | 41               |
| 203-1 | 3.82                |               |            |                      |               | PREMIER   | ART   | USDA                             |                  |
| 204-1 | 3.86                | 0.8           |            | 24.8                 | 6.3           | Premier   | HFT   | GB/T20392-2006                   | 10               |
| 204-2 | 3.97                | 0.83          |            | 28.4                 | 9.8           | USTER     | 1000  | GB/T20392-2006                   | 10               |
| 207-1 | 3.77                | 0.85          |            | 29.2                 | 6.6           | USTER     | 1000  | ASTM D5867-12 e1                 | 10               |
| 207-2 | 3.71                | 0.84          |            | 28.0                 | 7.3           | USTER     | 1000  | ASTM D5867-12 e1                 | 10               |
| 207-3 | 3.79                | 0.84          |            | 27.9                 | 7.2           | USTER     | 1000  | ASTM D5867-12 e1                 | 10               |
| 207-4 | 3.79                | 0.84          |            | 28.6                 | 7.9           | USTER     | 1000  | ASTM D5867-12 e1                 | 10               |
| 210-1 | 3.8                 | 0.8           |            | 29.4                 | 6.6           | USTER     | 1000  | ASTMD5867-2012                   | 30               |
| 211-1 | 4.02                | 0.84          |            | 28.5                 |               | USTER     | 1000  |                                  | 5                |
| 212-1 | 3.91                | 0.83          |            | 29.3                 |               | USTER     | 1000  | ASTM-D5867-2012                  | 15               |
| 213-1 | 3.81                | 0.85          |            | 29.8                 | 6.2           | USTER     | 1000  | ASTM-<br>D1445,D1447,D1448,D5867 | 10               |

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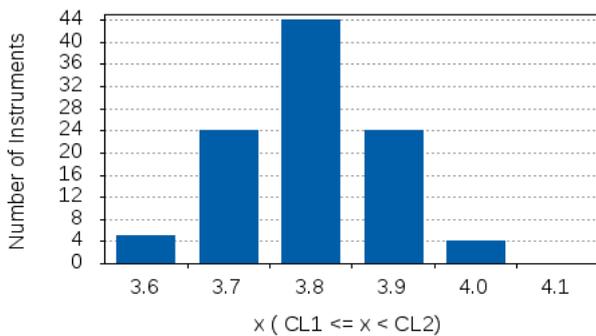
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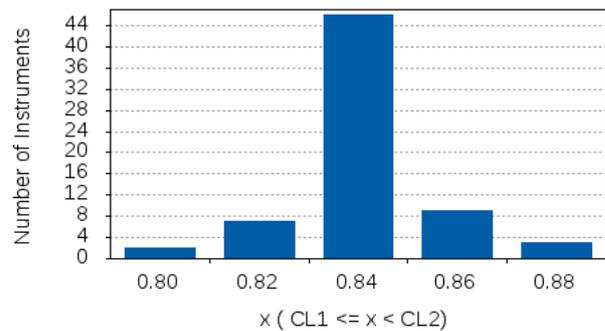


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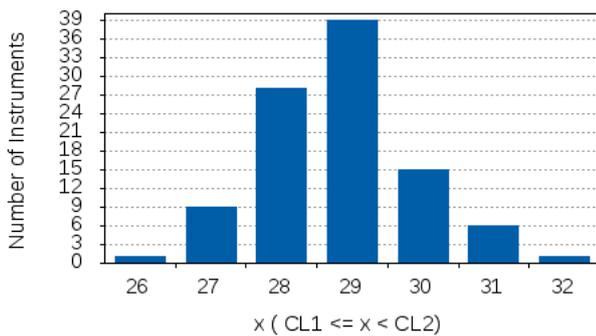
HVI (HVICCS Calibration): Micronaire



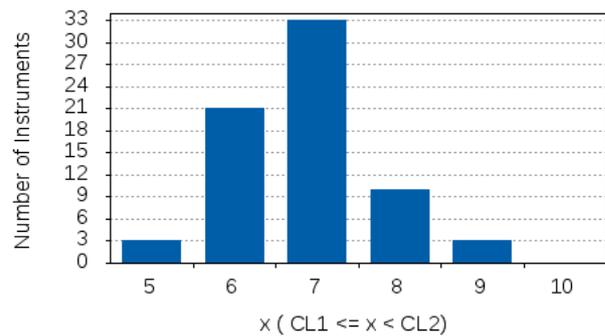
HVI (HVICCS Calibration): Mat. Ratio



HVI (HVICCS Calibration): Strength



HVI (HVICCS Calibration): Elongation



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Place of jurisdiction: Bremen

# ICA Bremen Cotton Round Test 2018-3

in Cooperation with Bremer Baumwollboerse  
carried out by Bremen Fibre Institute (FIBRE)



**ICA Bremen**  
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## HVI (HVICCS Calibration): Length Results

|                 | UHML<br>(inch) | UHML<br>(mm) | Uniformity<br>Index (%) | -SFI<br>- | Manuf.  | Model     | Std. Test Method                    | Repeti-<br>tions | SFI<br>calibrated? |
|-----------------|----------------|--------------|-------------------------|-----------|---------|-----------|-------------------------------------|------------------|--------------------|
| Average         | 1.108          | 28.15        | 80.96                   | 9.79      |         |           |                                     |                  |                    |
| Median          | 1.108          | 28.14        | 80.99                   | 9.66      |         |           |                                     | 6.0              |                    |
| Stddev          | 0.017          | 0.44         | 0.74                    | 1.3       |         |           |                                     |                  |                    |
| CV              | 1.5            | 1.5          | 0.9                     | 13.3      |         |           |                                     |                  |                    |
| Min             | 1.057          | 26.84        | 77.4                    | 7.3       |         |           |                                     |                  |                    |
| Max             | 1.4            | 35.56        | 83.7                    | 20.3      |         |           |                                     |                  |                    |
| n               | 104            | 104          | 103                     | 89        |         |           |                                     |                  |                    |
| Laborato-<br>ry | UHML<br>(inch) | UHML<br>(mm) | Uniformity<br>Index (%) | -SFI<br>- | Manuf.  | Model     | Std. Test Method                    | Repeti-<br>tions | SFI<br>calibrated? |
| 3-1             | 1.128          | 28.66        | 81.7                    | 9.23      | Premier | ART 2     | ASTM                                | 6                | No                 |
| 5-1             | 1.106          | 28.09        | 81.2                    | 9.0       | USTER   | 1000      | CCAA                                | 12               | Yes                |
| 5-2             | 1.114          | 28.3         | 80.9                    | 7.9       | USTER   | 1000      | CCAA                                | 12               | Yes                |
| 6-1             | 1.106          | 28.1         | 80.7                    | 15.5<br>4 | USTER   | 1000      | GB/T 20392-2006                     | 4                | No                 |
| 9-1             | 1.116          | 28.35        | 81.1                    | 9.9       | PREMIER | ART       | ASTM-D6857-2012e1                   | 4                | No                 |
| 10-1            | 1.09           | 27.69        | 80.0                    |           | Uster   | HVI1000C  | GB20392-2006                        | 5                | NO                 |
| 10-2            | 1.111          | 28.22        | 81.2                    |           | Uster   | HVI1000C  | GB20392-2006                        | 5                | NO                 |
| 10-3            | 1.099          | 27.91        | 81.0                    |           | Uster   | HVI1000C  | GB20392-2006                        | 5                | NO                 |
| 10-4            | 1.087          | 27.6         | 79.7                    |           | Uster   | HVI1000C  | GB20392-2006                        | 5                | NO                 |
| 10-5            | 1.11           | 28.2         | 81.2                    |           | Uster   | HVI1000C  | GB20392-2006                        | 5                | NO                 |
| 10-6            | 1.109          | 28.16        | 80.6                    |           | Uster   | HVI1000C  | GB20392-2006                        | 5                | NO                 |
| 10-7            | 1.105          | 28.06        | 80.6                    |           | Uster   | HVI1000C  | GB20392-2006                        | 5                | NO                 |
| 10-8            | 1.103          | 28.02        | 80.3                    |           | Uster   | HVI1000C  | GB20392-2006                        | 5                | NO                 |
| 10-9            | 1.09           | 27.68        | 80.2                    |           | Uster   | HVI1000C  | GB20392-2006                        | 5                | NO                 |
| 10-10           | 1.117          | 28.36        | 80.6                    |           | Uster   | HVI1000C  | GB20392-2006                        | 5                | NO                 |
| 10-11           | 1.086          | 27.59        | 77.4                    |           | Uster   | HVI1000C  | GB20392-2006                        | 5                | NO                 |
| 10-12           | 1.082          | 27.48        | 80.0                    |           | Uster   | HVI1000C  | GB20392-2006                        | 5                | NO                 |
| 12-1            | 1.105          | 28.07        | 80.8                    | 13.0      | USTER   | Spectrum  | GB/T 20392-2006                     | 12               | No                 |
| 18-1            | 1.095          | 27.82        | 79.5                    | 11.4      | USTER   | 1000      | SYSTEM TESTING-<br>INDIVIDUAL TESTS | 21               | YES                |
| 19-1            | 1.097          | 27.86        | 80.7                    | 9.4       | USTER   | 1000      | GB/T 20392-2006                     |                  |                    |
| 23-1            | 1.107          | 28.12        | 81.6                    | 8.7       | USTER   | 900       |                                     | 10               |                    |
| 24-1            | 1.1            | 27.93        | 80.4                    | 10.0      | USTER   | Spectrum  |                                     |                  |                    |
| 27-1            | 1.134          | 28.8         | 81.6                    | 9.6       | USTER   | HVI 900 A | ASTM- D5867-2012                    | 6                | no                 |
| 32-1            | 1.102          | 28.0         | 80.2                    | 12.5      | USTER   | 900       |                                     | 10               |                    |
| 32-2            | 1.11           | 28.2         | 80.5                    | 12.1      | USTER   | 900       |                                     | 10               |                    |
| 33-1            | 1.122          | 28.51        | 81.7                    |           | USTER   | 1000      | GB/T20392                           | 6                |                    |
| 34-1            | 1.085          | 27.56        | 79.5                    | 20.3      | USTER   | 1000      | GB/T 20392-2006                     | 3                |                    |
| 36-1            | 1.131          | 28.74        | 82.3                    | 19.0      |         |           |                                     |                  |                    |
| 38-1            | 1.161          | 29.48        | 82.7                    | 8.7       | USTER   | 1000      | ASTM                                | 7                | No                 |
| 39-1            | 1.093          | 27.76        | 81.1                    | 10.1      | Premier | ART 2     | HVI                                 | 6                | Yes                |
| 41-1            | 1.057          | 26.85        | 79.6                    | 7.3       | USTER   | Spectrum  |                                     | 5                | Yes                |
| 43-1            | 1.12           | 28.45        | 81.1                    | 9.2       | USTER   | 1000      |                                     | 10               | No                 |
| 43-2            | 1.1            | 27.94        | 80.65                   | 9.64      | Uster   | 1000      | ASTM- D1234- 2012                   | 10               | No                 |
| 44-1            | 1.115          | 28.31        | 81.7                    | 8.2       | USTER   | Spectrum  |                                     | 10               | Yes                |
| 44-2            | 1.128          | 28.66        | 80.8                    | 9.9       | Premier | ART 2     |                                     | 10               | Yes                |
| 45-1            | 1.128          | 28.65        | 81.1                    | 9.7       | USTER   | 1000      |                                     | 5                | Yes                |

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Registered in Germany no: HRB 27431 HB VAT-ID: DE280079445

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Place of jurisdiction: Bremen

