

ICA Bremen Cotton Round Test 2019-2-2

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



ICA Bremen
The Global Centre for Cotton Testing and Research

Bremen, 2019-12-15

Evaluation of the Test Results 2019 / 2

Tested Cotton:
Cotton Number:

Benin
RM 46

Number of Laboratories: **100**

Argentina	-	Mauritius	1
Australia	1	Pakistan	2
Bangladesh	-	Poland	-
Brazil	4	Senegal	-
China	17	Serbia	1
Czech Republic	3	Slovenia	2
Egypt	-	South Africa	-
France	-	Spain	5
Germany	10	Sudan	-
Greece	8	Switzerland	2
India	22	Taiwan	2
Indonesia	1	Tanzania	-
Israel	-	Thailand	1
Italy	1	Tunisia	1
Japan	2	Turkey	2
Kazakhstan	-	Uganda	1
Korea	1	United States	6
Mali	1	Uzbekistan	1
		Vietnam	2

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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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Explanations

2019-2

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: **Benin (RM 46)**

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 HVICCS	SD between bale layers (based on 10 tests per layer)	SD between single tests (based on 10 times 10 tests)
Mic	0.023	0.029
Strength, g/tex	0.234	0.622
Length, UHM, inch	0.005	0.011
Length, UHM, mm	0.136	0.287

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.

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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:

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

- 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
- Mrs Hannelore Gerardi for questions relating to the realization of the current tests, Tel. +49 421 218 58671, e-mail: 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	4.52			
Median	4.5			
Stddev	0.13			
CV	2.8			
Min	3.96			
Max	4.87			
n	24			
Laboratory	Micronaire (Mic)	Instrument	Standard Test Method	Repetitions
12-1	4.7	USTER 775	GB/T 6498-2008	3
16-1	4.49	WIRA	UNE 40214	6
17-1	4.0			
22-1	4.3			
28-1	4.61	MICRONAIRE	ASTM-D1448	5
29-1	4.7		ISO 2403	4
32-1	4.44	WIRA		6
32-2	4.39	WIRA		6
56-1	4.5	Fibronaire	JIS	2
67-1	4.442	Fibronaire		7
76-1	4.42	Wira		4
77-1	3.96			
96-1	4.57	GJC-01	GB/T 6498-2008	5
112-1	4.51	Fibronaire	ASTM D 1448	2
129-1	4.65	SHEFFIELD	ASTM 5867	10
132-1	4.5	Uster 775	DIN 53941	3
142-1	4.52	80 400	ISO	3
155-1	4.5	275 Typ C		
162-1	4.59			6
169-1	4.5	Sheffield Micronaire		3
177-1	4.87	DPM 60	DIN 53941	3
183-1	4.4	Fibronaire	ASTM 144 B	3
186-1	4.39	WIRA	ASTM	6
193-1	4.46	Y145	GB/T 6498-2008	4

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Pressley - Strength

	PI (0)	Standard Test Method	Repetitions
Average	7.22		
Median	7.41		
Stddev	1.06		6.0
CV	14.6		
Min	5.5		
Max	8.68		
n	6		
Laboratory	PI (0)	Standard Test Method	Repetitions
16-1	7.52	UNE 40247	6
29-1	6.72	ISO 3060	10
46-1	8.68	Pressleytest	10
56-1	7.3	JIS	5
162-1	7.6		6
177-1	5.5	DIN 53942	3

Stelometer - Strength/Elongation

	Bundle Strength (gf/tex)	Bundle Elongation (%)	Standard Test Method	Repetitions
Average				
Median				
Stddev				
CV				
Min	17.1	6.5		
Max	20.98	7.0		
n	3	3		
Laboratory	Bundle Strength (gf/tex)	Bundle Elongation (%)	Standard Test Method	Repetitions
112-1	20.98	6.5	ASTM D 1445	3
162-1	17.1	7.0		6
193-1	19.9	6.5	GB/T 13783-1992	6

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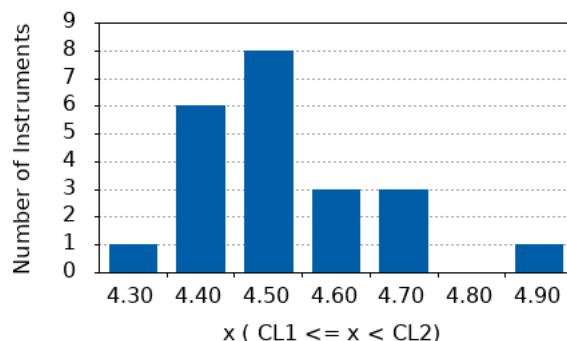
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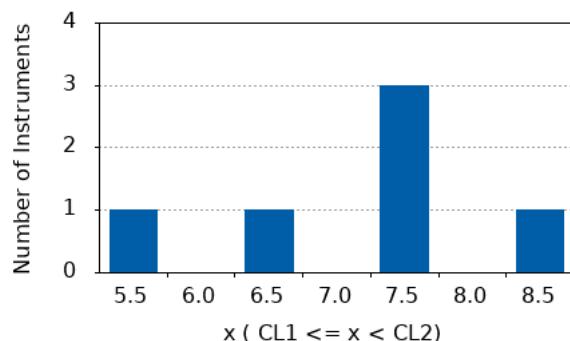


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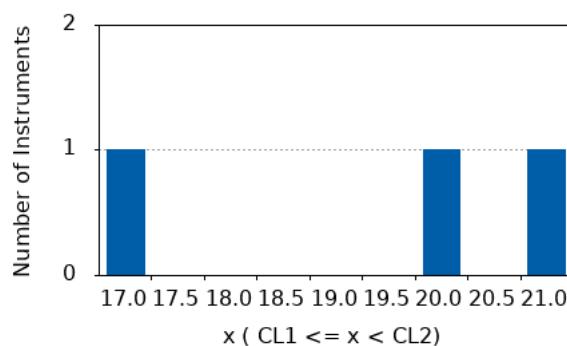
Micronaire (Stand Alone Instruments)



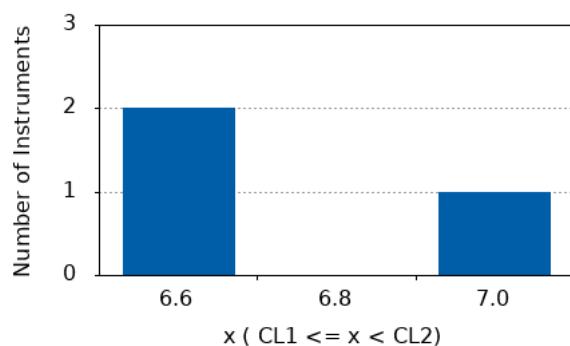
Pressley (0)



Stelometer Tenacity



Stelometer Elongation



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Fibrograph - Span Length

	2.5% SL (inch)	2.5% SL (mm)	50% SL (inch)	50%SL (mm)	UR (%)	SFC(N) (%)	SFC(W) (%)	SFI	Instrument Model	Standard Test Method	Repeti- tions
Average											
Median											
Stddev											
CV											
Min											
Max											
n											
Laborator	2.5% SL (inch)	2.5% SL (mm)	50% SL (inch)	50%SL (mm)	UR (%)	SFC(N) (%)	SFC(W) (%)	SFI	Instrument Model	Standard Test Method	Repeti- tions
28-1	1.035	26.28	0.472	12.0	46.0		12.09		FIBROGRAPH	ASTM-D1447	5
132-1	1.138	28.91	0.519	13.19	46.0				Fibrotest	ASTM D1447	10

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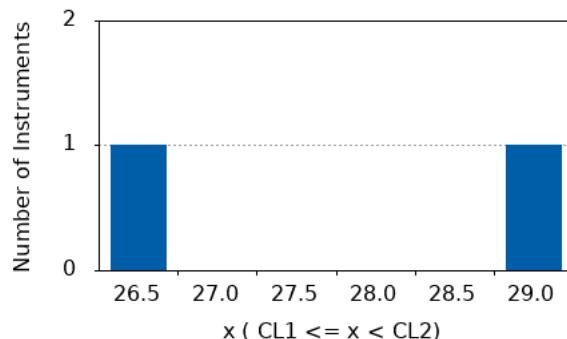
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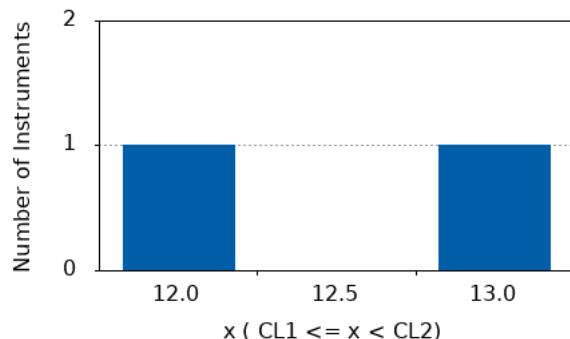