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in Cooperation with Bremer Baumwollboerse  
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|       | UHML<br>(inch) | UHML<br>(mm) | Uniformity<br>Index (%) | -SFI<br>- | Manuf.                | Model              | Std. Test Method       | Repeti-<br>tions | SFI<br>calibrated? |
|-------|----------------|--------------|-------------------------|-----------|-----------------------|--------------------|------------------------|------------------|--------------------|
| 49-1  | 1.104          | 28.04        | 81.0                    | 8.7       | USTER                 | 1000               | ASTM D 1776            | 10               |                    |
| 55-1  | 1.122          | 28.5         | 82.6                    | 8.9       | MAG                   | OTHER              | ASTM-D:5867-12         |                  |                    |
| 56-1  | 1.067          | 27.1         | 80.8                    | 13.0      | USTER                 | SpectrumI          | HVI Test Method        | 5                |                    |
| 58-1  | 1.112          | 28.25        | 81.4                    | 9.3       | USTER                 | 1000               | Internal               | 10               |                    |
| 60-1  | 1.096          | 27.85        | 80.3                    | 11.8      | USTER                 | M1000              | ASTM-D1234-2012        | 6                |                    |
| 61-1  | 1.098          | 27.9         | 82.0                    | 9.5       | MAG                   | HVT Expert<br>1201 | ASTM-5867-2005         | 4                | Yes                |
| 63-1  | 1.117          | 28.38        | 82.0                    | 9.1       | MAG                   | Other              | ASTM-D-5867-12         |                  |                    |
| 68-1  | 1.103          | 28.01        | 80.4                    | 9.2       | HVI 1000              | Other              | ASTM D5867             | 10               | YES                |
| 69-1  | 1.114          | 28.3         | 82.4                    | 9.1       | MAG SOLVIS PVT<br>LTD | Other              | ASTM:D-5867-12         | 6                |                    |
| 71-1  | 1.109          | 28.17        | 80.8                    | 7.9       | USTER                 | 1000               | GB/T 20392-2006        | 6                | No                 |
| 72-1  | 1.124          | 28.55        | 80.8                    | 9.9       | USTER                 | 1000               | ASTM-D1776             | 10               | No                 |
| 73-1  | 1.128          | 28.65        | 81.6                    | 10.0      | USTER                 | 1000               | ASTM-D5867-12          | 6                | No                 |
| 75-1  | 1.081          | 27.46        | 80.3                    | 13.3      | USTRE                 | SPECTRUM           | GB/T20392-2006         |                  | yes                |
| 78-1  | 1.092          | 27.74        | 80.1                    | 11.3      | USTER                 | 1000               |                        | 6                | No                 |
| 86-1  | 1.115          | 28.31        | 81.0                    | 9.9       | USTER                 | 1000               | GB/T 20392-2006        | 3                | Yes                |
| 90-1  | 1.121          | 28.47        | 81.5                    | 9.69      | USTER                 | HVI1000            | ASTM-D 5867            | 10               |                    |
| 91-1  | 1.141          | 28.99        | 80.0                    | 10.8      | USTER                 | 930                |                        | 6                | No                 |
| 91-2  | 1.098          | 27.88        | 80.6                    | 12.0      | USTER                 | 1000               | ASTM-D 5867-12         | 6                | No                 |
| 92-1  | 1.119          | 28.41        | 81.83                   | 9.4       | MAG                   | Other              | ASTM D5867             | 6                | No                 |
| 96-1  | 1.091          | 27.7         | 80.4                    | 11.0      | Premier               | HFT                | GB/T 20392-2006        | 10               | No                 |
| 96-2  | 1.091          | 27.7         | 80.9                    | 10.9      | Premier               | HFT                | GB/T 20392-2006        | 10               | No                 |
| 96-3  | 1.11           | 28.2         | 80.6                    | 10.9      | USTER                 | HVI1000            | GB/T 20392-2006        | 10               | No                 |
| 100-1 | 1.104          | 28.05        | 83.0                    | 10.3<br>7 | Textechno             |                    |                        | 16               |                    |
| 101-1 | 1.103          | 28.02        | 80.55                   | 10.5<br>3 | USTER 1000            |                    | ASTM 5687-2012         | 6                | No                 |
| 102-1 | 1.112          | 28.25        | 80.8                    | 9.0       | USTER                 | 1000               | ASTM-5867              | 6                |                    |
| 103-1 | 1.101          | 27.97        | 80.0                    | 9.8       | USTER                 | 1000               | GB/T 20392-2006        | 6                | No                 |
| 104-1 | 1.113          | 28.26        | 81.05                   |           | USTER                 | 1000               | GB/T 20392             | 6                |                    |
| 105-1 | 1.117          | 28.38        | 81.68                   | 9.18      | USTER                 | 1000               | ASTM D1776, ASTM D5867 | 10               | No                 |
| 108-1 | 1.106          | 28.09        | 80.3                    | 9.7       | USTER                 | 1000               | ASTM D5867-12          | 10               | No                 |
| 111-1 | 1.099          | 27.91        | 80.7                    | 11.4      | USTER                 | 1000               | Internal               | 16               | Yes                |
| 112-1 | 1.12           | 28.45        | 81.1                    | 8.7       | USTER                 | 1000               | ASTM D 5867            | 6                | Yes                |
| 113-1 | 1.129          | 28.68        | 82.15                   | 9.14      | MAG                   | Other              | ASTM-D-5867-12         |                  | No                 |
| 114-1 | 1.102          | 27.98        | 81.2                    | 10.1      | Premier               | ART 2              |                        | 5                | Yes                |
| 118-1 | 1.111          | 28.23        | 81.1                    | 9.9       | USTER                 | 1000               | D 867-12               |                  | No                 |
| 119-1 | 1.118          | 28.4         | 81.7                    | 9.1       | USTER                 | 1000               | GB/T 20392             | 3                | Yes                |
| 121-1 | 1.117          | 28.37        | 81.6                    | 9.2       | USTER                 | 1000               | GB/T20392-2006         | 2                | Yes                |
| 124-1 | 1.108          | 28.14        | 81.7                    | 10.0      | USTER                 | 1000               |                        |                  |                    |
| 126-1 | 1.098          | 27.9         | 81.3                    |           | Premier               | HFT                | ASTM                   | 2                |                    |
| 130-1 | 1.119          | 28.43        | 80.8                    | 10.1      | Premier               | ART 3              |                        | 6                | No                 |
| 131-1 | 1.132          | 28.76        | 83.7                    | 7.7       | USTER                 | Spectrum           | 5867-05                | 10               |                    |
| 138-1 | 1.157          | 29.39        | 80.0                    | 11.6      | USTER                 | Spectrum           | ASTM D 5867-2012e1     | 6                | No                 |
| 139-1 | 1.119          | 28.42        |                         | 9.9       | Premier               | ART2               | ASTMD5867-05           | 12               |                    |
| 141-1 | 1.127          | 28.63        | 82.3                    | 8.4       | USTER                 | 1000               | Mode 4                 | 1                | No                 |
| 143-1 | 1.099          | 27.92        | 81.1                    | 10.2      | USTER                 | Spectrum           |                        | 6                | No                 |
| 143-2 | 1.082          | 27.49        | 80.5                    | 11.0      | Premier               | ART                |                        | 6                | No                 |
| 144-1 | 1.104          | 28.04        | 81.1                    | 10.3      | USTER                 | Spectrum           | ASTM                   | 6                | Yes                |

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|       | UHML<br>(inch) | UHML<br>(mm) | Uniformity<br>Index (%) | -SFI<br>- | Manuf.    | Model    | Std. Test Method                 | Repeti-<br>tions | SFI<br>calibrated? |
|-------|----------------|--------------|-------------------------|-----------|-----------|----------|----------------------------------|------------------|--------------------|
| 145-1 | 1.4            | 35.56        | 80.2                    | 10.4      |           |          |                                  |                  |                    |
| 148-1 | 1.057          | 26.84        | 79.8                    | 12.4      | USTER     | HVI 1000 | ASTM-D5867                       | 6                | No                 |
| 154-1 | 1.115          | 28.32        | 81.5                    | 9.0       | USTER     | 900      |                                  | 10               | Yes                |
| 158-1 | 1.11           | 28.19        | 81.2                    | 8.6       | USTER     | 900      |                                  | 6                | Yes                |
| 158-2 | 1.12           | 28.45        | 82.0                    | 8.0       | USTER     | 900      |                                  | 6                | Yes                |
| 162-1 | 1.114          | 28.3         | 80.8                    | 8.8       | Uster     | 900      |                                  | 6                | Yes                |
| 176-1 | 1.133          | 28.78        | 81.5                    | 7.67      |           |          |                                  | 10               |                    |
| 179-1 | 1.105          | 28.07        | 80.6                    | 8.3       | USTER     | 1000     | GB/T 20392-2006                  | 10               | No                 |
| 183-1 | 1.118          | 28.4         | 81.2                    | 9.2       | USTER     | 1000     | ASTM D 5867-05                   | 6                | Yes                |
| 186-1 | 1.072          | 27.24        | 82.04                   | 11.1      | Textechno | CCS      | ASTM                             | 10               |                    |
| 201-1 | 1.099          | 27.91        | 80.8                    | 10.9      | USTER     | 1000     | GOST 10681 UzRH 71-01:2001       | 41               | Yes                |
| 203-1 | 1.106          | 28.09        | 79.8                    | 11.1      | PREMIER   | ART      | USDA                             |                  |                    |
| 204-1 | 1.093          | 27.75        | 80.9                    | 10.1      | Premier   | HFT      | GB/T20392-2006                   | 10               | Yes                |
| 204-2 | 1.1            | 27.94        | 80.9                    | 8.6       | USTER     | 1000     | GB/T20392-2006                   | 10               | Yes                |
| 207-1 | 1.104          | 28.05        | 80.6                    | 9.2       | USTER     | 1000     | ASTM D5867-12 e1                 | 10               | No                 |
| 207-2 | 1.109          | 28.16        | 81.0                    | 9.6       | USTER     | 1000     | ASTM D5867-12 e1                 | 10               | No                 |
| 207-3 | 1.103          | 28.01        | 81.0                    | 9.3       | USTER     | 1000     | ASTM D5867-12 e1                 | 10               | No                 |
| 207-4 | 1.102          | 27.98        | 81.0                    | 9.7       | USTER     | 1000     | ASTM D5867-12 e1                 | 10               | No                 |
| 210-1 | 1.113          | 28.26        | 80.99                   | 7.9       | USTER     | 1000     | ASTMD5867-2012                   | 30               | Yes                |
| 211-1 | 1.106          | 28.09        | 79.2                    | 9.3       | USTER     | 1000     |                                  | 5                | No                 |
| 212-1 | 1.133          | 28.78        | 81.39                   | 9.4       | USTER     | 1000     | ASTM-D5867-2012                  | 15               | Yes                |
| 213-1 | 1.124          | 28.55        | 81.4                    | 7.3       | USTER     | 1000     | ASTM-<br>D1445,D1447,D1448,D5867 | 10               |                    |

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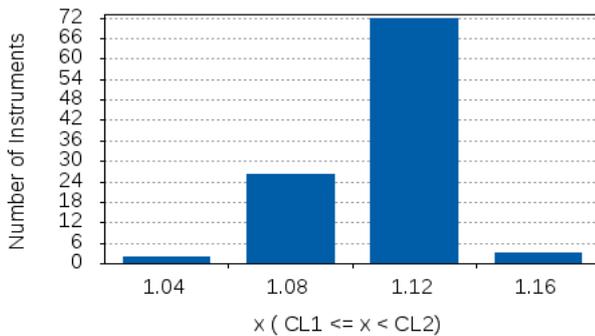
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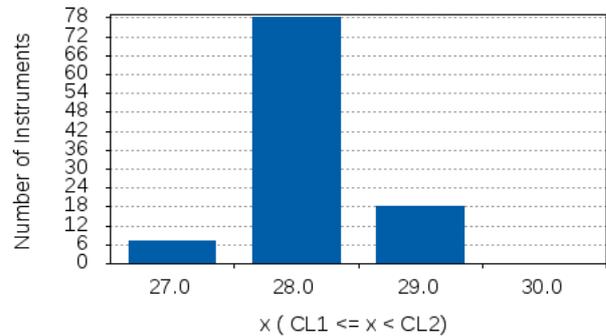


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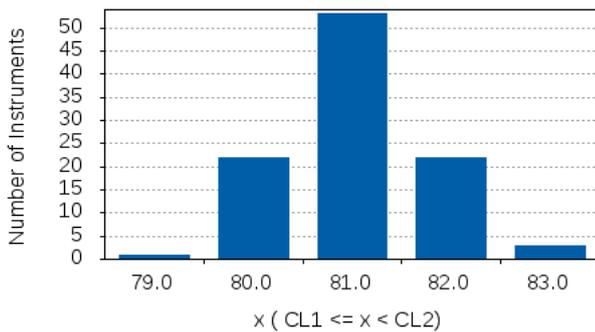
HVI (HVICCS Calibration): UHML (inch)



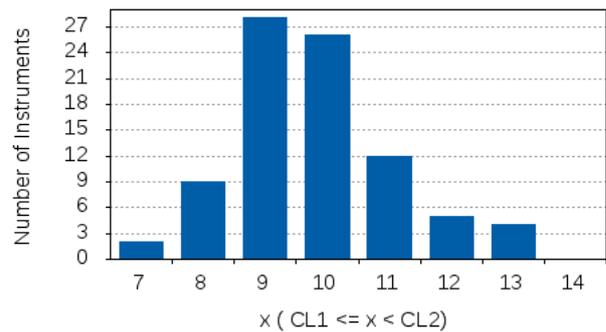
HVI (HVICCS Calibration): UHML (mm)



HVI (HVICCS Calibration): Unif. Index



HVI (HVICCS Calibration): Short Fiber Index



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## HVI (HVICCS Calibration): Color / Trash