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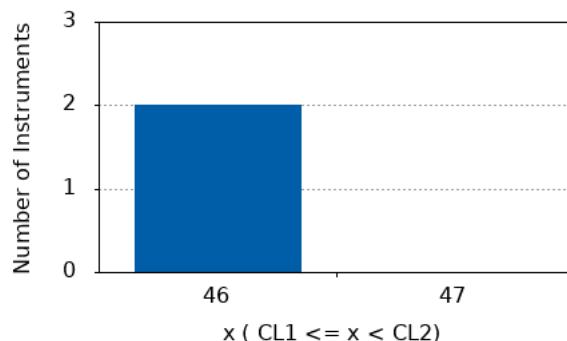
Fibrograph 2.5% SL (mm)



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	23.63	35.9	13.88			
Median	23.35	36.55	14.0			
Stddev						
CV						
Min	22.9	31.2	11.5			
Max	24.9	39.3	16.0			
n	4	4	4			
Laboratory	ML(W) (mm)	CV (%)	SFC < 12.5mm (%)	Instrument Model	Standard Test Method	Repetitions
85-1	22.9	39.3	15.5	Keisokki	UNI 10170	
85-2	23.6	31.2	11.5	Zweigle	UNI 10170	1
85-3	23.1	38.9	16.0	Keisokki	UNI 10170	
85-4	24.9	34.2	12.5	Zweigle	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	19.5	40.2	23.8	22.6	33.5	11.6	AL 101	Internal	4
112-1	25.11	24.98	1.1	27.58	22.18	0.2	Peyer Almeter		4

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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	83.0	Micronaire	JIS	2
177-1	80.0	18 % NaOH	DIN 53943/4	3

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
129-1	74.0		PROJECTION MICROSCOPE	IS-236	4

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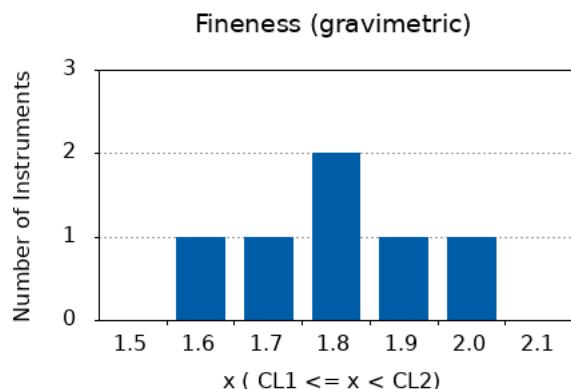
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Gravimetric Fineness

	Grav. Fineness (dtex)	Std. Test Method	Repetitions
Average	1.8		
Median	1.8		6.5
Stddev	0.14		
CV	7.9		
Min	1.58		
Max	2.01		
n	6		
Laboratory	Grav. Fineness (dtex)	Std. Test Method	Repetitions
85-1	1.85	UNI EN ISO 1973	10
85-3	1.75	UNI EN ISO 1973	10
85-4	1.76	UNI EN ISO 1973	10
112-1	2.01		3
177-1	1.58	ASTM D 1577/90	3
193-1	1.84	GB/T 6100-2007	2



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IIC/Shirley FMT - Fineness/Maturity

	PM (%)	MAT	FIN (mtex)	Instrument Model	Standard Test Method	Repetitions
Average	82.6	0.92	197			
Median	81.685	0.905	189.0			
Stddev						5.5
CV						
Min	78.52	0.88	181.0			
Max	88.6	1.0	230.0			
n	4	4	4			
Laboratory	PM (%)	MAT	FIN (mtex)	Instrument Model	Standard Test Method	Repetitions
28-1	88.6	1.0	181.0	FMT	ISO 10306	5
32-1	80.2	0.9	188.0	WIRA		6
32-2	78.52	0.88	190.0	WIRA		6
96-1	83.17	0.91	230.0	Fibre Fineness Meter		3

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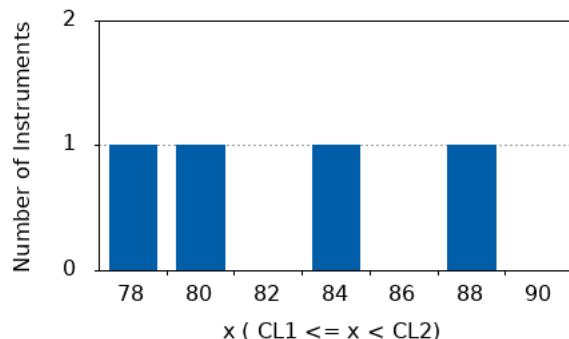
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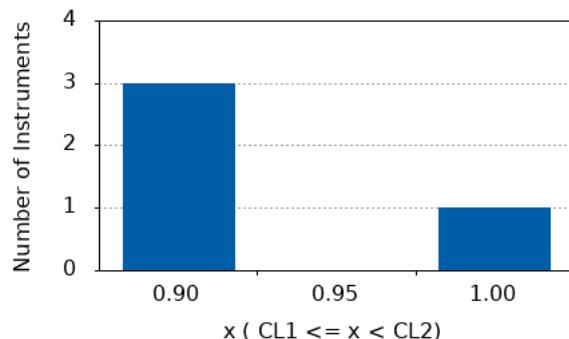


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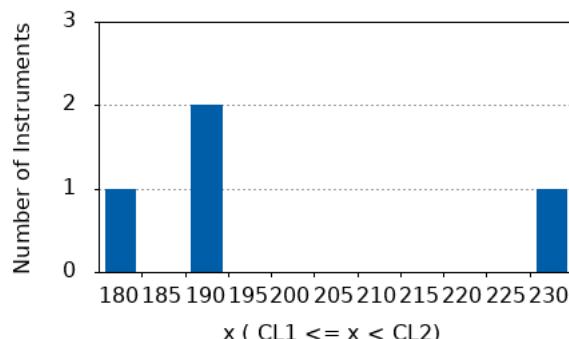
IIC/Shirley FMT - PM%



IIC/Shirley FMT - MAT



IIC/Shirley FMT - Fineness



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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	4.56	0.868	87.4	28.98	6.65				
Median	4.58	0.87	87.0	28.85	6.6				
Stddev	0.07	0.02	1.2	1.06	0.9				
CV	1.6	1.8	1.4	3.7	13.6				
Min	3.85	0.81	78.0	26.8	3.2				
Max	4.84	1.0	89.0	32.0	10.8				
n	99	75	9	99	74				
Laboratory	Micronaire (Mic)	Mat. Index	PM% (%)	Strength (gf/tex)	Elong. (%)	Manuf.	Model	Std. Test Method	Repetitions
1-1	4.6			26.8	5.8	MAG	HVT Expert-1201	ASTM-D5867	10
5-1	4.61	0.87		30.0	5.6	USTER	1000	CCAA	12
5-2	4.6	0.87		29.1	5.6	USTER	1000	CCAA	12
5-3	4.6	0.87		28.8	5.8	USTER	1000	CCAA	12
6-1	4.59	0.87	87.0	28.5	5.8	USTER	1000	GB/T 20392-2006	4
11-1	4.58			29.1	6.7	Premier	ART2	USDA	10
12-1	4.58	0.89		30.1	6.6	Premier	ART 2	GB/T 20392-2006	6
14-1	4.62	0.87		30.7	6.4	USTER	1000	GBT 20392-2006	10
18-1	4.61	0.87		28.8	6.5	USTER	1000	SYSTEM TESTING-INDIVIDUAL TESTS	20
23-1	4.65	0.87		30.1	6.6	USTER	1000	D 5867	10
24-1	4.64	0.89		29.6		USTER			
27-1	4.6	0.87		28.3	7.5	USTER	900	ASTM- D5867-2012	6
28-1	4.61	1.0	89.0	27.5	7.6	Textechno	HVI	ASTM-D5867	5
32-1	4.45			29.2	6.3	USTER	900		10
32-2	4.54			27.9	6.5	USTER	900		10
33-1	4.62			27.9		USTER	1000	GB/T 20392	6
33-2	4.62			28.6		USTER	1000	GB/T 20392	6
35-1	4.6	0.87		28.7	6.5	USTER	1000	GB/T20392-2006	2
38-1	4.58	0.86		30.0	3.2	USTER	1000	ASTM	7
39-1	4.5	0.88		29.9		Premier	ART 2	ASTM-D-5867	6
41-1	4.5	0.9		28.3	7.9	USTER			5
43-1	4.62			27.8	6.5	USTER	1000	ASTM-D1234-2012	10
43-2	4.54			28.4	7.6	USTER	1000	ASTM-D1234-2012	10
44-1	4.6	0.87		30.2		USTER	1000		10
44-2	4.5	0.88		28.0		Premier	ART 2		10
49-1	4.55	0.87		30.0	6.5	USTER	1000	ASTM D 1776	10
55-1	4.35	0.82		32.0	5.7	MAG	OTHER	ASTM-D:5867-12	
56-1	4.49			29.3	5.6	USTER		Spectrum II	5
57-1	4.4			29.6	5.9	MAG	Other	HVI Test Method	6
58-1	4.71	0.86		27.3	7.8	USTER	1000	ASTM-D5867-12	10
59-1	4.55	0.87		29.4		USTER	1000	Internal	10
59-2	4.58	0.87		29.5		USTER	1000	USDA	10
59-3	4.6	0.87		29.5		USTER	1000	USDA	10
59-4	4.56	0.86		29.5		USTER	1000	USDA	10
60-1	4.5	0.87		31.2	6.1	USTER	1000	ASTM-D1234-2012	6
60-2	4.38	0.86		31.4	6.3	USTER	1000	ASTM-D1234-2012	6

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Managing Director: Bill Kingdon

Place of jurisdiction: Bremen

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carried out by Bremen Fibre Institute (FIBRE)



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	Micronaire (Mic)	Mat. Index	PM% (%)	Strength (gf/tex)	Elong. (%)	Manuf.	Model	Std. Test Method	Repetitions
61-1	4.5			29.8	6.4	MAG	EXPERT12	ASTM 5867-2005	4
63-1	4.4	0.82		30.1	6.2	MAG	Other	ASTM-D-5867-12	
64-1	4.33	0.81		30.3	5.3	MAG	Other	ASTM-D1234-2012	
71-1	4.67	0.89		27.4	3.3	USTER	1000	GB/T 20392-2006	6
83-1	4.6			29.3	6.5	USTER	Spectrum	GB/T 20392-2006	10
84-1	4.53		87.0	29.6	6.5	USTER	1000	USDA	12
87-1	4.49	0.85		29.6	9.4	USTER	1000	GB/T20392-2006	4
87-2	4.48	0.87		29.8	5.2	USTER	1000	GB/T20392-2006	4
89-1	4.56	0.86		28.4		USTER	1000		6
89-2	4.55	0.87		28.3		USTER	1000		6
89-3	4.55	0.87		28.4		USTER	1000		6
89-4	4.58	0.87		28.7		USTER	1000		6
90-1	4.44	0.85		30.0	8.7	USTER	1000	ASTM-D 5867	10
91-1	4.53	0.86		28.4	6.6	USTER	1000	ASTM D 5867-12	5
91-3	4.6					USTER	Other		10
94-1	4.52	0.87		28.2		USTER	1000	ASTM-D5867	6
94-2	4.55	0.87		28.0		USTER	1000	ASTM-D5867	6
96-1	4.6			27.6	6.7	Premier	HFT	GB/T 20392-2006	9
96-2	4.6	0.87		27.2	6.2	USTER	1000	GB/T 20392-2006	10
96-3	4.7	0.89		27.2	3.9	USTER	1000	GB/T 20392-2006	10
96-4	4.6			27.6	6.7	Premier	HFT	GB/T 20392-2006	10
98-1	4.61			29.5		Uster	1000	ASTM	12
101-1	4.59	0.87		28.5	6.6	USTER		ASTM 5687-2012	6
103-1	4.52	0.87		28.2	6.6	USTER	1000	GB/T 20392-2006	2
104-1	4.58	0.87		29.2	6.6	USTER	1000	GB/T 20392	4
105-1	4.6	0.87		30.1	6.6	Uster	1000	ASTM D1776, ASTM D5867	5
106-1	4.41			28.1	10.8	USTER	900	ASTM D5867	10
107-1	4.2	0.88		30.8	6.7	Premier	ART 2	ASTM :D 5867-12	
108-1	4.55	0.87		28.4	6.5	USTER	1000	ASTM D5867-12	10
109-1	4.59	0.87		28.8		USTER	1000		
111-1	4.55	0.87		29.1	6.5	USTER	1000	Internal	16
112-1	4.6	0.86		28.2	7.8	USTER	1000	ASTM D 5867	6
113-1	4.59	0.86		31.0	6.7	MAG	Other	ASTM-D-5867-12	
118-1	4.59	0.86		29.9		USTER	1000	ASTM D 5867-05	6
119-1	4.59	0.86		28.6	7.3	USTER	1000	GB/T 20392	2
123-1	4.64	0.85		27.5	5.3	Premier	ART 3	ASTM D 5867-12	10
123-2	4.6	0.86		29.2	7.3	USTER	1000	ASTM D 5867-12	10
124-1	4.62		86.0	29.6		USTER	1000		
129-1	4.65			26.8	5.8	P. ART 2	Other	ASTM-5867	10
132-1				30.9	6.9	Texttechn o	Fibrotest	ASTM D5867	10
138-1	4.48	0.88		28.9	6.8	USTER	Spectrum	ASTM D 5867-2012e1	6
139-1	3.85			31.4	6.7	Premier	ART 2	ASTM-D5867	12
141-1	4.59	0.87		29.5	6.5	USTER	1000	Mode 4	1
148-1	4.52	0.86		27.8	6.7	USTER	1000	ASTM-D 5867	6
154-1	4.5		87.0	28.3	7.0	USTER	900	ASTM D5867	10
158-1	4.6	0.88	88.0	30.0	5.8	USTER	900		6
162-1	4.58			29.6		USTER	900-A		6
163-1	4.69		89.0	28.4		Premier	ART 2	ASTM D 5867-12	5

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	Micronaire (Mic)	Mat. Index	PM% (%)	Strength (gf/tex)	Elong. (%)	Manuf.	Model	Std. Test Method	Repetitions
170-1	4.63	0.86		28.1	8.0	USTER	1000		6
176-1	4.48	0.85		28.0	7.8				
180-1	4.57	0.89		29.7	7.3	USTER	Spectrum	ASTM	6
181-1	4.59	0.89		30.0	6.9	USTER	Spectrum	ASTM	6
183-1	4.61	0.87		28.0	6.3	Uster	1000	ASTM D 8867-05	2
186-1	4.39	0.88	78.0	30.1		Textechno	CCS	ASTM	10
193-1	4.55	0.88		29.3	5.1	USTER	1000	GB/T 20392-2006	6
201-1	4.53	0.86	86.0	28.8	7.9	USTER	1000	GOST 10681 UzRH 71-01:2001	10
207-1	4.53	0.86		28.8	6.7	USTER	1000	ASTM D5867-12 e1	10
207-2	4.54	0.86		28.4	6.9	USTER	1000	ASTM D5867-12 e1	10
207-3	4.53	0.86		28.7	7.9	USTER	1000	ASTM D5867-12 e1	10
209-1	4.5	0.82		29.9	6.6	MAG	HVI	ASTM :D 5867-12	6
214-1	4.42	0.84		30.1		Premier	ART		30
215-1	4.7	0.88		28.0	7.6	USTER	1000	GB/T 20392-2006	2
216-1	4.84	0.88		27.5		USTER	1000		5
218-1	4.57	0.91		27.2	8.7	USTER	Spectrum	D5867	10

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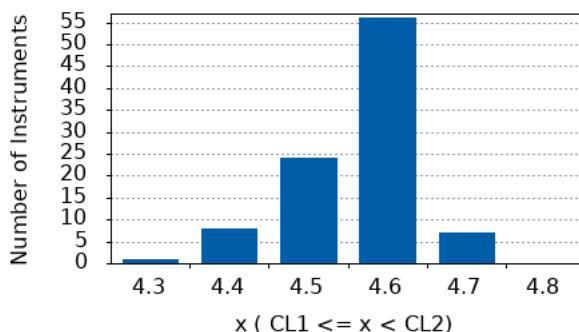
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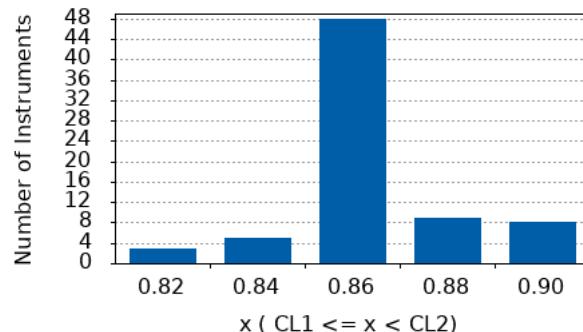


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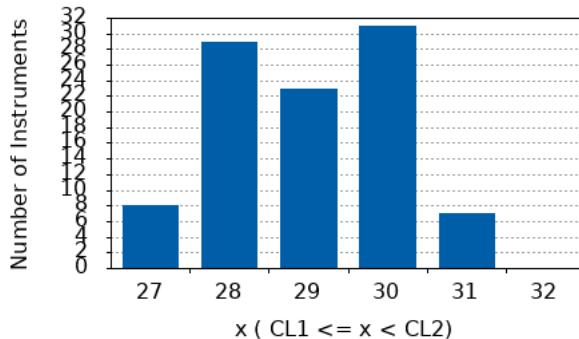
HVI (HVICCS Calibration): Micronaire