|            | Color Rd | Color +b | Color Grade | Trash Count | Trash Area (%) | Trash Leaf | Manuf.  | Model     | Std. Test Method                | Repetitions |
|------------|----------|----------|-------------|-------------|----------------|------------|---------|-----------|---------------------------------|-------------|
| Average    | 76.56    | 12.16    |             | 15.1        | 0.145          |            |         |           |                                 |             |
| Median     | 76.8     | 12.2     |             | 15.0        | 0.13           | 2.0        |         |           |                                 | 6.0         |
| Stddev     | 1.18     | 0.39     |             | 5.3         | 0.056          |            |         |           |                                 |             |
| CV         | 1.5      | 3.2      |             | 35.5        | 38.6           |            |         |           |                                 |             |
| Min        | 55.7     | 10.0     |             | 4           | 0.07           |            |         |           |                                 |             |
| Max        | 79.2     | 13.5     |             | 70          | 14.0           |            |         |           |                                 |             |
| n          | 99       | 99       |             | 78          | 78             |            |         |           |                                 |             |
| Laboratory | Color Rd | Color +b | Color Grade | Trash Count | Trash Area (%) | Trash Leaf | Manuf.  | Model     | Std. Test Method                | Repetitions |
| 3-1        | 74.0     | 12.5     | 13-3        |             |                |            | Premier | ART 2     | ASTM                            | 6           |
| 5-1        | 76.8     | 12.1     | 13-1        | 12          | 0.13           | 2          | USTER   | 1000      | CCAA                            | 12          |
| 5-2        | 76.8     | 12.1     | 13-1        | 12          | 0.13           | 2          | USTER   | 1000      | CCAA                            | 12          |
| 6-1        | 76.4     | 12.7     | 13          | 47          | 0.31           | 3          | USTER   | 1000      | GB/T 20392-2006                 | 4           |
| 9-1        | 55.7     | 12.6     | 54-4        |             |                |            | PREMIER | ART       | ASTM-D6857-2012e1               | 4           |
| 10-1       | 74.7     | 12.7     | 13          | 14          | 0.15           | 2          | Uster   | HVI1000C  | GB20392-2006                    | 5           |
| 10-2       | 77.3     | 12.4     | 13          | 12          | 0.11           | 2          | Uster   | HVI1000C  | GB20392-2006                    | 5           |
| 10-3       | 77.2     | 12.4     | 13          | 15          | 0.12           | 2          | Uster   | HVI1000C  | GB20392-2006                    | 5           |
| 10-4       | 76.6     | 12.5     | 13          | 14          | 0.1            | 1          | Uster   | HVI1000C  | GB20392-2006                    | 5           |
| 10-5       | 76.2     | 12.6     | 13          | 26          | 0.21           | 2          | Uster   | HVI1000C  | GB20392-2006                    | 5           |
| 10-6       | 76.5     | 12.3     | 13          | 16          | 0.15           | 2          | Uster   | HVI1000C  | GB20392-2006                    | 5           |
| 10-7       | 77.0     | 12.4     | 13          | 19          | 0.16           | 2          | Uster   | HVI1000C  | GB20392-2006                    | 5           |
| 10-8       | 77.0     | 12.3     | 3           | 25          | 0.16           | 2          | Uster   | HVI1000C  | GB20392-2006                    | 5           |
| 10-9       | 77.3     | 12.4     | 13          | 12          | 0.1            | 2          | Uster   | HVI1000C  | GB20392-2006                    | 5           |
| 10-10      | 77.1     | 12.3     | 13          | 19          | 0.15           | 2          | Uster   | HVI1000C  | GB20392-2006                    | 5           |
| 10-11      | 77.3     | 12.2     | 13          | 13          | 0.13           | 2          | Uster   | HVI1000C  | GB20392-2006                    | 5           |
| 10-12      | 77.0     | 12.3     | 13          | 70          | 0.39           | 4          | Uster   | HVI1000C  | GB20392-2006                    | 5           |
| 12-1       | 74.4     | 12.4     | 13-1        | 9           | 0.12           | 1          | USTER   | Spectrum  | GB/T 20392-2006                 | 12          |
| 18-1       | 76.4     | 12.5     | 13-1        | 15          | 0.15           | 1          | USTER   | 1000      | SYSTEM TESTING-INDIVIDUAL TESTS | 21          |
| 19-1       | 76.4     | 12.5     | 13-1        | 15          | 0.13           | 1          | USTER   | 1000      | GB/T 20392-2006                 |             |
| 23-1       | 75.9     | 12.7     | 13-3        |             |                |            | USTER   | 900       |                                 | 10          |
| 24-1       | 75.6     | 12.5     | 13-1        | 9           | 0.1            |            | USTER   | Spectrum  |                                 |             |
| 27-1       | 75.5     | 12.7     | 13-3        |             |                |            | USTER   | HVI 900 A | ASTM- D5867-2012                | 6           |
| 33-1       | 76.4     | 12.5     |             |             |                |            | USTER   | 1000      | GB/T20392                       | 6           |
| 34-1       | 76.8     | 12.8     | 13          | 19          | 0.2            | 2          | USTER   | 1000      | GB/T 20392-2006                 | 3           |
| 36-1       | 77.6     | 12.9     | 13          | 16          | 0.13           | 2          |         |           |                                 |             |
| 38-1       | 77.2     | 12.9     | 13-1        | 19          | 0.13           | 1          | USTER   | 1000      | ASTM                            | 7           |
| 39-1       | 77.7     | 11.9     | 13-1        |             |                |            | Premier | ART 2     | HVI                             | 6           |
| 41-1       | 76.9     | 13.5     | 13-3        | 9           | 0.1            |            | USTER   | Spectrum  |                                 | 5           |
| 43-1       | 76.6     | 12.5     |             | 16          | 0.14           |            | USTER   | 1000      |                                 | 10          |
| 43-2       | 76.25    | 12.39    | 13-1        | 14          | 0.115          |            | Uster   | 1000      | ASTM- D1234- 2012               | 10          |
| 44-1       | 76.9     | 11.5     | 12-1        |             |                |            | USTER   | Spectrum  |                                 | 10          |
| 44-2       | 73.2     | 12.2     | 13-4        |             |                |            | Premier | ART 2     |                                 | 10          |
| 45-1       | 77.4     | 11.8     | 13          | 12          | 0.12           | 1          | USTER   | 1000      |                                 | 5           |
| 49-1       | 77.3     | 11.6     | 12-1        | 15          | 0.1            | 1          | USTER   | 1000      | ASTM D 1776                     | 10          |
| 55-1       | 78.5     | 11.7     | 12-1        |             |                |            | MAG     | OTHER     | ASTM-D:5867-12                  |             |
| 56-1       | 75.9     | 11.8     | 13-2        | 8           | 0.08           | 1          | USTER   | SpectrumI | HVI Test Method                 | 5           |

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Managing Director: Bill Kingdon

Place of jurisdiction: Bremen

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|       | Color Rd | Color +b | Color Grade | Trash Count | Trash Area (%) | Trash Leaf | Manuf.             | Model           | Std. Test Method       | Repetitions |
|-------|----------|----------|-------------|-------------|----------------|------------|--------------------|-----------------|------------------------|-------------|
| 58-1  | 77.5     | 12.2     | 13-1        | 17          | 0.17           |            | USTER              | 1000            | Internal               | 10          |
| 60-1  | 77.4     | 11.8     | 13-1        | 19          | 0.16           | 2          | USTER              | M1000           | ASTM-D1234-2012        | 6           |
| 61-1  | 73.4     | 11.5     | 23-1        |             |                |            | MAG                | HVT Expert 1201 | ASTM-5867-2005         | 4           |
| 63-1  | 76.4     | 12.3     | 13-1        |             |                |            | MAG                | Other           | ASTM-D-5867-12         |             |
| 68-1  | 78.7     | 12.2     | 13-1        | 17          | 0.11           | 1          | HVI 1000           | Other           | ASTM D5867             | 10          |
| 69-1  | 77.2     | 11.6     | 12-1        |             |                |            | MAG SOLVIS PVT LTD | Other           | ASTM:D-5867-12         | 6           |
| 71-1  | 77.1     | 11.8     | 13-1        | 19          | 0.12           | 2          | USTER              | 1000            | GB/T 20392-2006        | 6           |
| 72-1  | 77.7     | 11.8     |             | 14          | 0.14           |            | USTER              | 1000            | ASTM-D1776             | 10          |
| 73-1  | 75.9     | 11.3     | 12-2        | 13          | 0.12           | 1          | USTER              | 1000            | ASTM-D5867-12          | 6           |
| 75-1  | 75.6     | 11.6     | 13-1        | 9           | 0.1            | 1          | USTRE              | SPECTRUM        | GB/T20392-2006         |             |
| 78-1  | 78.8     | 12.1     | 12-1        | 19          | 0.15           | 1          | USTER              | 1000            |                        | 6           |
| 86-1  | 76.3     | 12.0     | 13          | 16          | 0.18           | 2          | USTER              | 1000            | GB/T 20392-2006        | 3           |
| 90-1  | 76.8     | 11.8     | 13-1        | 14          | 0.11           |            | USTER              | HVI1000         | ASTM-D 5867            | 10          |
| 91-2  | 76.7     | 12.1     | 13-1        | 12          | 0.1            |            | USTER              | 1000            | ASTM-D 5867-12         | 6           |
| 91-4  | 74.4     | 12.2     | 13-2        | 10          | 0.19           | 2          | USTER              | 960             |                        | 6           |
| 92-1  | 76.5     | 11.7     | 13-1        |             |                |            | MAG                | Other           | ASTM D5867             | 6           |
| 96-3  | 76.1     | 11.4     | 13-2        | 29          | 0.2            | 2          | USTER              | HVI1000         | GB/T 20392-2006        | 10          |
| 100-1 | 73.4     | 11.9     | 23-1        | 4           | 14.0           | 2          | Textechno          |                 |                        | 16          |
| 101-1 | 77.6     | 11.8     | 12-1        | 22          | 0.15           |            | USTER 1000         |                 | ASTM 5687-2012         | 6           |
| 102-1 | 77.1     | 12.1     | 13-1        | 21          | 0.17           | 2          | USTER              | 1000            | ASTM-5867              | 6           |
| 103-1 | 76.5     | 12.0     | 13-1        | 23          | 0.17           | 2          | USTER              | 1000            | GB/T 20392-2006        | 6           |
| 104-1 | 77.5     | 12.5     | 13          | 15          | 0.14           | 2          | USTER              | 1000            | GB/T 20392             | 6           |
| 105-1 | 76.9     | 12.0     | 13-1        | 11          | 0.11           | 2          | USTER              | 1000            | ASTM D1776, ASTM D5867 | 10          |
| 108-1 | 76.6     | 11.9     | 13-1        | 26          | 0.2            | 2          | USTER              | 1000            | ASTM D5867-12          | 10          |
| 111-1 | 77.4     | 11.9     | 13-1        | 18          | 0.17           |            | USTER              | 1000            | Internal               | 16          |
| 112-1 | 76.7     | 12.05    | 13-1        | 22          | 0.17           | 1          | USTER              | 1000            | ASTM D 5867            | 6           |
| 113-1 | 77.4     | 12.5     | 13-1        |             |                |            | MAG                | Other           | ASTM-D-5867-12         |             |
| 114-1 | 77.9     | 11.8     | 12-1        |             |                |            | Premier            | ART 2           |                        | 5           |
| 118-1 | 77.3     | 12.6     | 13-1        | 18          | 0.16           | 1          | USTER              | 1000            | D 867-12               |             |
| 119-1 | 76.6     | 12.3     | 13          | 20          | 0.23           | 2          | USTER              | 1000            | GB/T 20392             | 3           |
| 121-1 | 77.9     | 11.5     | 12-1        | 16          | 0.11           |            | USTER              | 1000            | GB/T20392-2006         | 2           |
| 124-1 | 76.5     | 13.1     | 13-3        | 12          | 0.1            |            | USTER              | 1000            |                        |             |
| 130-1 | 78.1     | 11.9     | 13-1        |             |                |            | Premier            | ART 3           |                        | 6           |
| 131-1 | 75.0     | 12.2     |             | 15          | 0.19           |            | USTER              | Spectrum        | 5867-05                | 10          |
| 138-1 | 75.5     | 11.5     | 13-2        | 10          | 0.1            | 1          | USTER              | Spectrum        | ASTM D 5867-2012e1     | 6           |
| 139-1 | 74.4     | 11.9     | 13-2        |             |                | 1          | Premier            | ART2            | ASTMD5867-05           | 12          |
| 141-1 | 76.4     | 12.4     | 13-1        | 17          | 0.14           |            | USTER              | 1000            | Mode 4                 | 1           |
| 143-1 | 77.1     | 12.5     | 13-1        | 7           | 0.14           | 1          | USTER              | Spectrum        |                        | 6           |
| 143-2 | 77.9     | 12.4     | 13-1        | 28          | 0.23           | 2          | Premier            | ART             |                        | 6           |
| 144-1 | 73.5     | 12.4     | 13-3        | 7           | 0.07           | 1          | USTER              | Spectrum        | ASTM                   | 6           |
| 145-1 | 79.2     | 13.0     | 13-1        |             |                |            |                    |                 |                        |             |
| 148-1 | 77.1     | 12.1     | 13-1        | 16          | 0.12           | 1          | USTER              | HVI 1000        | ASTM-D5867             | 6           |
| 154-1 | 76.7     | 11.9     | 13-1        | 7           | 0.1            | 1          | USTER              | 900             |                        | 10          |
| 158-1 | 76.3     | 11.6     | 12-1        | 4           | 0.1            | 1          | USTER              | 900             |                        | 6           |
| 158-2 | 76.6     | 11.7     | 12-1        | 7           | 0.1            | 1          | USTER              | 900             |                        | 6           |
| 162-1 | 75.1     | 12.3     |             |             |                |            | Uster              | 900             |                        | 6           |
| 176-1 | 77.1     | 11.8     | 13-1        | 16          | 0.1            | 1          |                    |                 |                        | 10          |

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|       | Color Rd | Color +b | Color Grade | Trash Count | Trash Area (%) | Trash Leaf | Manuf.    | Model | Std. Test Method             | Repetitions |
|-------|----------|----------|-------------|-------------|----------------|------------|-----------|-------|------------------------------|-------------|
| 179-1 | 77.1     | 12.1     | 13-1        | 26          | 0.16           | 1          | USTER     | 1000  | GB/T 20392-2006              | 10          |
| 183-1 | 76.0     | 12.5     | 13-1        | 12          | 0.11           | 1          | USTER     | 1000  | ASTM D 5867-05               | 6           |
| 186-1 | 75.68    | 11.58    | 22-1        |             |                |            | Textechno | CCS   | ASTM                         | 10          |
| 201-1 | 77.9     | 12.5     | 13-1        | 13          | 0.12           | 1          | USTER     | 1000  | GOST 10681 UzRH 71-01:2001   | 41          |
| 203-1 | 77.5     | 10.0     | 11-4        | 6           | 0.14           | 2          | PREMIER   | ART   | USDA                         |             |
| 204-1 | 75.4     | 12.5     | 1           |             |                |            | Premier   | HFT   | GB/T20392-2006               | 10          |
| 204-2 | 76.9     | 12.2     | 13-1        | 17          | 0.15           |            | USTER     | 1000  | GB/T20392-2006               | 10          |
| 207-1 | 77.2     | 12.1     | 13-1        | 14          | 0.13           | 1          | USTER     | 1000  | ASTM D5867-12 e1             | 10          |
| 207-2 | 76.8     | 11.8     | 13-1        | 14          | 0.11           | 1          | USTER     | 1000  | ASTM D5867-12 e1             | 10          |
| 207-3 | 77.0     | 11.9     | 13-1        | 15          | 0.13           | 1          | USTER     | 1000  | ASTM D5867-12 e1             | 10          |
| 207-4 | 76.8     | 12.2     | 13-1        | 14          | 0.11           | 1          | USTER     | 1000  | ASTM D5867-12 e1             | 10          |
| 210-1 | 76.6     | 12.3     | 13-1        | 16          | 0.13           | 2          | USTER     | 1000  | ASTMD5867-2012               | 30          |
| 211-1 | 74.9     | 11.9     | 13-1        | 15          | 0.13           | 2          | USTER     | 1000  |                              | 5           |
| 212-1 | 74.34    | 11.76    | 23-1        | 14          | 0.39           |            | USTER     | 1000  | ASTM-D5867-2012              | 15          |
| 213-1 | 77.1     | 12.3     | 13-1        | 13          | 0.13           | 1          | USTER     | 1000  | ASTM-D1445,D1447,D1448,D5867 | 10          |