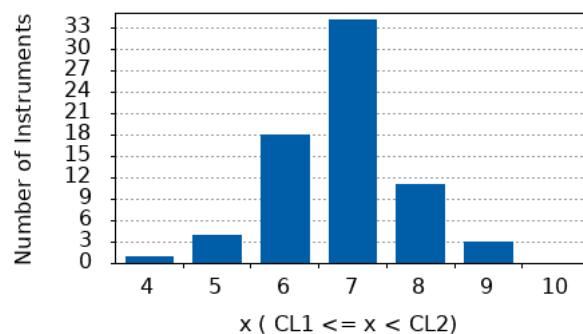
HVI (HVICCS Calibration): Mat. Ratio



HVI (HVICCS Calibration): Strength



HVI (HVICCS Calibration): Elongation



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HVI (HVICCS Calibration): Length Results

	UHML (inch)	UHML (mm)	Uniformity Index (%)	SFI	Manuf.	Model	Std. Test Method	Repetitions	SFI calibrated?
Average	1.125	28.57	82.79	8.36					
Median	1.125	28.58	82.8	8.2				7.0	
Stddev	0.015	0.37	0.57	1.23					
CV	1.3	1.3	0.7	14.8					
Min	1.091	27.7	6.8	6.3					
Max	1.19	30.22	84.6	17.5					
n	100	100	100	90					
Laboratory	UHML (inch)	UHML (mm)	Uniformity Index (%)	SFI	Manuf.	Model	Std. Test Method	Repetitions	SFI calibrated?
1-1	1.146	29.1	83.0	8.3	MAG	HVT Expert-1201	ASTM-D5867	10	No
5-1	1.118	28.4	83.1	7.6	USTER	1000	CCAA	12	Yes
5-2	1.123	28.52	83.1	7.2	USTER	1000	CCAA	12	Yes
5-3	1.119	28.42	82.4	7.3	USTER	1000	CCAA	12	Yes
6-1	1.13	28.7	82.8	17.8	USTER	1000	GB/T 20392-2006	4	No
11-1	1.118	28.39	82.5		PREMIER	ART2	USDA	10	
12-1	1.125	28.57	82.9	8.5	Premier	ART 2	GB/T 20392-2006	6	No
14-1	1.131	28.73	83.2	8.8	USTER	1000	GBT 20392-2006	10	No
18-1	1.124	28.56	82.2	7.4	USTER	1000	SYSTEM TESTING-INDIVIDUAL TESTS	20	Yes
23-1	1.113	28.28	82.5	6.8	USTER	1000	D 5867	10	Yes
24-1	1.129	28.68	82.8	7.5	USTER	Spectrum	ASTM- D 5867-2012	6	No
27-1	1.136	28.85	83.8	8.2	USTER				
28-1	1.094	27.8	82.3	12.0	Textechno	HVI	ASTM-D5867	5	No
32-1	1.134	28.8	83.1	8.8	USTER	900		10	
32-2	1.126	28.6	81.8	12.8	USTER	900		10	
33-1	1.123	28.52	82.5		USTER	1000	GB/T 20392	6	
33-2	1.119	28.41	82.8		USTER	1000	GB/T 20392	6	
35-1	1.118	28.4	82.5	14.4	USTER	1000	GB/T20392-2006	2	No
38-1	1.134	28.81	83.1	8.8	USTER	1000	ASTM	7	No
39-1	1.161	29.5	84.6	7.4	Premier	ART 2	ASTM-D-5867	6	No
41-1	1.095	27.82	81.6	6.4	USTER	Spectrum	ASTM-D1234-2012	10	Yes
43-1	1.12	28.45	82.3	8.18	USTER				
43-2	1.12	28.45	82.73	8.69	USTER	1000	ASTM-D1234-2012	10	No
44-1	1.148	29.15	82.6	6.9	USTER	1000		10	Yes
44-2	1.122	28.5	83.5	8.1	Premier	ART 2		10	Yes
49-1	1.129	28.68	82.6	7.8	USTER	1000	ASTM D 1776	10	No
55-1	1.114	28.3	82.4	9.1	MAG	OTHER	ASTM-D:5867-12	10	No
56-1	1.094	27.79	83.1	9.4	USTER				
57-1	1.126	28.6	82.5	9.3	MAG	Other	ASTM-D5867-12	6	
58-1	1.093	27.75	80.9	9.7	USTER	1000	Internal	10	
59-1	1.145	29.08	83.4	7.7	USTER	1000	USDA	10	
59-2	1.128	28.64	83.0	6.4	USTER	1000	USDA	10	
59-3	1.126	28.59	82.8	8.0	USTER	1000	USDA	10	
59-4	1.141	28.97	83.4	6.7	USTER	1000	USDA	10	
60-1	1.17	29.71	82.0	7.8	USTER	1000	ASTM-D1234-2012	6	No
60-2	1.19	30.22	83.0	8.2	USTER	1000	ASTM-D1234-2012	6	No

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	UHML (inch)	UHML (mm)	Uniformity Index (%)	SFI	Manuf.	Model	Std. Test Method	Repeti-tions	SFI calibrated?
61-1	1.15	29.2	83.0		MAG	EXPERT12	ASTM 5867-2005	4	
63-1	1.142	29.0	83.2	8.8	MAG	Other	ASTM-D-5867-12		
64-1	1.136	28.86	82.65	9.1	MAG	Other	ASTM-D1234-2012		
71-1	1.115	28.32	82.4	7.1	USTER	1000	GB/T 20392-2006	6	No
83-1	1.114	28.3	83.2		USTER	Spectrum	GB/T 20392-2006	10	Yes
84-1	1.151	29.23	83.4	7.3	USTER		USDA	12	No
87-1	1.111	28.21	82.5	16.4	USTER	1000	GB/T20392-2006	4	
87-2	1.127	28.62	82.2	14.1	USTER	1000	GB/T20392-2006	4	
89-1	1.11	28.19	82.6	8.1	USTER	1000		6	YES
89-2	1.109	28.17	83.1	8.4	USTER	1000		6	YES
89-3	1.116	28.34	82.9	7.8	USTER	1000		6	Yes
89-4	1.118	28.39	83.0	7.6	USTER	1000		6	Yes
90-1	1.14	28.96	83.4	8.49	USTER	1000	ASTM-D 5867	10	
91-1	1.138	28.9	82.6	8.8	USTER	1000	ASTM D 5867-12	5	Yes
91-2	1.169	29.7	82.7	7.8	USTER	Other		10	Yes
94-1	1.109	28.17	82.3	9.0	USTER	1000	ASTM-D5867	6	Yes
94-2	1.117	28.37	81.9	8.8	USTER	1000	ASTM-D5867	6	Yes
96-1	1.094	27.8	82.6	10.0	Premier	HFT	GB/T 20392-2006	9	
96-2	1.114	28.3	82.3		USTER	1000	GB/T 20392-2006	10	No
96-3	1.114	28.3	82.1		USTER	1000	GB/T 20392-2006	10	No
96-4	1.098	27.9	83.3		Premier	HFT	GB/T 20392-2006	10	
98-1	1.124	28.55	83.2		Uster	1000	ASTM	12	
101-1	1.113	28.27	82.4	9.2	USTER		ASTM 5687-2012	6	no
103-1	1.109	28.17	6.8	7.3	USTER	1000	GB/T 20392-2006	2	No
104-1	1.13	28.69	83.2	16.0	USTER	1000	GB/T 20392	4	No
105-1	1.157	29.39	82.9	7.8	Uster	1000	ASTM D1776, ASTM D5867	5	No
106-1	1.116	28.35	82.4		USTER	900	ASTM D5867	10	No
107-1	1.122	28.5	82.7	9.1	Premier	ART 2	ASTM :D 5867-12		
108-1	1.11	28.19	82.1	7.4	USTER	1000	ASTM D5867-12	10	No
109-1	1.124	28.55	82.9	8.1	USTER	1000			No
111-1	1.12	28.45	82.75	8.84	USTER	1000	Internal	16	Yes
112-1	1.12	28.45	83.2	8.2	USTER	1000	ASTM D 5867	6	Yes
113-1	1.124	28.54	81.94	9.32	MAG	Other	ASTM-D-5867-12		
118-1	1.139	28.94	83.3	7.6	USTER	1000	ASTM D 5867-05	6	Yes
119-1	1.13	28.7	82.9	16.8	USTER	1000	GB/T 20392	2	No
123-1	1.133	28.77	83.7	8.4	Premier	ART 3	ASTM D 5867-12	10	
123-2	1.132	28.76	83.1	9.0	USTER	1000	ASTM D 5867-12	10	
124-1	1.116	28.34	81.4	9.9	USTER	1000			
129-1	1.15	29.2	83.0	8.3	P. ART 2	Other	ASTM-5867	10	
132-1	1.134	28.8	82.7	9.05	Textechno	Fibrotest	ASTM D5867	10	Yes
138-1	1.142	29.01	82.7	8.9	USTER	Spectrum	ASTM D 5867-2012el	6	No
139-1	1.125	28.58	82.4	8.8	Premier	ART 2	ASTM-D5867	12	No
141-1	1.124	28.55	82.2	8.4	USTER	1000	Mode 4	1	No
148-1	1.103	28.01	82.6	8.4	USTER	1000	ASTM-D 5867	6	Yes
154-1	1.139	28.92	83.5	7.8	USTER	900	ASTM D5867	10	YES
158-1	1.15	29.21	82.9	8.2	USTER	900		6	Yes
162-1	1.146	29.1	83.5	6.9	USTER	900-A		6	Yes
163-1	1.13	28.7	83.6	8.0	Premier	ART 2	ASTM D 5867-12	5	No