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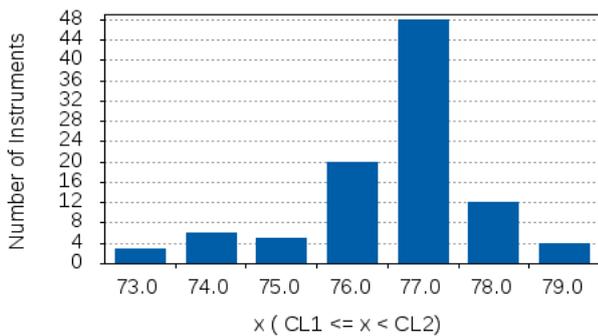
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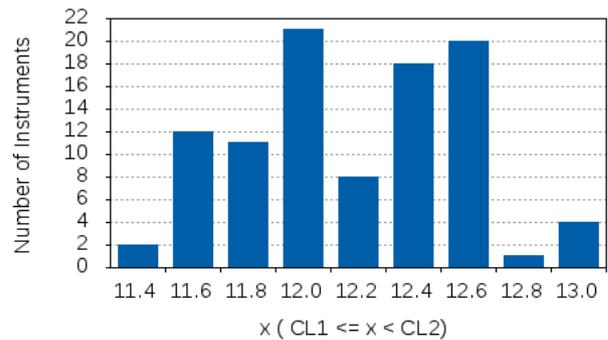


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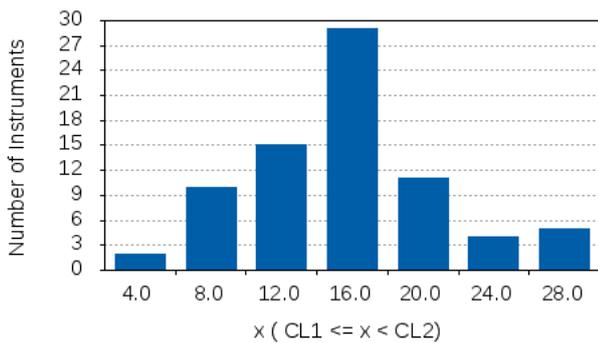
HVI (HVICCS Calibration): Color Reflectance Rd



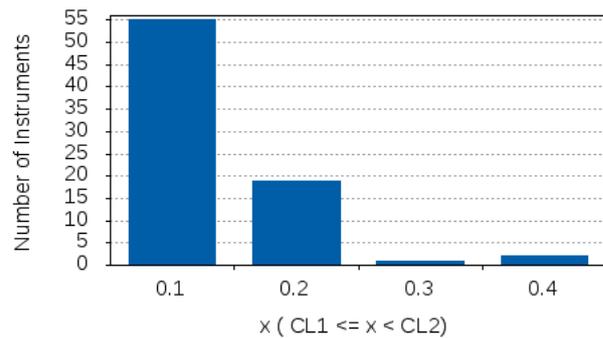
HVI (HVICCS Calibration): Color Yellowness +b



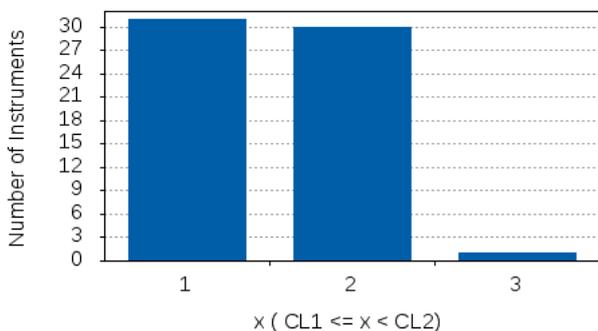
HVI (HVICCS Calibration) Trash Count



HVI (HVICCS Calibration) Trash Area



HVI (HVICCS Calibration) Trash Leaf



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## HVI (ICCS Calibration) Micronaire / Strength

|            | Micronaire (Mic) | MAT () | PM% (%) | Strength (gf/tex) | Elong. (%) | Manuf.    | Model           | Std. Test Method | Repetitions |
|------------|------------------|--------|---------|-------------------|------------|-----------|-----------------|------------------|-------------|
| Average    | 3.8              | 0.845  |         | 26.07             | 5.66       |           |                 |                  |             |
| Median     | 3.8              | 0.845  |         | 28.0              | 6.1        |           |                 |                  |             |
| Stddev     | 0.1              |        |         | 3.32              | 1.7        |           |                 |                  |             |
| CV         | 2.5              |        |         | 12.7              | 30.1       |           |                 |                  |             |
| Min        | 3.69             | 0.84   |         | 21.5              | 2.5        |           |                 |                  |             |
| Max        | 4.0              | 0.88   |         | 29.9              | 7.8        |           |                 |                  |             |
| n          | 11               | 5      |         | 11                | 10         |           |                 |                  |             |
| Laboratory | Micronaire (Mic) | MAT () | PM% (%) | Strength (gf/tex) | Elong. (%) | Manuf.    | Model           | Std. Test Method | Repetitions |
| 27-1       | 3.8              | 0.85   |         | 23.2              | 6.6        | USTER     | HVI 900 A       | ASTM- D5867-2012 | 6           |
| 40-1       | 3.8              |        |         | 29.1              | 2.5        | USTER     | 900             | INTERNAL         | 10          |
| 40-3       | 3.71             |        |         | 29.3              | 2.9        | USTER     | 1000            | INTERNAL         | 10          |
| 42-1       | 3.69             | 0.84   |         | 28.4              | 6.9        | USTER     | 1000            | HVI              |             |
| 42-2       | 3.81             | 0.85   |         | 28.0              | 5.4        | USTER     | Spectrum        | HVI              |             |
| 45-1       | 3.69             |        | 86.0    | 28.7              |            | USTER     | 1000            |                  | 5           |
| 61-1       | 4.0              |        |         | 22.7              | 5.7        | MAG       | HVT Expert 1201 | ASTM-5867-2005   | 4           |
| 66-1       | 3.85             |        |         | 21.5              | 6.6        | Premier   | ART             |                  | 6           |
| 92-1       | 3.83             | 0.84   |         | 23.6              | 6.4        | MAG       | Other           | ASTM D5867       | 6           |
| 100-1      | 3.75             |        |         | 29.9              | 7.8        | Textechno |                 |                  | 16          |
| 130-1      | 3.91             | 0.88   |         | 22.4              | 5.8        | Premier   | ART 3           |                  | 6           |

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## HVI (ICCS Calibration): Length Results

|            | 2.5% SL (inch) | 2.5% SL (mm) | Unif. Ratio (%) | SFI   | Manuf.    | Model           | Std. Test Method | Repetitions |
|------------|----------------|--------------|-----------------|-------|-----------|-----------------|------------------|-------------|
| Average    | 1.108          | 28.13        | 45.98           | 9.53  |           |                 |                  | 6.0         |
| Median     | 1.108          | 28.14        | 45.75           | 9.9   |           |                 |                  |             |
| Stddev     | 0.01           | 0.26         | 1.59            | 1.16  |           |                 |                  |             |
| CV         | 0.9            | 0.9          | 3.5             | 12.2  |           |                 |                  |             |
| Min        | 1.053          | 26.75        | 44.1            | 5.2   |           |                 |                  |             |
| Max        | 1.122          | 28.5         | 47.96           | 10.6  |           |                 |                  |             |
| n          | 10             | 10           | 6               | 10    |           |                 |                  |             |
| Laboratory | 2.5% SL (inch) | 2.5% SL (mm) | Unif. Ratio (%) | SFI   | Manuf.    | Model           | Std. Test Method | Repetitions |
| 27-1       | 1.053          | 26.75        | 44.1            | 10.1  | USTER     | HVI 900 A       | ASTM- D5867-2012 | 6           |
| 40-1       | 1.11           | 28.19        |                 |       | USTER     | 900             | INTERNAL         | 10          |
| 40-3       | 1.108          | 28.14        |                 | 10.0  | USTER     | 1000            | INTERNAL         | 10          |
| 42-1       | 1.113          | 28.27        |                 | 10.6  | USTER     | 1000            | HVI              |             |
| 42-2       | 1.106          | 28.09        |                 | 6.6   | USTER     | Spectrum        | HVI              |             |
| 45-1       |                |              |                 | 9.7   | USTER     | 1000            |                  | 5           |
| 61-1       | 1.122          | 28.5         | 46.0            | 9.5   | MAG       | HVT Expert 1201 | ASTM-5867-2005   | 4           |
| 66-1       | 1.089          | 27.65        | 44.6            | 9.3   | Premier   | ART             |                  | 6           |
| 92-1       | 1.101          | 27.96        | 47.73           | 9.9   | MAG       | Other           | ASTM D5867       | 6           |
| 100-1      | 1.101          | 27.96        | 45.5            | 10.04 | Textechno |                 |                  | 16          |
| 130-1      | 1.119          | 28.41        | 47.96           | 5.2   | Premier   | ART 3           |                  | 6           |

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## HVI (ICCS Calibration): Color / Trash

|            | Color Rd | Color +b | Color Grade | Trash Count | Trash Area (%) | Trash Leaf | Manuf.  | Model           | Std. Test Method | Repetitions |
|------------|----------|----------|-------------|-------------|----------------|------------|---------|-----------------|------------------|-------------|
| Average    | 76.54    | 12.0     |             | 15.5        | 0.13           |            |         |                 |                  |             |
| Median     | 77.2     | 11.8     |             | 11.5        | 0.12           |            |         |                 |                  | 6.0         |
| Stddev     | 1.88     | 0.5      |             |             |                |            |         |                 |                  |             |
| CV         | 2.5      | 4.2      |             |             |                |            |         |                 |                  |             |
| Min        | 73.4     | 11.4     |             | 10          | 0.12           |            |         |                 |                  |             |
| Max        | 78.5     | 13.0     |             | 29          | 0.17           |            |         |                 |                  |             |
| n          | 9        | 9        |             | 4           | 4              |            |         |                 |                  |             |
| Laboratory | Color Rd | Color +b | Color Grade | Trash Count | Trash Area (%) | Trash Leaf | Manuf.  | Model           | Std. Test Method | Repetitions |
| 40-1       | 73.6     | 12.5     | 13-4        |             |                |            | USTER   | 900             | INTERNAL         | 10          |
| 40-3       | 77.6     | 13.0     | 13-1        | 29          | 0.17           | 1          | USTER   | 1000            | INTERNAL         | 10          |
| 42-1       | 78.5     | 11.8     | 12-1        | 11          | 0.12           |            | USTER   | 1000            | HVI              |             |
| 42-2       | 77.2     | 12.0     | 13-1        | 10          | 0.12           |            | USTER   | Spectrum        | HVI              |             |
| 45-1       | 77.4     | 11.8     | 13          | 12          | 0.12           | 1          | USTER   | 1000            |                  | 5           |
| 61-1       | 73.4     | 11.5     | 23-1        |             |                |            | MAG     | HVT Expert 1201 | ASTM-5867-2005   | 4           |
| 66-1       | 76.5     | 11.4     | 12-1        |             |                |            | Premier | ART             |                  | 6           |
| 92-1       | 76.3     | 11.8     | 13-1        |             |                |            | MAG     | Other           | ASTM D5867       | 6           |
| 130-1      | 78.4     | 12.2     | 13-1        |             |                |            | Premier | ART 3           |                  | 6           |

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Registered in Germany no: HRB 27431 HB VAT-ID: DE280079445

Managing Director: Bill Kingdon

Place of jurisdiction: Bremen

# ICA Bremen Cotton Round Test 2018-3

in Cooperation with Bremer Baumwollbörse  
carried out by Bremen Fibre Institute (FIBRE)



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## aQura - Length

|            | aQura-Length (mm) | 5% Length (mm) | Effective Length (mm) | SFC 12.7mm (N) (%) | SFC 12.7mm (W) (%) | Instrument Model | Standard Test Method | Repetitions |
|------------|-------------------|----------------|-----------------------|--------------------|--------------------|------------------|----------------------|-------------|
| Average    |                   | 29.2           | 23.96                 | 24.1               | 9.9                |                  |                      | 4.0         |
| Median     |                   | 29.385         | 24.02                 | 24.9               | 10.95              |                  |                      |             |
| Stddev     |                   |                |                       |                    |                    |                  |                      |             |
| CV         |                   |                |                       |                    |                    |                  |                      |             |
| Min        | 29.71             | 28.19          | 23.19                 | 19.3               | 4.4                |                  |                      |             |
| Max        | 31.1              | 29.83          | 24.62                 | 27.4               | 13.4               |                  |                      |             |
| n          | 4                 | 4              | 4                     | 4                  | 4                  |                  |                      |             |
| Laboratory | aQura-Length (mm) | 5% Length (mm) | Effective Length (mm) | SFC 12.7mm (N) (%) | SFC 12.7mm (W) (%) | Instrument Model | Standard Test Method | Repetitions |
| 3-1        | 31.1              | 29.83          | 24.62                 | 19.3               | 8.5                | aQura 2          | ASTM                 | 4           |
| 44-2       | 29.71             | 28.19          | 23.19                 | 26.6               | 13.4               | aQura 2          |                      | 10          |
| 114-1      | 31.09             | 29.37          | 23.54                 | 23.2               | 4.4                | aQura 2          |                      | 4           |
| 127-1      | 30.8              | 29.4           | 24.5                  | 27.4               | 13.4               | aQura            |                      | 4           |