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	UHML (inch)	UHML (mm)	Uniformity Index (%)	SFI	Manuf.	Model	Std. Test Method	Repeti-tions	SFI calibrated?
170-1	1.13	28.7	82.3	9.0	USTER	1000		6	No
176-1	1.121	28.46	82.9	7.32					
180-1	1.133	28.77	82.5	7.6	USTER	Spectrum	ASTM	6	Yes
181-1	1.114	28.3	82.5	6.7	USTER	Spectrum	ASTM	6	Yes
183-1	1.127	28.63	82.7	8.0	Uster	1000	ASTM D 8867-05	2	yes
186-1	1.113	28.27	83.66	9.61	Textechno	CCS	ASTM	10	
193-1	1.135	28.83	82.9	7.9	USTER	1000	GB/T 20392-2006	6	No
201-1	1.126	28.6	82.8	8.0	USTER	1000	GOST 10681 UzRH 71-01:2001	10	Yes
207-1	1.131	28.72	83.0	8.1	USTER	1000	ASTM D5867-12 e1	10	No
207-2	1.129	28.67	82.9	9.4	USTER	1000	ASTM D5867-12 e1	10	No
207-3	1.137	28.88	83.6	8.6	USTER	1000	ASTM D5867-12 e1	10	No
209-1	1.126	28.6	82.0	9.3	MAG	HVI	ASTM :D 5867-12	6	
214-1	1.148	29.16	82.7	8.3	Premier	ART		30	No
215-1	1.131	28.74	84.3	15.4	USTER	1000	GB/T 20392-2006	2	No
216-1	1.125	28.58	83.4	8.0	USTER	1000		5	Yes
218-1	1.091	27.7	82.4	6.3	USTER	Spectrum	D5867	10	Yes

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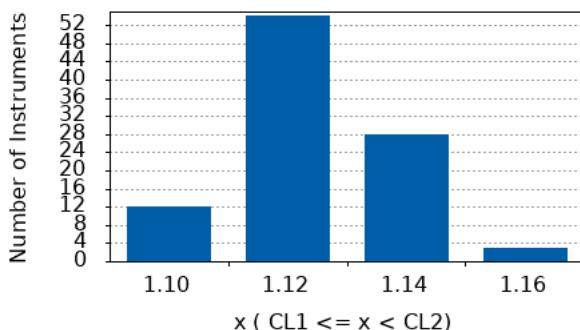
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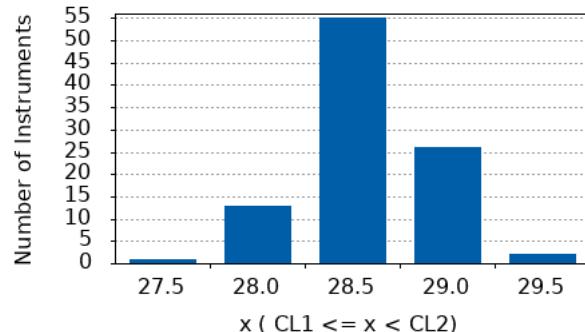


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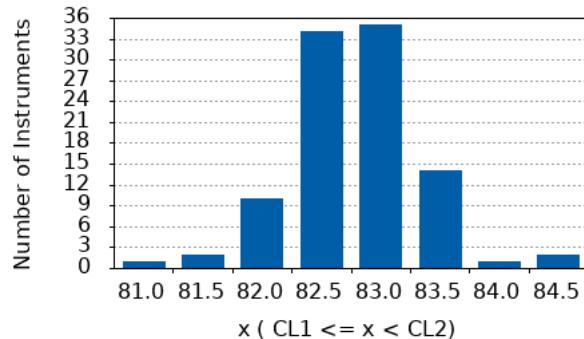
HVI (HVICCS Calibration): UHML (inch)



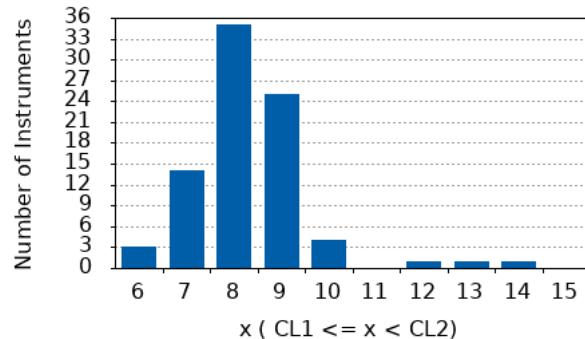
HVI (HVICCS Calibration): UHML (mm)



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	74.14	9.01		18.3	0.175					
Median	74.2	9.0		19.0	0.17	2.0				6.0
Stddev	0.89	0.38		5.2	0.065					
CV	1.2	4.2		28.2	37.5					
Min	71.7	6.6		3	0.05					
Max	82.2	10.1		31	1.67					
n	95	95		75	74					
Laboratory	Color Rd	Color +b	Color Grade	Trash Count	Trash Area (%)	Trash Leaf	Manuf.	Model	Std. Test Method	Repetitions
1-1	72.4	8.4	41-3				MAG	HVT Expert-1201	ASTM-D5867	10
5-1	74.3	9.0	31-4	17	0.19	2	USTER	1000	CCAA	12
5-2	73.5	9.2	32-2	16	0.19	2	USTER	1000	CCAA	12
5-3	73.5	9.1	31-4	13	0.19	2	USTER	1000	CCAA	12
6-1	74.1	9.2	32	25	0.18	2	USTER	1000	GB/T 20392-2006	4
11-1	72.0	9.1	41-3				PREMIER	ART2	USDA	10
12-1	72.1	9.4	32-2	8	0.08	1	Premier	ART 2	GB/T 20392-2006	6
14-1	73.6	9.5	32-2	20	0.19		USTER	1000	GBT 20392-2006	10
18-1	74.0	9.1	31-4	27	0.26	2	USTER	1000	SYSTEM TESTING-INDIVIDUAL TESTS	20
23-1	73.8	9.0	31-4	24	0.17		USTER	1000	D 5867	10
24-1	73.3	8.9	41-3	14	0.14		USTER		Spectrum	
27-1	73.23	9.2	31-4				USTER	900	ASTM-D 5867-2012	6
28-1	75.14	8.76	31-4	20	0.37	3	Textechno	HVI	ASTM-D5867	5
33-1	73.9	9.1					USTER	1000	GB/T 20392	6
33-2	73.8	9.0					USTER	1000	GB/T 20392	6
35-1	74.0	9.1	32	17	0.15	2	USTER	1000	GB/T20392-2006	2
38-1	74.4	8.5	41-3	21	0.17	2	USTER	1000	ASTM	7
39-1	75.9	8.2	31-2				Premier	ART 2	ASTM-D-5867	6
41-1	73.2	10.1	32-1	11	0.13		USTER		Spectrum	5
43-1	74.25	8.82		16	0.16		USTER	1000	ASTM-D1234-2012	10
43-2	73.43	9.2		14	0.12		USTER	1000	ASTM-D1234-2012	10
44-1	74.4	9.3	32-2	18	0.17		USTER	1000		10
44-2	74.1	9.1	31-4				Premier	ART 2		10
49-1	74.1	8.5	41-3	20	0.19	2	USTER	1000	ASTM D 1776	10
55-1	74.4	8.1	31-2				MAG	OTHER	ASTM-D:5867-12	
56-1	71.7	9.0	42-1	9	0.09	1	USTER		Spectrum II	5
57-1	75.5	8.4	31-2				MAG	Other	ASTM-D5867-12	6
58-1	74.5	9.2	32-2	16	0.14		USTER	1000	Internal	10
59-1	75.2	9.0	31-4	24	0.28	3	USTER	1000	USDA	10
59-2	74.6	9.1	31-4	20	0.24	2	USTER	1000	USDA	10
59-3	75.0	9.2	31-3	28	0.35	3	USTER	1000	USDA	10
59-4	75.2	9.2	31-3	25	0.29	3	USTER	1000	USDA	10
60-1	82.2	9.4	11-1	19	0.16	1	USTER	1000	ASTM-D1234-2012	6
60-2	82.1	9.8	11-1	19	0.15	1	USTER	1000	ASTM-D1234-2012	6
61-1	72.3	8.3	41-2				MAG	EXPERT12	ASTM 5867-2005	4
63-1	75.2	8.9	31-4				MAG	Other	ASTM-D-5867-12	

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	Color Rd	Color +b	Color Grade	Trash Count	Trash Area (%)	Trash Leaf	Manuf.	Model	Std. Test Method	Repetitions
64-1	74.3	9.8	32-1				MAG	Other	ASTM-D1234-2012	
71-1	74.3	8.7	41-3	18	0.14	2	USTER	1000	GB/T 20392-2006	6
83-1	74.2	9.0	31-4				USTER	Spectrum	GB/T 20392-2006	10
84-1	75.2	8.8	31,4	20	0.15	1	USTER	1000	USDA	12
87-1	74.4	9.0	41	20	0.15	2	USTER	1000	GB/T20392-2006	4
87-2	73.8	8.9	41	16	0.11	2	USTER	1000	GB/T20392-2006	4
89-1	74.1	8.9	41,3	22	0.16	2	USTER	1000		6
89-2	74.2	8.8	41,3	22	0.17	2	USTER	1000		6
89-3	74.0	8.8	41,3	16	0.12	1	USTER	1000		6
89-4	74.1	8.9	41,3	18	0.12	1	USTER	1000		6
90-1	74.2	8.6	41-3	15	0.11		USTER	1000	ASTM-D 5867	10
91-1	73.4	9.2	42-1	17	0.15		USTER	1000	ASTM D 5867-12	5
91-4	73.7	9.4	32-2	11	0.11		USTER	Other		10
94-1	75.2	9.1	31-4	21	0.14	1	USTER	1000	ASTM-D5867	6
94-2	75.1	8.9	31-4	25	0.16	1	USTER	1000	ASTM-D5867	6
96-2	75.2	9.3	31-3	21	0.11	1	USTER	1000	GB/T 20392-2006	10
96-3	74.5	9.7	32-1	23	0.19	1	USTER	1000	GB/T 20392-2006	10
98-1	73.7	9.1		14	0.13		Uster	1000	ASTM	12
101-1	74.6	8.9	31-4	27	0.22	2	USTER		ASTM 5687-2012	6
103-1	74.0	9.3		13	0.13	1	USTER	1000	GB/T 20392-2006	2
104-1	74.2	9.5	32	14	0.12	2	USTER	1000	GB/T 20392	4
105-1	74.3	8.6	41-3	23	0.2	3	Uster	1000	ASTM D1776, ASTM D5867	5
106-1	73.53	9.18	31-4				USTER	900	ASTM D5867	10
107-1	74.2	9.7	32-1				Premier	ART 2	ASTM :D 5867-12	
108-1	74.2	9.2	31-3	14	0.13	1	USTER	1000	ASTM D5867-12	10
109-1	74.0	8.9	41-3	18	0.14		USTER	1000		
111-1	75.15	8.47	41-1	19	0.2		USTER	1000	Internal	16
112-1	73.23	8.8	41-3	19	0.18	2	USTER	1000	ASTM D 5867	6
113-1	76.6	8.1	31-2				MAG	Other	ASTM-D-5867-12	
118-1	74.5	9.0	31-4	24		2	USTER	1000	ASTM D 5867-05	6
119-1	73.7	9.2	32	21	0.18	2	USTER	1000	GB/T 20392	2
123-1	74.3	9.4	31-3	16	0.11		Premier	ART 3	ASTM D 5867-12	10
123-2	74.7	9.3	31-3	19	0.17	1	USTER	1000	ASTM D 5867-12	10
124-1	74.3	10.1	32-1	19	0.15		USTER	1000		
129-1	73.6	9.0	31-4	19	0.27		P. ART 2	Other	ASTM-5867	10
138-1	71.9	6.7	51-1	11	0.1	1	USTER	Spectrum	ASTM D 5867-2012e1	6
139-1	72.3	8.6	41-3	7	0.1	1	Premier	ART 2	ASTM-D5867	12
141-1	73.9	9.0	31-4	22	0.23		USTER	1000	Mode 4	1
148-1	74.3	8.9	41-3	22	0.2	2	USTER	1000	ASTM-D 5867	6
154-1	74.0	9.3	31-4	10	0.2	1	USTER	900	ASTM D5867	10
158-1	74.6	8.8	31-4	13	0.2	2	USTER	900		6
162-1	73.3	9.0					USTER	900-A		6
163-1	76.8	6.6	41-1				Premier	ART 2	ASTM D 5867-12	5
170-1	74.8	8.7	31-4	31	0.24	2	USTER	1000		6
176-1	74.1	8.9	41-3	25	0.17	2				
180-1	73.6	8.3	41-3	3	0.14	1	USTER	Spectrum	ASTM	6
181-1	73.9	9.2	31-4	3	1.67	8	USTER	Spectrum	ASTM	6
183-1	73.6	9.3	32-2	16	0.19	2	Uster	1000	ASTM D 8867-05	2

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	Color Rd	Color +b	Color Grade	Trash Count	Trash Area (%)	Trash Leaf	Manuf.	Model	Std. Test Method	Repetitions
186-1	74.4	8.7	41-1	22	0.46		Textechno	CCS	ASTM	10
193-1	74.2	9.1	31-4	22	0.21	2	USTER	1000	GB/T 20392-2006	6
201-1	74.5	9.0	31-4	20	0.17	1	USTER	1000	GOST 10681 UzRH 71-01:2001	10
207-1	74.4	9.0	31-4	20	0.17	1	USTER	1000	ASTM D5867-12 e1	10
207-2	74.2	8.9	41-3	19	0.21	2	USTER	1000	ASTM D5867-12 e1	10
207-3	74.7	8.8	31-4	20	0.2	2	USTER	1000	ASTM D5867-12 e1	10
209-1	75.7	8.7	31-2				MAG	HVI	ASTM :D 5867-12	6
214-1	75.1	8.9	31-4	9	0.16	2	Premier	ART		30
215-1	73.3	9.2	32	17	0.17	2	USTER	1000	GB/T 20392-2006	2
216-1	73.8	8.9	41-3			3	USTER	1000		5
218-1	74.4	8.4	41-3	5	0.05		USTER	Spectrum	D5867	10

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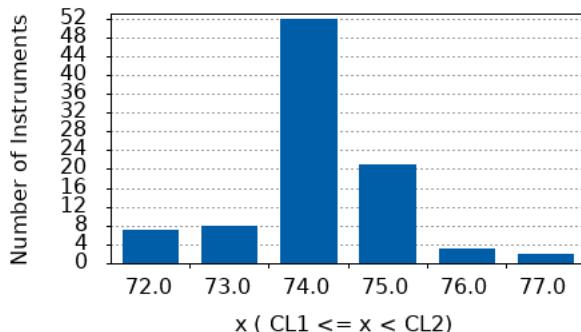
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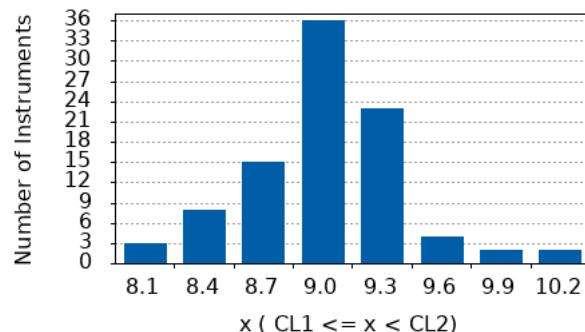


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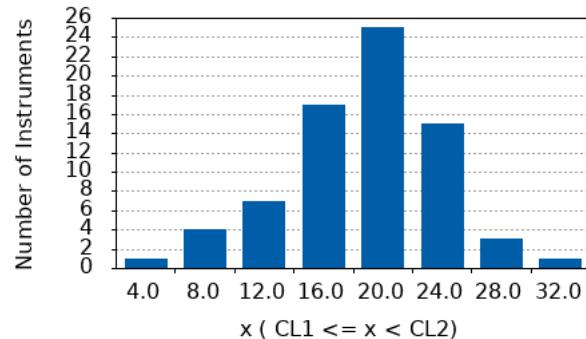
HVI (HVICCS Calibration): Color Reflectance R_c



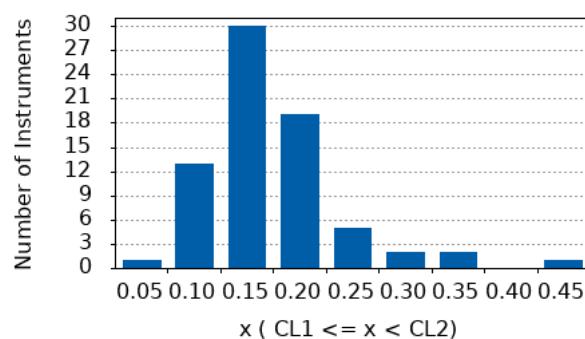
HVI (HVICCS Calibration): Color Yellowness +b