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## aQura - Neps

|            | Total Nep Count (Cnt/g) | Total Nep Size (µm) | Fibre Nep Count (Cnt/g) | Fibre Nep Size (µm) | Seed Coat Nep Count (Cnt/g) | Seed Coat Nep Size (µm) | Instrument Model | Standard Test Method |
|------------|-------------------------|---------------------|-------------------------|---------------------|-----------------------------|-------------------------|------------------|----------------------|
| Average    | 349                     | 741                 | 307                     | 678                 | 41                          | 1310                    |                  |                      |
| Median     | 350.5                   | 755.5               | 315.5                   | 681.5               | 42.5                        | 1309.0                  |                  |                      |
| Stddev     |                         |                     |                         |                     |                             |                         |                  |                      |
| CV         |                         |                     |                         |                     |                             |                         |                  |                      |
| Min        | 296.0                   | 673.0               | 251.0                   | 657.0               | 30.0                        | 1265.0                  |                  |                      |
| Max        | 397.0                   | 781.0               | 347.0                   | 692.0               | 50.0                        | 1356.0                  |                  |                      |
| n          | 4                       | 4                   | 4                       | 4                   | 4                           | 4                       |                  |                      |
| Laboratory | Total Nep Count (Cnt/g) | Total Nep Size (µm) | Fibre Nep Count (Cnt/g) | Fibre Nep Size (µm) | Seed Coat Nep Count (Cnt/g) | Seed Coat Nep Size (µm) | Instrument Model | Standard Test Method |
| 3-1        | 296.0                   | 781.0               | 251.0                   | 692.0               | 45.0                        | 1265.0                  | aQura 2          | ASTM                 |
| 44-2       | 326.0                   | 772.0               | 286.0                   | 690.0               | 40.0                        | 1356.0                  | aQura 2          |                      |
| 114-1      | 375.0                   | 673.0               | 345.0                   | 673.0               | 30.0                        | 1309.0                  | aQura 2          |                      |
| 127-1      | 397.0                   | 739.0               | 347.0                   | 657.0               | 50.0                        | 1309.0                  | aQura            |                      |

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## AFIS Length by Number

|            | Mean Length (N) (inch) | Mean Length (N) (mm) | CV Length (N) (%) | 2.5% Length (N) (inch) | 2.5% Length (N) (mm) | 5% Length (N) (inch) | 5% Length (N) (mm) | SFC (12.7) (N) (%) | Model        | Test Method   | Repetitions |
|------------|------------------------|----------------------|-------------------|------------------------|----------------------|----------------------|--------------------|--------------------|--------------|---------------|-------------|
| Average    | 0.717                  | 18.21                | 52.89             | 1.42                   | 36.07                | 1.302                | 33.08              | 30.71              |              |               |             |
| Median     | 0.713                  | 18.1                 | 52.95             | 1.4245                 | 36.185               | 1.2995               | 33.01              | 30.7               |              |               | 10.0        |
| Stddev     | 0.048                  | 1.22                 | 4.6               | 0.03                   | 0.76                 | 0.023                | 0.58               | 4.2                |              |               |             |
| CV         | 6.7                    | 6.7                  | 8.7               | 2.1                    | 2.1                  | 1.8                  | 1.8                | 13.7               |              |               |             |
| Min        | 0.618                  | 15.7                 | 2.5               | 1.185                  | 30.1                 | 1.256                | 31.9               | 11.4               |              |               |             |
| Max        | 1.516                  | 38.5                 | 63.6              | 1.461                  | 37.1                 | 1.37                 | 34.8               | 42.0               |              |               |             |
| n          | 39                     | 39                   | 39                | 15                     | 15                   | 39                   | 39                 | 41                 |              |               |             |
| Laboratory | Mean Length (N) (inch) | Mean Length (N) (mm) | CV Length (N) (%) | 2.5% Length (N) (inch) | 2.5% Length (N) (mm) | 5% Length (N) (inch) | 5% Length (N) (mm) | SFC (12.7) (N) (%) | Model        | Test Method   | Repetitions |
| 5-1        | 0.66                   | 16.76                | 56.9              |                        |                      | 1.27                 | 32.26              | 36.0               | AFIS Pro 2   | CCAA          | 5           |
| 21-1       | 0.772                  | 19.6                 | 43.2              | 1.366                  | 34.7                 | 1.272                | 32.3               | 21.5               | AFIS 119-064 |               | 5           |
| 22-1       | 0.7                    | 17.78                | 54.7              | 1.42                   | 36.07                | 1.31                 | 33.27              | 33.2               | Autojet      |               | 10          |
| 24-1       | 0.701                  | 17.8                 | 54.5              |                        |                      | 1.303                | 33.1               | 30.4               | AFIS Pro     |               |             |
| 31-1       | 0.713                  | 18.1                 | 53.2              | 1.437                  | 36.5                 | 1.323                | 33.6               | 32.5               | Other        |               | 5           |
| 32-1       | 0.717                  | 18.2                 | 53.2              |                        |                      | 1.303                | 33.1               | 29.6               | AFIS Pro 2   |               | 10          |
| 32-2       | 0.705                  | 17.9                 | 50.8              |                        |                      | 1.291                | 32.8               | 30.6               | AFIS Pro 2   |               | 10          |
| 38-1       | 0.713                  | 18.1                 | 57.7              | 1.453                  | 36.9                 | 1.335                | 33.9               | 32.7               | AFIS Pro     | ASTM          | 5           |
| 40-1       | 0.73                   | 18.54                | 52.1              | 1.43                   | 36.32                | 1.32                 | 33.53              | 30.9               | AFIS Pro 2   | INTERNAL      | 10          |
| 40-2       | 0.74                   | 18.8                 | 52.7              | 1.44                   | 36.58                | 1.32                 | 33.53              | 29.9               | AFIS Pro     | INTERNAL      | 10          |
| 40-4       | 0.71                   | 18.03                | 54.3              | 1.41                   | 35.81                | 1.31                 | 33.27              | 32.7               | AFIS Pro     | INTERNAL      | 10          |
| 41-1       | 0.744                  | 18.9                 | 46.7              | 1.402                  | 35.6                 | 1.295                | 32.9               | 26.2               | AFIS Pro     |               | 5           |
| 43-1       | 0.7                    | 17.78                | 54.7              |                        |                      | 1.3                  | 33.02              | 33.2               | AFIS Pro 2   |               | 10          |
| 44-1       | 0.732                  | 18.6                 | 49.3              |                        |                      | 1.295                | 32.9               | 26.7               | AFIS Pro     |               | 10          |
| 51-1       | 0.689                  | 17.5                 | 53.3              |                        |                      | 1.276                | 32.4               | 31.6               | AFIS Pro 2   | ISO-9001      | 5           |
| 58-1       | 0.713                  | 18.1                 | 52.1              | 1.406                  | 35.7                 | 1.295                | 32.9               | 31.3               | Autojet      | Internal      | 10          |
| 58-2       | 0.689                  | 17.5                 | 54.1              |                        |                      | 1.287                | 32.7               | 31.9               | AFIS Pro 2   | Internal      | 10          |
| 75-1       | 0.669                  | 17.0                 | 62.1              |                        |                      | 1.307                | 33.2               | 35.8               | AFIS Pro     | ASTMD 5866-12 |             |
| 90-1       | 0.768                  | 19.5                 | 50.3              | 1.461                  | 37.1                 | 1.346                | 34.2               | 25.5               | AFIS 4.22    | USTER Method  | 10          |
| 91-1       | 0.709                  | 18.0                 | 51.6              |                        |                      | 1.287                | 32.7               | 29.2               | AFIS Pro 2   |               | 10          |

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|       | Mean Length (N) (inch) | Mean Length (N) (mm) | CV Length (N) (%) | 2.5% Length (N) (inch) | 2.5% Length (N) (mm) | 5% Length (N) (inch) | 5% Length (N) (mm) | SFC (12.7) (N) (%) | Model        | Test Method                    | Repetitions |
|-------|------------------------|----------------------|-------------------|------------------------|----------------------|----------------------|--------------------|--------------------|--------------|--------------------------------|-------------|
| 91-2  | 0.724                  | 18.4                 | 49.3              |                        |                      | 1.295                | 32.9               | 27.5               | AFIS Pro 2   |                                | 10          |
| 100-1 |                        |                      |                   |                        |                      |                      |                    | 11.4               |              |                                | 10          |
| 101-1 | 0.736                  | 18.7                 | 52.5              |                        |                      | 1.323                | 33.6               | 27.6               | AFIS Pro 2   | internal                       | 5           |
| 111-1 | 0.677                  | 17.2                 | 56.7              |                        |                      | 1.276                | 32.4               | 33.2               | AFIS Pro 2   | Internal                       | 10          |
| 112-1 | 0.72                   | 18.29                | 51.4              |                        |                      | 1.31                 | 33.27              | 30.87              | AFIS Pro     | ASTM D 5866                    | 3           |
| 139-1 | 0.64                   | 16.26                | 58.8              |                        |                      | 1.28                 | 32.51              | 40.9               | AFIS PRO2    | ASTMD5866-05                   | 12          |
| 142-1 | 0.728                  | 18.5                 | 49.8              | 1.406                  | 35.7                 | 1.303                | 33.1               | 27.7               | Other        |                                | 5           |
| 143-1 | 0.717                  | 18.2                 | 56.3              | 1.457                  | 37.0                 | 1.339                | 34.0               | 32.3               | AFIS         | ASTM D-5866                    | 10          |
| 144-1 | 0.701                  | 17.8                 | 53.5              |                        |                      | 1.28                 | 32.5               | 29.6               | AFIS Pro     | ASTM                           | 5           |
| 145-1 | 0.92                   | 23.37                | 38.9              |                        |                      |                      |                    | 12.4               |              |                                |             |
| 148-1 | 0.72                   | 18.3                 | 50.7              |                        |                      | 1.295                | 32.9               | 28.2               | AFIS Pro 2   | ASTM-D5866                     | 10          |
| 148-3 | 0.701                  | 17.8                 | 52.8              |                        |                      | 1.299                | 33.0               | 30.7               | AFIS Pro 2.2 | ASTM-D5866                     | 10          |
| 154-1 | 0.713                  | 18.1                 | 58.0              | 1.429                  | 36.3                 | 1.323                | 33.6               | 32.6               | Autojet      |                                | 10          |
| 158-1 | 0.618                  | 15.7                 | 63.6              | 1.366                  | 34.7                 | 1.256                | 31.9               | 42.0               | AFIS Pro     |                                | 6           |
| 176-1 | 0.76                   | 19.3                 | 50.6              |                        |                      | 1.35                 | 34.29              | 26.4               | AFIS Pro     |                                | 5           |
| 183-1 | 0.67                   | 17.02                | 57.8              |                        |                      | 1.29                 | 32.77              | 36.8               | AFIS Pro     | ASTM D 5866-05                 | 3           |
| 186-1 | 0.736                  | 18.7                 | 50.2              |                        |                      | 1.331                | 33.8               | 28.2               | Afis Pro 2   | ASTM                           | 10          |
| 207-1 | 0.791                  | 20.1                 | 48.2              |                        |                      | 1.37                 | 34.8               | 22.3               | AFIS Pro     | ASTM D5866-12 & USTER Handbook | 10          |
| 210-1 | 1.516                  | 38.5                 | 2.5               | 1.185                  | 30.1                 | 1.268                | 32.2               | 33.1               | Neptester    | ASTMD5866-2012                 | 4           |
| 211-1 |                        |                      |                   |                        |                      | 1.335                | 33.9               | 26.4               | AFIS Pro 2   |                                | 10          |
| 213-1 | 0.701                  | 17.8                 | 53.1              |                        |                      | 1.291                | 32.8               | 29.9               | AFIS Pro 2   | ASTM-D5866                     | 5           |

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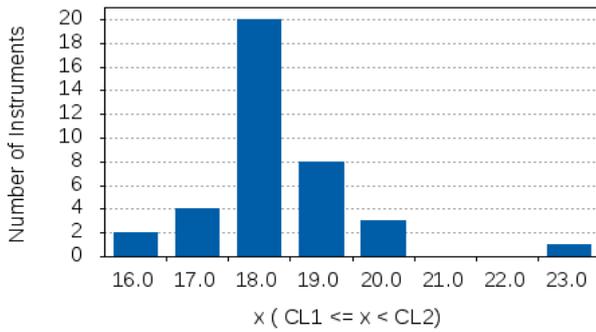
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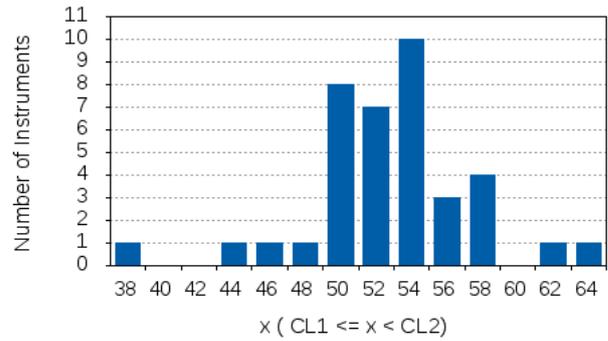


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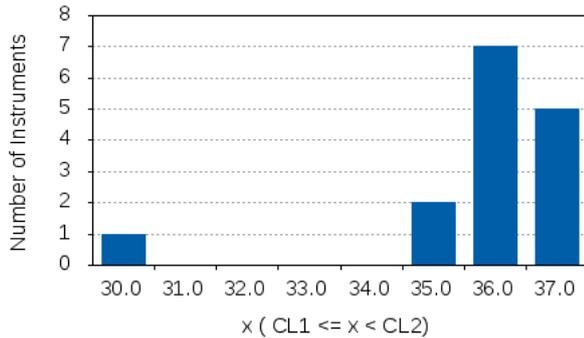
AFIS Mean Length (N), mm