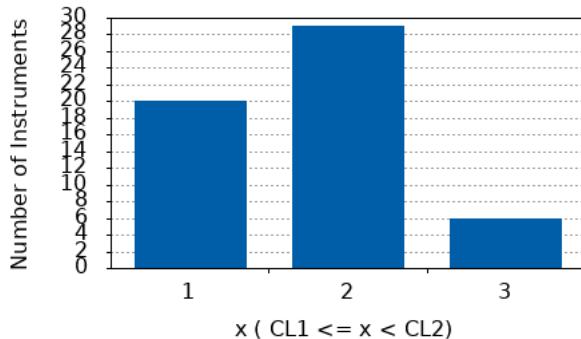
HVI (HVICCS Calibration) Trash Count



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	4.56	0.857		24.13	6.25				
Median	4.58	0.86		22.9	6.3				
Stddev	0.08			4.37	0.5				
CV	1.7			18.1	7.6				
Min	4.42	0.82		18.9	5.6				
Max	4.66	0.86		31.4	7.0				
n	13	5		13	11				
Laboratory	Micronaire (Mic)	MAT ()	PM% (%)	Strength (gf/tex)	Elong. (%)	Manuf.	Model	Std. Test Method	Repetitions
2-1	4.47	0.82		19.0		PREMIER	HFT 9000		
6-1	4.63			28.5		USTER	1000		4
11-1	4.58			21.6	6.0	PREMIER	ART2	USDA	10
27-1	4.6			23.4	6.6	USTER	900	ASTM-D 5867-2012	6
40-1	4.6			28.6	5.6	USTER	900	INTERNAL	10
40-2	4.61	0.86		29.6	7.0	USTER	1000	INTERNAL	10
42-1	4.53	0.85		27.4	6.6	USTER	1000	HVI	
42-2	4.47			31.4	5.7	USTER	Spectrum	HVI	
61-1	4.5			22.9	6.5	MAG	EXPERT 12	ASTM-5867-2005	4
66-1	4.42			18.9	6.3	Premier	ART		6
123-1	4.66	0.86		21.0	5.9	Premier	ART 3	SITRA IN-HOUSE	10
123-2	4.56	0.86		21.3	6.8	USTER	1000	SITRA IN HOUSE	10
129-1	4.65			20.1	5.8	A. ART 2	Other	ASTM-5867	10

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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	1.122	28.51	46.25	7.93				
Median	1.126	28.61	46.28	8.25				
Stddev	0.019	0.49	1.3	1.07				
CV	1.7	1.7	2.8	13.5				
Min	1.08	27.43	44.3	6.1				
Max	1.157	29.38	53.3	17.5				
n	13	13	8	9				
Laboratory	2.5% SL (inch)	2.5% SL (mm)	Unif. Ratio (%)	SFI	Manuf.	Model	Std. Test Method	Repetitions
2-1	1.131	28.74	53.3	6.1	PREMIER	HFT 9000		
6-1	1.13	28.7		17.5	USTER	1000		4
11-1	1.139	28.94	46.6		PREMIER	ART2	USDA	10
27-1	1.08	27.43	46.1	8.1	USTER	900	ASTM- D5867-2012	6
40-1	1.12	28.45			USTER	900	INTERNAL	10
40-2	1.133	28.78			USTER	1000	INTERNAL	10
42-1	1.129	28.68		8.4	USTER	1000	HVI	
42-2	1.117	28.37		6.7	USTER	Spectrum	HVI	
61-1	1.094	27.8	48.0		MAG	EXPERT 12	ASTM-5867-2005	4
66-1	1.119	28.42	44.3	8.4	Premier	ART		6
123-1	1.157	29.38	46.28	9.4	Premier	ART 3	SITRA IN-HOUSE	10
123-2	1.126	28.61	47.5	8.6	USTER	1000	SITRA IN HOUSE	10
129-1	1.116	28.35	45.0	7.7	A. ART 2	Other	ASTM-5867	10

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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	73.93	8.97		17.67	0.17					
Median	74.2	9.0		16.0	0.18					
Stddev	1.03	0.46		5.39	0.06					
CV	1.4	5.2		30.5	33.9					
Min	72.3	6.0		11	0.1	1				
Max	75.0	9.6		27	0.23	2				
n	11	11		6	6	3				
Laboratory	Color Rd	Color +b	Color Grade	Trash Count	Trash Area (%)	Trash Leaf	Manuf.	Model	Std. Test Method	Repetitions
6-1	74.1	9.3	32				USTER	1000		4
11-1	72.41	9.1	41-3				PREMIER	ART2	USDA	10
40-1	72.7	8.7	41-3				USTER	900	INTERNAL	10
40-2	74.9	9.6	32-1	27	0.22	2	USTER	1000	INTERNAL	10
42-1	75.0	8.8	31-4	20	0.21	2	USTER	1000	HVI	
42-2	74.2	8.3		11	0.1		USTER	Spectrum	HVI	
61-1	72.3	8.3	41-2				MAG	EXPERT 12	ASTM-5867-2005	4
66-1	74.4	6.0	41-2				Premier	ART		6
123-1	75.0	9.6	31-3	16	0.11		Premier	ART 3	SITRA IN-HOUSE	10
123-2	74.6	9.0	31-4	16	0.15	1	USTER	1000	SITRA IN HOUSE	10
129-1	73.6	9.0	31-4	16	0.23		A. ART 2	Other	ASTM-5867	10

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Managing Director: Bill Kingdon

Place of jurisdiction: Bremen

ICA Bremen Cotton Round Test 2019-2-2

in Cooperation with Bremer Baumwollboerse
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	Repeti- tions
Average								
Median								
Stddev								
CV								
Min								
Max								
n								
Laborato- ry	aQura-Length (mm)	5% Length (mm)	Effective Length (mm)	SFC 12.7mm (N) (%)	SFC 12.7mm (W) (%)	Instrument Model	Standard Test Method	Repeti- tions
44-2	31.35	29.85	25.25	30.5	12.9	aQura 2		10

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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								
Median								
Stddev								
CV								
Min								
Max								
n								
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
44-2	155.0	796.0	125.0	670.0	30.0	1329.0	aQura 2	

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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) (%)	Mode 1	Test Method	Repetitions
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) (%)	Mode 1	Test Method	Repetitions
Average	0.782	19.86	48.8	1.432	36.37	1.335	33.91	24.66			
Median	0.78	19.81	48.8	1.4305	36.34	1.3305	33.79	24.3			10.0
Stddev	0.03	0.75	2.76	0.03	0.77	0.02	0.52	2.9			
CV	3.8	3.8	5.7	2.1	2.1	1.5	1.5	11.8			
Min	0.531	13.5	3.9	1.382	35.1	1.295	32.9	18.0			
Max	0.862	21.9	78.0	1.47	37.34	1.37	34.8	54.6			
n	39	39	39	10	10	38	38	38			
5-1	0.75	19.05	50.8			1.3	33.02	27.4	AFIS Pro 2	CCAA	5
14-1	0.74	18.8	51.2			1.327	33.7	27.2	AFIS Pro 2	ASTMD 5866	10
21-1	0.783	19.9	45.2	1.382	35.1	1.295	32.9	22.3	Afis119-064		5
22-1	0.78	19.81	49.7	1.41	35.81	1.33	33.78	26.6	Autojet		10
38-1	0.776	19.7	3.9	1.465	37.2	1.37	34.8	28.3	AFIS Pro	ASTM	5
40-1	0.78	19.81	51.4	1.44	36.58	1.35	34.29	27.5	AFIS Pro	INTERNAL	10
40-2	0.75	19.05	52.9	1.45	36.83	1.34	34.04	30.1	AFIS Pro	INTERNAL	10
40-3	0.84	21.34	47.0	1.47	37.34	1.37	34.8	22.2	AFIS Pro	INTERNAL	10
41-1	0.807	20.5	43.4	1.409	35.8	1.327	33.7	20.8	AFIS Pro		5
43-1	0.78	19.81	50.6			1.35	34.29	26.5	AFIS Pro 2	ASTM-D1234-2012	10
44-1	0.776	19.7	49.4			1.335	33.9	25.2	AFIS Pro		10
51-1	0.807	20.5	45.5			1.343	34.1	21.1		ISO	5
58-1	0.78	19.8	48.8	1.421	36.1	1.331	33.8	25.5	Autojet	Internal	10
58-2	0.791	20.1	48.4			1.354	34.4	23.5	AFIS Pro 2	Internal	10
90-1	0.862	21.9	43.9	1.465	37.2	1.37	34.8	18.0	AFIS 4.22	USTER Method	10
91-1	0.748	19.0	51.3			1.327	33.7	26.9	AFIS Pro 2	ASTM D 5866-12	10
96-1	0.531	13.5	78.0					54.6	AFIS Pro 2	NY/T 3272-2018	10
101-1	0.807	20.5	47.0			1.339	34.0	21.7	Pro 2	internal	5
109-1	0.748	19.0	51.6			1.319	33.5	27.4	AFIS Pro 2		
111-1	0.74	18.8	52.9			1.33	33.78		AFIS Pro 2	Internal	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) (%)	Mode 1	Test Method	Repetitions
112-1	0.72	18.29	54.93			1.3	33.02	31.9	AFIS Pro	ASTM D 5866	3
123-1	0.752	19.1	52.9			1.319	33.5	27.1	AFIS Pro	ASTM D 5866-2012	10
123-2	0.756	19.2	50.4			1.319	33.5	26.5	AFIS Pro 2	ASTM D 5866-2012	10
123-3	0.799	20.3	45.6			1.327	33.7	22.4	AFIS	ASTM D 5866-2012	10
129-1	0.803	20.4	47.35			1.362	34.6	24.05	Other	ASTM-D-5866-12	6
139-1	0.76	19.3	49.7			1.33	33.78	27.2	AFIS Pro 2	ASTM-D 5866	12
142-1	0.787	20.0	46.1	1.406	35.7	1.319	33.5	22.6	Other		5
148-1	0.795	20.2	45.7			1.331	33.8	22.3	AFIS Pro 2	ASTM-D 5866	10
148-3	0.776	19.7	48.4			1.319	33.5	24.3	AFIS Pro 2	ASTM-D 5866	
170-1	0.807	20.5	47.2			1.362	34.6	21.8	AFIS Pro	Manufacturer	6
176-1	0.81	20.57	49.1			1.37	34.8	24.0		ASTM	3
180-1	0.756	19.2	50.8			1.311	33.3	25.5	Autojet		
181-1	0.767	19.49	49.5			1.322	33.57	24.0	Autojet	ASTM	3
183-1	0.79	20.07	48.5			1.33	33.78	25.8	Afis Pro	ASTM-D 5866-05	3
186-1	0.811	20.6	46.0			1.354	34.4	22.1	AFIS Pro 2	ASTM	10
186-2	0.756	19.2	51.7			1.311	33.3	26.0	AFIS Pro	ASTM	10
193-1	0.81	20.57	47.4			1.35	34.29	23.3	AFIS Pro	ASTM-D5866-2012	6
207-1	0.803	20.4	46.7			1.346	34.2	22.2	AFIS Pro	ASTM D5866-12 & USTER Application Handbook V2.1 May 2005 245 654-04020	10
207-2	0.811	20.6	46.7			1.346	34.2	21.1	AFIS Pro	ASTM D5866-12 & USTER Application Handbook V2.1 May 2005 245 654-04020	10