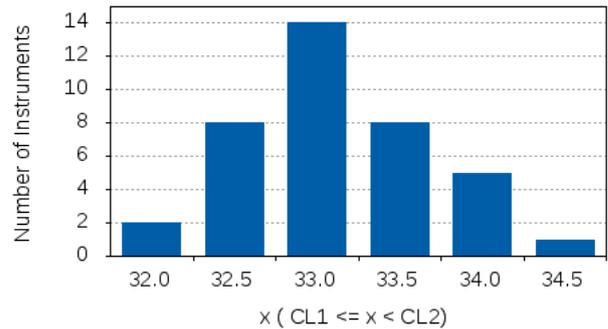
AFIS CV Length (N), %



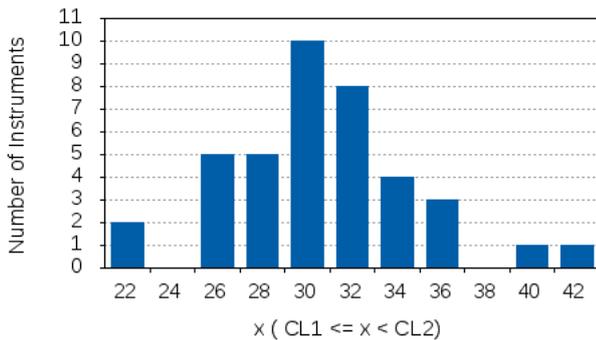
AFIS 2.5% Length (N), mm



AFIS 5% Length (N), mm



AFIS SFC (12.7mm) (N), %



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## AFIS Length by Weight

|            | Mean Length (W)<br>(inch) | Mean Length (W)<br>(mm) | CV Length<br>(W) (%) | UQL (W)<br>(inch) | UQL (W)<br>(mm) | SFC (12.7)<br>(W) | Model        | Test Method   | Repetitions |
|------------|---------------------------|-------------------------|----------------------|-------------------|-----------------|-------------------|--------------|---------------|-------------|
| Average    | 0.91                      | 23.138                  | 37.72                | 1.131             | 28.73           | 11.56             |              |               | 10.0        |
| Median     | 0.909                     | 23.1                    | 38.0                 | 1.126             | 28.6            | 11.2              |              |               |             |
| Stddev     | 0.03                      | 0.659                   | 1.42                 | 0.023             | 0.59            | 1.96              |              |               |             |
| CV         | 2.8                       | 2.8                     | 3.8                  | 2.1               | 2.0             | 17.0              |              |               |             |
| Min        | 0.86                      | 21.84                   | 32.4                 | 1.098             | 27.9            | 7.4               |              |               |             |
| Max        | 0.972                     | 24.7                    | 43.0                 | 1.201             | 30.5            | 27.6              |              |               |             |
| n          | 39                        | 39                      | 38                   | 40                | 40              | 40                |              |               |             |
| Laboratory | Mean Length (W)<br>(inch) | Mean Length (W)<br>(mm) | CV Length<br>(W) (%) | UQL (W)<br>(inch) | UQL (W)<br>(mm) | SFC (12.7)<br>(W) | Model        | Test Method   | Repetitions |
| 5-1        | 0.88                      | 22.35                   | 39.0                 | 1.1               | 27.94           | 13.9              | AFIS Pro 2   | CCAA          | 5           |
| 21-1       | 0.913                     | 23.2                    | 32.4                 | 1.098             | 27.9            | 8.3               | Afis 119-064 |               | 5           |
| 22-1       | 0.91                      | 23.11                   | 38.7                 | 1.14              | 28.96           | 12.7              | Autojet      |               | 10          |
| 24-1       | 0.909                     | 23.1                    | 38.1                 | 1.13              | 28.7            | 10.7              | AFIS Pro     |               |             |
| 31-1       | 0.917                     | 23.3                    | 38.4                 | 1.146             | 29.1            | 12.9              | Other        |               | 5           |
| 32-1       | 0.917                     | 23.3                    | 37.4                 | 1.138             | 28.9            | 10.5              | AFIS Pro 2   |               | 10          |
| 32-2       | 0.886                     | 22.5                    | 38.9                 | 1.114             | 28.3            | 12.8              | AFIS Pro 2   |               | 10          |
| 38-1       | 0.949                     | 24.1                    | 36.8                 | 1.165             | 29.6            | 10.6              | AFIS Pro     | ASTM          | 5           |
| 40-1       | 0.92                      | 23.37                   | 38.8                 | 1.15              | 29.21           | 12.2              | AFIS Pro 2   | INTERNAL      | 10          |
| 40-2       | 0.94                      | 23.88                   | 36.7                 | 1.16              | 29.46           | 10.6              | AFIS Pro     | INTERNAL      | 10          |
| 40-4       | 0.92                      | 23.37                   | 37.1                 | 1.14              | 28.96           | 12.0              | AFIS Pro     | INTERNAL      | 10          |
| 41-1       | 0.906                     | 23.0                    | 36.1                 | 1.114             | 28.3            | 11.0              | AFIS Pro     |               | 5           |
| 43-1       | 0.9                       | 22.86                   | 39.0                 | 1.13              | 28.7            | 12.8              | AFIS Pro 2   |               | 10          |
| 44-1       | 0.909                     | 23.1                    | 36.3                 | 1.122             | 28.5            | 10.0              | AFIS Pro     |               | 10          |
| 51-1       | 0.886                     | 22.5                    | 38.7                 | 1.106             | 28.1            | 12.3              | AFIS Pro 2   | ISO-9001      | 5           |
| 58-1       | 0.906                     | 23.0                    | 37.6                 | 1.126             | 28.6            | 12.3              | Autojet      | Internal      | 10          |
| 58-2       | 0.89                      | 22.6                    | 38.8                 | 1.118             | 28.4            | 12.2              | AFIS Pro 2   | Internal      | 10          |
| 75-1       | 0.925                     | 23.5                    | 39.0                 | 1.146             | 29.1            | 11.2              | AFIS Pro     | ASTMD 5866-12 |             |
| 90-1       | 0.965                     | 24.5                    | 34.7                 | 1.165             | 29.6            | 8.4               | AFIS 4.22    | USTER Method  | 10          |
| 91-1       | 0.898                     | 22.8                    | 38.1                 | 1.118             | 28.4            | 11.2              | AFIS Pro 2   |               | 10          |
| 91-2       | 0.898                     | 22.8                    | 38.0                 | 1.11              | 28.2            | 11.0              | AFIS Pro 2   |               | 10          |
| 100-1      | 0.89                      | 22.6                    |                      | 1.201             | 30.5            |                   |              |               | 10          |
| 101-1      | 0.941                     | 23.9                    | 36.1                 | 1.157             | 29.4            | 27.6              | AFIS Pro 2   | internal      | 5           |
| 111-1      | 0.894                     | 22.7                    | 38.9                 | 1.106             | 28.1            | 11.8              | AFIS Pro 2   | Internal      | 10          |
| 112-1      | 0.91                      | 23.11                   | 39.27                | 1.12              | 28.45           | 12.57             | AFIS Pro     | ASTM D 5866   | 3           |
| 139-1      | 0.86                      | 21.84                   | 43.0                 | 1.1               | 27.94           | 17.6              | AFIS PRO2    | ASTMD5866-05  | 12          |
| 142-1      | 0.909                     | 23.1                    | 35.9                 | 1.118             | 28.4            | 10.6              | Other        |               | 5           |
| 143-1      | 0.941                     | 23.9                    | 37.2                 | 1.161             | 29.5            | 11.0              | AFIS         | ASTM D-5866   | 10          |

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|       | Mean Length (W)<br>(inch) | Mean Length (W)<br>(mm) | CV Length<br>(W) (%) | UQL (W)<br>(inch) | UQL (W)<br>(mm) | SFC (12.7)<br>(W) | Model           | Test Method                       | Repetitions |
|-------|---------------------------|-------------------------|----------------------|-------------------|-----------------|-------------------|-----------------|-----------------------------------|-------------|
| 144-1 | 0.898                     | 22.8                    | 37.4                 | 1.114             | 28.3            | 10.5              | AFIS Pro        | ASTM                              | 5           |
| 145-1 |                           |                         |                      |                   |                 | 12.4              |                 |                                   |             |
| 148-1 | 0.906                     | 23.0                    | 37.2                 | 1.122             | 28.5            | 10.7              | AFIS Pro<br>2   | ASTM-D5866                        | 10          |
| 148-3 | 0.898                     | 22.8                    | 38.3                 | 1.118             | 28.4            | 11.7              | AFIS Pro<br>2.2 | ASTM-D5866                        | 10          |
| 154-1 | 0.949                     | 24.1                    | 36.2                 | 1.165             | 29.6            | 10.2              | Autojet         |                                   | 10          |
| 158-1 | 0.866                     | 22.0                    | 41.0                 | 1.102             | 28.0            | 16.1              | AFIS Pro        |                                   | 6           |
| 176-1 | 0.96                      | 24.38                   | 35.2                 | 1.17              | 29.72           | 8.9               | AFIS Pro        |                                   | 5           |
| 183-1 | 0.89                      | 22.61                   | 39.8                 | 1.13              | 28.7            | 14.4              | AFIS Pro        | ASTM D 5866-05                    | 3           |
| 186-1 | 0.921                     | 23.4                    | 38.0                 | 1.146             | 29.1            | 11.2              | Afis Pro 2      | ASTM                              | 10          |
| 207-1 | 0.972                     | 24.7                    | 34.9                 | 1.181             | 30.0            | 7.4               | AFIS Pro        | ASTM D5866-12 & USTER<br>Handbook | 10          |
| 210-1 | 0.882                     | 22.4                    | 38.5                 | 1.098             | 27.9            | 13.6              | Neptester       | ASTMD5866-2012                    | 4           |
| 211-1 |                           |                         |                      | 1.154             | 29.3            | 9.6               | AFIS Pro<br>2   |                                   | 10          |
| 213-1 | 0.898                     | 22.8                    | 37.7                 | 1.114             | 28.3            | 10.9              | AFIS Pro<br>2   | ASTM-D5866                        | 5           |

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Managing Director: Bill Kingdon

Place of jurisdiction: Bremen

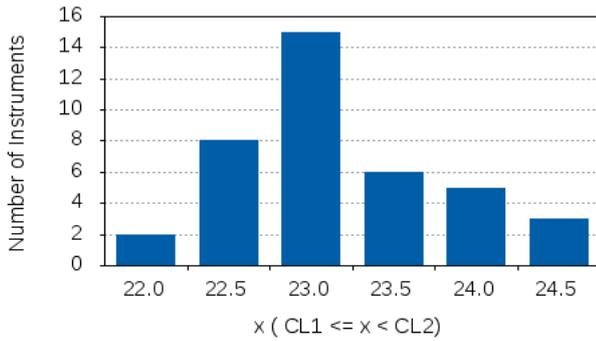
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in Cooperation with Bremer Baumwollbörse  
carried out by Bremen Fibre Institute (FIBRE)

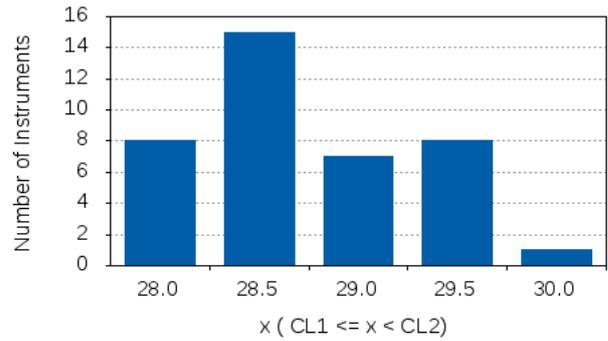


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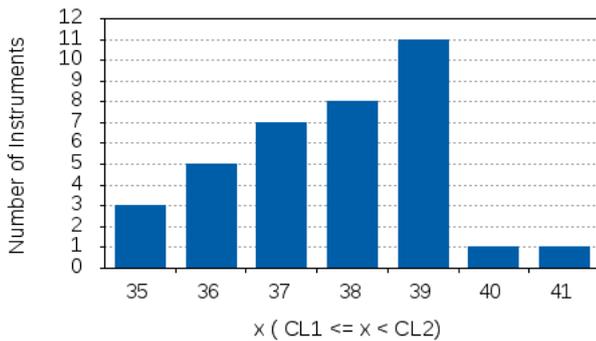
AFIS Mean Length (W), mm



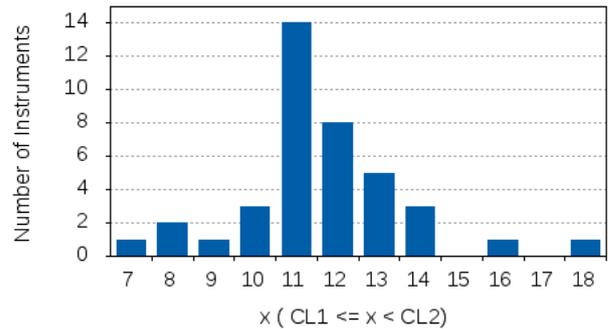
AFIS UQL (W), mm



AFIS CV Length (W), %



AFIS SFC (12.7mm) (W), %



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## AFIS Fineness/Maturity

|            | Fineness (mtex) | Diameter (µm) | Mat. Ratio | -IFC- (%)  | Model                          | Test Method   | Repeti-tions |
|------------|-----------------|---------------|------------|------------|--------------------------------|---------------|--------------|
| Average    | 149.1           |               | 0.84       | 8.2        |                                |               | 10.0         |
| Median     | 149.0           |               | 0.84       | 8.3        |                                |               |              |
| Stddev     | 5.3             |               | 0.03       | 1.42       |                                |               |              |
| CV         | 3.5             |               | 3.7        | 17.3       |                                |               |              |
| Min        | 133.0           |               | 0.76       | 5.0        |                                |               |              |
| Max        | 162.0           |               | 0.94       | 11.3       |                                |               |              |
| n          | 38              |               | 37         | 37         |                                |               |              |
| Laboratory | Fineness (mtex) | Diameter (µm) | Mat. Ratio | -IFC- (%)  | Model                          | Test Method   | Repeti-tions |
| 5-1        | 145.0           | 12.9          | 0.79       | 9.8        | AFIS Pro 2                     | CCAA          | 5            |
| 22-1       | 150.0           |               | 0.8        | 10.5       | Autojet                        |               | 10           |
| 24-1       | 156.0           |               | 0.86       | 9.0        | AFIS Pro                       |               |              |
| 31-1       | 149.0           |               | 0.81       | 8.9        | Other                          |               | 5            |
| 32-1       | 155.0           |               | 0.9        | 5.0        | AFIS Pro 2                     |               | 10           |
| 32-2       | 149.0           |               | 0.84       | 6.5        | AFIS Pro 2                     |               | 10           |
| 38-1       | 139.0           |               | 0.8        | 9.4        | AFIS Pro                       | ASTM          | 5            |
| 40-1       | 151.0           |               | 0.84       | 9.1        | AFIS Pro 2                     | INTERNAL      | 10           |
| 40-2       | 133.0           |               | 0.88       | 8.1        | AFIS Pro                       | INTERNAL      | 10           |
| 40-4       | 154.0           |               | 0.86       | 8.1        | AFIS Pro                       | INTERNAL      | 10           |
| 41-1       |                 |               |            |            | AFIS Pro                       |               | 5            |
| 43-1       | 153.0           |               | 0.84       | 8.8        | AFIS Pro 2                     |               | 10           |
| 44-1       | 149.0           |               | 0.84       | 8.9        | AFIS Pro                       |               | 10           |
| 51-1       | 151.0           |               | 0.86       | 6.0        | AFIS Pro 2                     | ISO-9001      | 5            |
| 58-1       | 150.0           |               | 0.84       | 9.3        | Autojet                        | Internal      | 10           |
| 58-2       | 145.0           |               | 0.82       | 8.3        | AFIS Pro 2                     | Internal      | 10           |
| 75-1       | 156.0           |               | 0.87       | 8.2        | AFIS Pro                       | ASTMD 5866-12 |              |
| 90-1       | 147.0           |               | 0.84       | 7.3        | AFIS 4.22                      | USTER Method  | 10           |
| 91-1       | 147.0           |               | 0.85       | 6.9        | AFIS Pro 2                     |               | 10           |
| 91-2       | 152.0           |               | 0.85       | 7.9        | AFIS Pro 2                     |               | 10           |
| 100-1      | 142.0           |               |            |            |                                |               | 10           |
| 101-1      | 144.0           |               | 0.83       | 9.0        | AFIS Pro 2                     | internal      | 5            |
| 111-1      | 148.0           |               | 0.86       | 6.9        | AFIS Pro 2                     | Internal      | 10           |
| 112-1      | 162.0           |               | 0.94       | 6.73       | AFIS Pro                       | ASTM D 5866   | 3            |
| 139-1      | 155.0           |               | 0.9        | 5.3        | AFIS PRO2                      | ASTMD5866-05  | 12           |
| 143-1      | 155.0           |               | 0.87       | 7.0        | AFIS                           | ASTM D-5866   | 10           |
| 144-1      | 143.0           |               | 0.86       | 8.3        | AFIS Pro                       | ASTM          | 5            |
| 145-1      | 157.0           |               | 0.87       | 6.5        |                                |               |              |
| 148-1      | 152.0           |               | 0.85       | 7.7        | AFIS Pro 2                     | ASTM-D5866    | 10           |
| 148-3      | 149.0           |               | 0.84       | 6.5        | AFIS Pro 2.2                   | ASTM-D5866    | 10           |
| 154-1      | 151.0           |               | 0.86       | 7.7        | Autojet                        |               | 10           |
| 158-1      | 152.0           |               | 0.87       | 9.4        | AFIS Pro                       |               | 6            |
| 176-1      | 141.0           |               | 0.81       | 8.8        | AFIS Pro                       |               | 5            |
| 183-1      | 149.0           | 0.85          | 8.4        | AFIS Pro   | ASTM D 5866-05                 | 3             |              |
| 186-1      | 145.0           | 0.76          | 8.9        | Afis Pro 2 | ASTM                           | 10            |              |
| 207-1      | 145.0           | 0.82          | 9.6        | AFIS Pro   | ASTM D5866-12 & USTER Handbook | 10            |              |
| 210-1      | 143.0           | 0.79          | 9.9        | Neptester  | ASTMD5866-2012                 | 4             |              |
| 211-1      | 140.0           | 0.8           | 11.3       | AFIS Pro 2 |                                | 10            |              |
| 213-1      | 146.0           | 0.83          | 9.4        | AFIS Pro 2 | ASTM-D5866                     | 5             |              |

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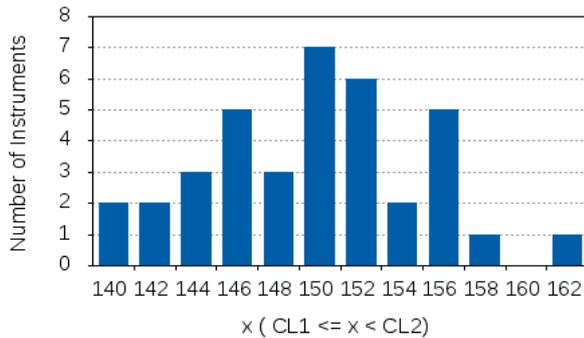
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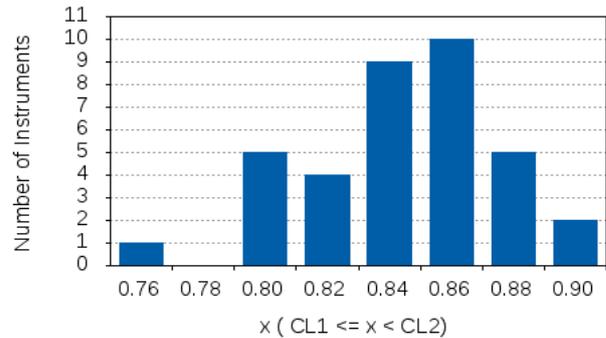


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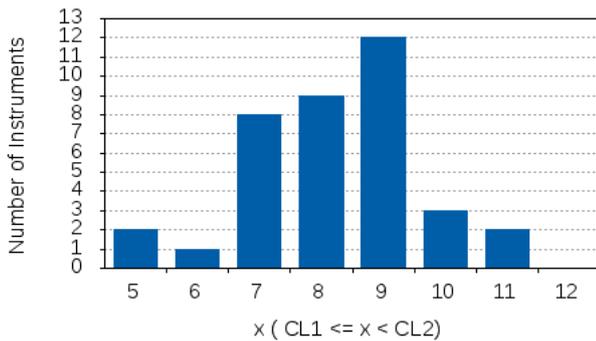
AFIS Fineness, mtex



AFIS Maturity Ratio



AFIS I.F.C., %



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## AFIS Neps

|            | Fiber Nep Count (cnt/g) | Fiber Nep Size (µm) | SC Nep Count (cnt/g) | SC Nep Size (µm) | Total Nep Count (cnt/g) | Total Nep Size (µm) | Model        | Test Method   | Repetitions |
|------------|-------------------------|---------------------|----------------------|------------------|-------------------------|---------------------|--------------|---------------|-------------|
| Average    | 334.7                   | 699.6               | 35.5                 | 1194.0           | 349.0                   | 733.6               |              |               |             |
| Median     | 335.0                   | 687.0               | 34.0                 | 1204.0           | 356.0                   | 727.0               |              |               | 10.0        |
| Stddev     | 27.8                    | 36.3                | 12.0                 | 161.8            | 48.8                    | 38.7                |              |               |             |
| CV         | 8.3                     | 5.2                 | 33.9                 | 13.6             | 14.0                    | 5.3                 |              |               |             |
| Min        | 31.0                    | 652.0               | 20.0                 | 687.0            | 90.0                    | 406.0               |              |               |             |
| Max        | 380.0                   | 1212.0              | 226.0                | 1536.0           | 481.0                   | 1039.0              |              |               |             |
| n          | 27                      | 26                  | 37                   | 36               | 42                      | 37                  |              |               |             |
| Laboratory | Fiber Nep Count (cnt/g) | Fiber Nep Size (µm) | SC Nep Count (cnt/g) | SC Nep Size (µm) | Total Nep Count (cnt/g) | Total Nep Size (µm) | Model        | Test Method   | Repetitions |
| 5-1        | 324.0                   | 679.0               | 34.0                 | 1039.0           | 359.0                   | 713.0               | AFIS Pro 2   | CCAA          | 5           |
| 21-1       | 90.0                    | 801.0               | 90.0                 | 801.0            | 90.0                    | 801.0               | Afis 119-064 |               | 5           |
| 22-1       | 335.0                   | 735.0               | 30.0                 | 1220.0           | 365.0                   |                     | Autojet      |               | 10          |
| 24-1       | 330.0                   | 723.0               | 33.0                 | 1358.0           |                         |                     | AFIS Pro     |               |             |
| 27-1       |                         |                     |                      |                  | 269.0                   |                     | Neptest er   | ASTM D5866-12 | 5           |
| 31-1       |                         |                     | 38.0                 | 1225.0           | 373.0                   | 735.0               | Other        |               | 5           |
| 32-1       | 323.0                   | 668.0               | 33.0                 | 968.0            | 356.0                   | 697.0               | AFIS Pro 2   |               | 10          |
| 32-2       | 307.0                   | 680.0               | 28.0                 | 929.0            | 335.0                   | 701.0               | AFIS Pro 2   |               | 10          |
| 38-1       |                         |                     |                      |                  | 265.0                   | 406.0               | AFIS Pro     | ASTM          | 5           |
| 40-1       |                         |                     | 33.0                 | 1351.0           | 408.0                   | 826.0               | AFIS Pro 2   | INTERNAL      | 10          |
| 40-2       |                         |                     | 24.0                 | 1191.0           | 338.0                   | 714.0               | AFIS Pro     | INTERNAL      | 10          |
| 40-3       |                         |                     | 34.0                 | 1488.0           | 342.0                   | 820.0               | AFIS Pro     | INTERNAL      | 10          |
| 40-4       |                         |                     | 32.0                 | 1102.0           | 387.0                   | 722.0               | AFIS Pro     | INTERNAL      | 10          |
| 41-1       |                         |                     |                      |                  | 313.0                   | 682.0               | AFIS Pro     |               | 5           |
| 43-1       |                         |                     | 44.0                 | 1252.0           | 361.0                   | 751.0               | AFIS Pro 2   |               | 10          |
| 44-1       | 335.0                   | 719.0               | 20.0                 | 1041.0           | 355.0                   | 737.0               | AFIS Pro     |               | 10          |
| 51-1       | 378.0                   | 687.0               | 38.0                 | 687.0            | 416.0                   | 748.0               | AFIS Pro 2   | ISO-9001      | 5           |
| 58-1       | 339.0                   | 703.0               | 20.0                 | 892.0            |                         |                     | Autojet      | Internal      | 10          |
| 58-2       | 289.0                   | 652.0               | 49.0                 | 1285.0           | 338.0                   | 742.0               | AFIS Pro 2   | Internal      | 10          |
| 75-1       | 31.0                    | 1212.0              |                      |                  | 383.0                   | 727.0               | AFIS Pro     | ASTMD 5866-12 |             |
| 90-1       | 377.0                   | 735.0               | 36.0                 | 1342.0           | 413.0                   | 1039.0              | AFIS 4.22    | USTER Method  | 10          |
| 91-1       | 330.0                   | 664.0               | 36.0                 | 1174.0           | 366.0                   | 715.0               | AFIS Pro 2   |               | 10          |
| 91-2       | 289.0                   | 689.0               | 31.0                 | 1270.0           | 320.0                   | 745.0               | AFIS Pro 2   |               | 10          |
| 91-4       |                         |                     |                      |                  | 298.0                   | 685.0               | 920          |               | 10          |
| 100-1      |                         |                     | 36.0                 |                  | 199.0                   |                     |              |               | 10          |
| 101-1      | 327.0                   | 682.0               | 47.0                 | 1253.0           | 373.0                   | 755.0               | AFIS Pro 2   | internal      | 5           |
| 111-1      | 357.0                   | 665.0               | 27.0                 | 1270.0           | 385.0                   | 708.0               | AFIS Pro 2   | Internal      | 10          |

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|       | Fiber Nep Count (cnt/g) | Fiber Nep Size (µm) | SC Nep Count (cnt/g) | SC Nep Size (µm) | Total Nep Count (cnt/g) | Total Nep Size (µm) | Model        | Test Method                    | Repetitions |
|-------|-------------------------|---------------------|----------------------|------------------|-------------------------|---------------------|--------------|--------------------------------|-------------|
| 112-1 | 374.0                   | 729.0               | 37.0                 | 1203.0           |                         |                     | AFIS Pro     | ASTM D 5866                    | 3           |
| 132-1 |                         |                     |                      |                  | 264.0                   | 666.0               | AFIS         |                                | 5           |
| 139-1 | 338.0                   | 702.0               | 22.0                 | 1076.0           | 359.0                   | 723.0               | AFIS PRO2    | ASTMD5866-05                   | 12          |
| 142-1 |                         |                     |                      |                  | 306.0                   | 695.0               | Other        |                                | 5           |
| 143-1 |                         |                     | 37.0                 | 1204.0           | 325.0                   | 735.0               | AFIS         | ASTM D-5866                    | 10          |
| 144-1 | 380.0                   | 733.0               | 35.0                 | 1353.0           |                         |                     | AFIS Pro     | ASTM                           | 5           |
| 145-1 | 337.0                   | 712.0               | 27.0                 | 1536.0           | 363.0                   | 771.0               |              |                                |             |
| 148-1 | 305.0                   | 681.0               | 27.0                 | 1155.0           | 332.0                   | 720.0               | AFIS Pro 2   | ASTM-D5866                     | 10          |
| 148-2 |                         |                     |                      |                  | 361.0                   |                     | Neptester    |                                | 10          |
| 148-3 | 331.0                   | 676.0               | 32.0                 | 1319.0           | 364.0                   | 731.0               | AFIS Pro 2.2 | ASTM-D5866                     | 10          |
| 154-1 |                         |                     | 53.0                 | 1308.0           | 331.0                   | 765.0               | Autojet      |                                | 10          |
| 158-1 |                         |                     | 226.0                | 1015.0           | 481.0                   | 824.0               | AFIS Pro     |                                | 6           |
| 176-1 | 282.0                   |                     | 32.0                 | 1086.0           | 314.0                   | 705.0               | AFIS Pro     |                                | 5           |
| 183-1 |                         |                     | 41.0                 | 1143.0           | 346.0                   | 725.0               | AFIS Pro     | ASTM D 5866-05                 | 3           |
| 186-1 | 316.0                   | 660.0               | 34.0                 | 1135.0           | 350.0                   | 707.0               | Afis Pro 2   | ASTM                           | 10          |
| 207-1 | 363.0                   | 768.0               | 43.0                 | 1384.0           | 406.0                   |                     | AFIS Pro     | ASTM D5866-12 & USTER Handbook | 10          |
| 210-1 |                         |                     |                      |                  | 325.0                   | 749.0               | Neptester    | ASTMD5866-2012                 | 4           |
| 211-1 | 360.0                   | 681.0               | 39.0                 | 1267.0           | 399.0                   | 737.0               | AFIS Pro 2   |                                | 10          |
| 213-1 | 342.0                   | 665.0               | 25.0                 | 1156.0           | 366.0                   | 700.0               | AFIS Pro 2   | ASTM-D5866                     | 5           |

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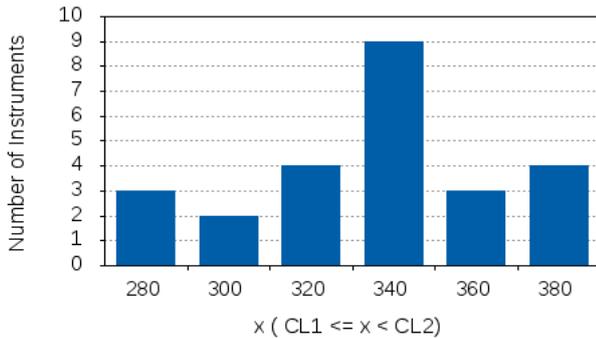
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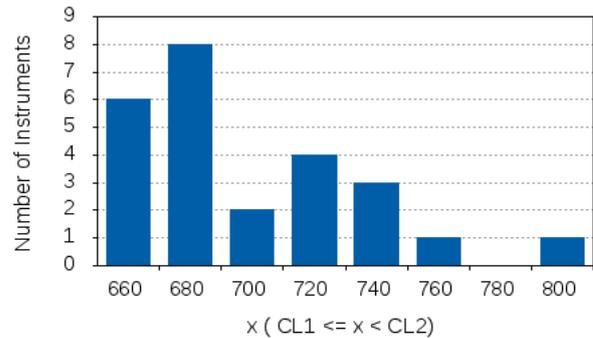


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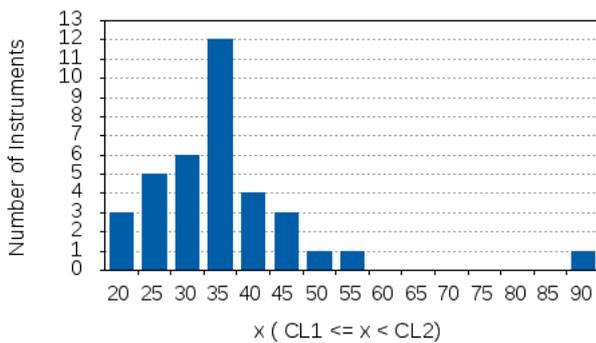
AFIS Fiber Nep Count, cnt/g



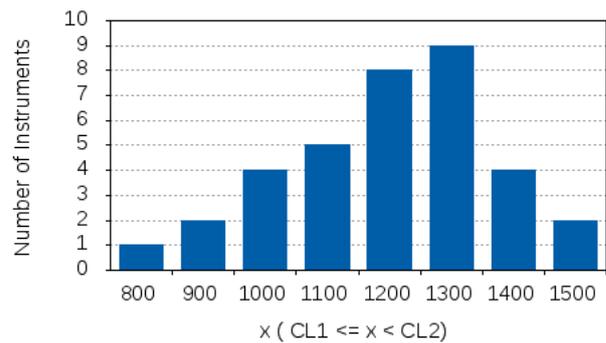
AFIS Fiber Nep Size,  $\mu\text{m}$



AFIS SC Nep Count, cnt/g



AFIS SC Nep Size,  $\mu\text{m}$



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## AFIS Trash

|            | Trash Count<br>(cnt/g) | Trash Size<br>(µm) | Dust Count<br>(cnt/g) | Dust Size<br>(µm) | Total Trash Cnt<br>(cnt/g) | Total Trash<br>Size (µm) | V.F.M.<br>(%) | Model        | Test Method    | Repeti-<br>tions |
|------------|------------------------|--------------------|-----------------------|-------------------|----------------------------|--------------------------|---------------|--------------|----------------|------------------|
| Average    | 32.7                   | 864.3              | 187.7                 | 193.0             | 220.6                      | 321.6                    | 0.92          |              |                |                  |
| Median     | 33.5                   | 1064.0             | 175.0                 | 198.0             | 207.0                      | 314.0                    | 0.94          |              |                | 10.0             |
| Stddev     | 6.4                    | 386.1              | 37.8                  | 14.3              | 41.1                       | 31.0                     | 0.21          |              |                |                  |
| CV         | 19.6                   | 44.7               | 20.1                  | 7.4               | 18.6                       | 9.6                      | 22.6          |              |                |                  |
| Min        | 21.0                   | 216.0              | 136.0                 | 168.0             | 162.0                      | 222.0                    | 0.5           |              |                |                  |
| Max        | 178.0                  | 1297.0             | 467.0                 | 216.0             | 500.0                      | 373.0                    | 1.33          |              |                |                  |
| n          | 27                     | 15                 | 26                    | 11                | 26                         | 22                       | 26            |              |                |                  |
| Laboratory | Trash Count<br>(cnt/g) | Trash Size<br>(µm) | Dust Count<br>(cnt/g) | Dust Size<br>(µm) | Total Trash Cnt<br>(cnt/g) | Total Trash<br>Size (µm) | V.F.M.<br>(%) | Model        | Test Method    | Repeti-<br>tions |
| 21-1       | 33.0                   |                    | 467.0                 |                   | 500.0                      | 222.0                    | 1.2           | Afis 119-064 |                | 5                |
| 22-1       | 25.0                   | 306.0              | 153.0                 |                   | 178.0                      | 306.0                    | 0.75          | Autojet      |                | 10               |
| 31-1       | 46.0                   |                    | 206.0                 |                   | 252.0                      | 349.0                    | 1.33          | Other        |                | 5                |
| 32-1       | 34.0                   | 1066.0             | 217.0                 | 174.0             | 251.0                      | 295.0                    | 0.95          | AFIS Pro 2   |                | 10               |
| 32-2       | 29.0                   | 1174.0             | 175.0                 | 180.0             | 204.0                      | 321.0                    | 0.95          | AFIS Pro 2   |                | 10               |
| 38-1       | 40.0                   | 641.0              | 203.0                 |                   | 243.0                      |                          | 0.88          | AFIS Pro     | ASTM           | 5                |
| 43-1       | 31.0                   |                    | 176.0                 |                   | 207.0                      | 314.0                    | 0.77          | AFIS Pro 2   |                | 10               |
| 51-1       | 37.0                   | 216.0              | 156.0                 | 216.0             | 193.0                      | 373.0                    | 0.94          | AFIS Pro 2   | ISO-9001       | 5                |
| 58-1       | 40.0                   |                    | 202.0                 |                   | 242.0                      | 341.0                    | 1.17          | Autojet      | Internal       | 10               |
| 58-2       | 36.0                   | 1013.0             | 152.0                 | 204.0             | 188.0                      | 369.0                    | 0.97          | AFIS Pro 2   | Internal       | 10               |
| 90-1       | 27.0                   |                    | 200.0                 |                   | 228.0                      | 287.0                    | 0.72          | AFIS 4.22    | USTER Method   | 10               |
| 91-1       | 29.0                   | 1123.0             | 188.0                 | 200.0             | 217.0                      | 323.0                    | 0.92          | AFIS Pro 2   |                | 10               |
| 91-2       | 36.0                   | 1188.0             | 169.0                 | 195.0             | 205.0                      | 372.0                    | 1.16          | AFIS Pro 2   |                | 10               |
| 100-1      | 178.0                  |                    |                       |                   |                            |                          |               |              |                | 10               |
| 101-1      | 29.0                   | 1052.0             | 149.0                 | 203.0             | 178.0                      | 345.0                    | 0.76          | AFIS Pro 2   | internal       | 5                |
| 111-1      | 28.0                   | 1297.0             | 193.0                 | 168.0             | 221.0                      | 313.0                    | 1.16          | AFIS Pro 2   | Internal       | 10               |
| 112-1      | 25.0                   | 312.0              | 136.0                 |                   | 162.0                      |                          | 0.53          | AFIS Pro     | ASTM D 5866    | 3                |
| 142-1      | 45.0                   |                    | 288.0                 |                   | 333.0                      | 286.0                    | 0.94          | Other        |                | 5                |
| 143-1      | 24.0                   |                    | 220.0                 |                   | 244.0                      | 272.0                    | 0.69          | AFIS         | ASTM D-5866    | 10               |
| 148-1      | 35.0                   | 1064.0             | 168.0                 | 198.0             | 203.0                      | 349.0                    | 0.99          | AFIS Pro 2   | ASTM-D5866     | 10               |
| 148-3      | 35.0                   | 1097.0             | 172.0                 | 198.0             | 207.0                      | 343.0                    | 1.05          | AFIS Pro 2.2 | ASTM-D5866     | 10               |
| 154-1      | 40.0                   |                    | 223.0                 |                   | 264.0                      | 302.0                    | 0.98          | Autojet      |                | 10               |
| 158-1      | 35.0                   |                    | 283.0                 |                   | 318.0                      |                          | 1.14          | AFIS Pro     |                | 6                |
| 176-1      | 21.0                   |                    | 167.0                 |                   | 188.0                      | 275.0                    | 0.5           | AFIS Pro     |                | 5                |
| 183-1      | 34.0                   |                    | 168.0                 |                   | 202.0                      | 308.0                    | 0.85          | AFIS Pro     | ASTM D 5866-05 | 3                |
| 186-1      | 27.0                   | 1098.0             | 171.0                 | 187.0             | 199.0                      | 310.0                    | 0.81          | Afis Pro 2   | ASTM           | 10               |

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Web: www.ica-bremen.org Email: info@ica-bremen.org

Registered in Germany no: HRB 27431 HB VAT-ID: DE280079445

Managing Director: Bill Kingdon

Place of jurisdiction: Bremen

# ICA Bremen Cotton Round Test 2018-3

in Cooperation with Bremer Baumwollbörse  
carried out by Bremen Fibre Institute (FIBRE)



**ICA Bremen**  
The Global Centre for Cotton Testing and Research

|       | Trash Count<br>(cnt/g) | Trash Size<br>(µm) | Dust Count<br>(cnt/g) | Dust Size<br>(µm) | Total Trash Cnt<br>(cnt/g) | Total Trash<br>Size (µm) | V.F.M.<br>(%) | Model    | Test Method                       | Repeti-<br>tions |
|-------|------------------------|--------------------|-----------------------|-------------------|----------------------------|--------------------------|---------------|----------|-----------------------------------|------------------|
| 207-1 | 29.0                   | 318.0              | 157.0                 |                   | 187.0                      |                          | 0.69          | AFIS Pro | ASTM D5866-12 &<br>USTER Handbook | 10               |

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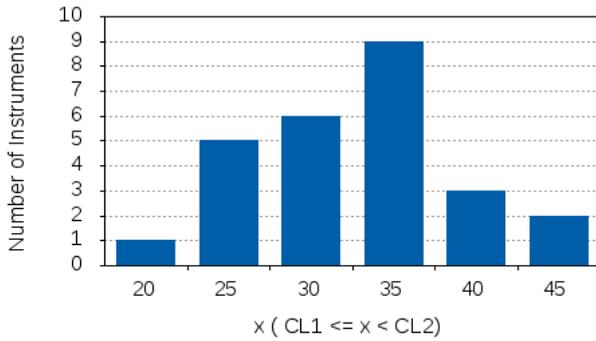
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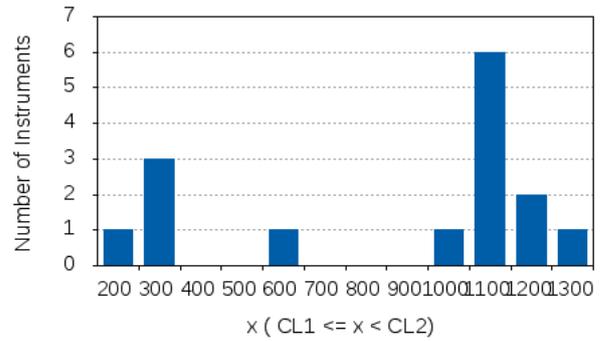


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The Global Centre for Cotton Testing and Research

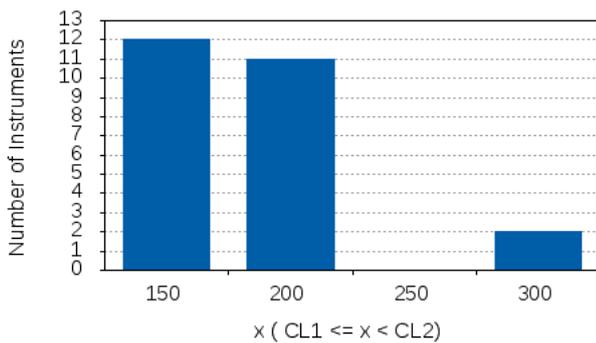
AFIS Trash Count, cnt/g



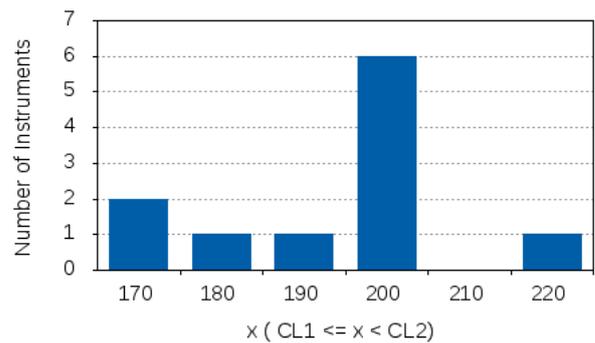
AFIS Trash Size, µm



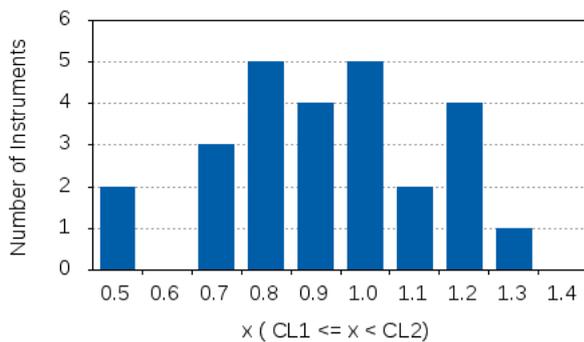
AFIS Dust Count, cnt/g



AFIS Dust Size, µm



AFIS V.F.M., %



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