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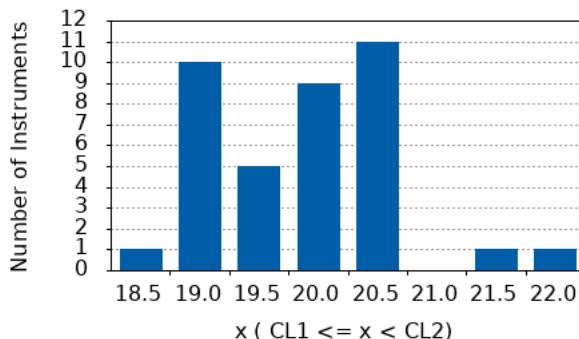
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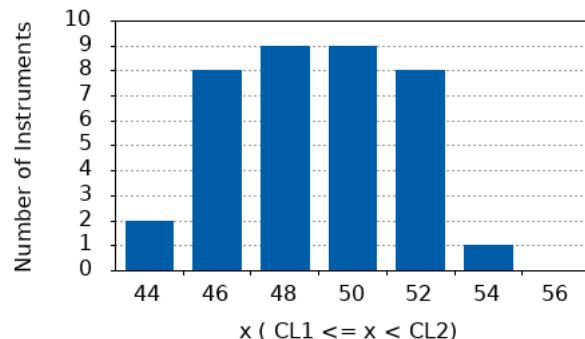


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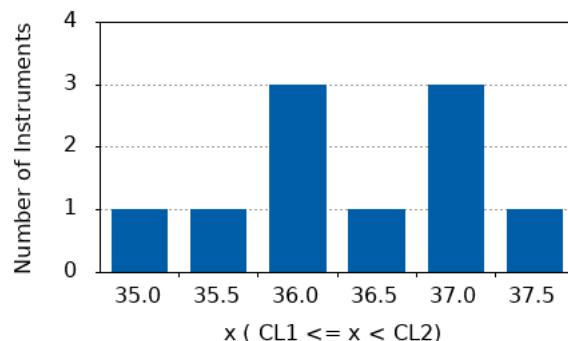
AFIS Mean Length (N), mm



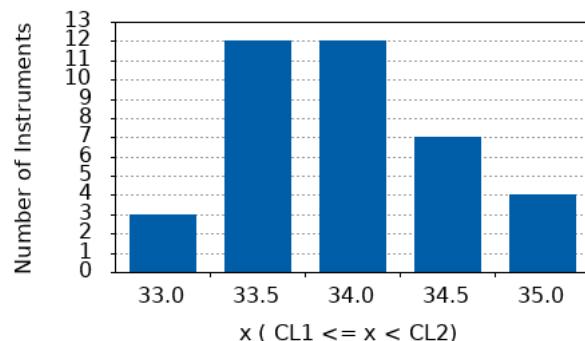
AFIS CV Length (N), %



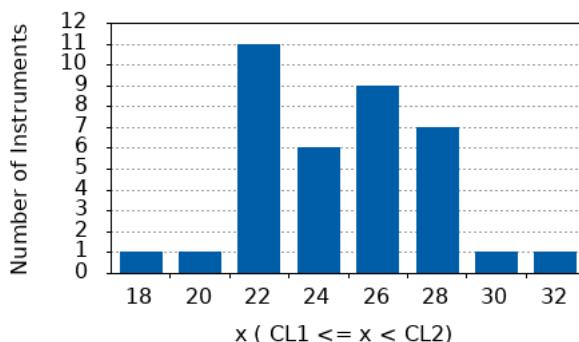
AFIS 2.5% Length (N), mm



AFIS 5% Length (N), mm



AFIS SFC (12.7mm) (N), %



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AFIS Length by Weight

	Mean Length (W) (inch)	Mean Length (W) (mm)	CV Length (W) (%)	UQL (W) (inch)	UQL (W) (mm)	SFC (12.7) (W)	Model	Test Method	Repetitions
Average	0.97	24.594	33.8	1.174	29.83	8.35			
Median	0.961	24.4	33.9	1.169	29.7	8.1			
Stddev	0.02	0.574	1.4	0.02	0.52	1.33			
CV	2.3	2.3	4.1	1.7	1.7	15.9			
Min	0.848	21.55	1.8	0.998	25.35	5.1			
Max	1.028	26.1	48.4	1.22	30.99	24.5			
n	40	40	39	40	40	39			
Laboratory	Mean Length (W) (inch)	Mean Length (W) (mm)	CV Length (W) (%)	UQL (W) (inch)	UQL (W) (mm)	SFC (12.7) (W)	Model	Test Method	Repetitions
5-1	0.94	23.88	33.8	1.15	29.21	9.2	AFIS Pro 2	CCAA	5
14-1	0.933	23.7	35.6	1.157	29.4	9.4	AFIS Pro 2	ASTMD 5866	10
21-1	0.945	24.0	31.7	1.138	28.9	7.8	Afis119-064		5
22-1	0.96	24.38	33.6	1.17	29.72	9.0	Autojet		10
28-1	0.848	21.55		1.132	28.75	12.09	Other		5
38-1	1.012	25.7	1.8	1.217	30.9	7.6	AFIS Pro	ASTM	5
40-1	0.98	24.89	34.2	1.19	30.23	8.9	AFIS Pro	INTERNAL	10
40-2	0.96	24.38	37.5	1.18	29.97	10.9	AFIS Pro	INTERNAL	10
40-3	1.02	25.91	32.2	1.22	30.99	6.8	AFIS Pro	INTERNAL	10
41-1	0.961	24.4	32.0	1.161	29.5	7.7	AFIS Pro		5
43-1	0.97	24.64	34.5	1.18	29.97	8.8	AFIS Pro 2	ASTM-D1234-2012	10
44-1	0.965	24.5	34.4	1.181	30.0	8.5	AFIS Pro		10
51-1	0.972	24.7	31.9	1.185	30.1	24.5		ISO	5
58-1	0.961	24.4	34.0	1.169	29.7	8.8	Autojet	Internal	10
58-2	0.976	24.8	33.6	1.193	30.3	7.7	AFIS Pro 2	Internal	10
90-1	1.028	26.1	30.1	1.217	30.9	5.1	AFIS 4.22	USTER Method	10
91-1	0.945	24.0	35.7	1.165	29.6	9.1	AFIS Pro 2	ASTM D 5866-12	10
96-1	0.854	21.7	48.4	1.146	29.1	21.4	AFIS Pro 2	NY/T 3272-2018	10
101-1	0.984	25.0	32.2	1.185	30.1	6.7	Pro 2	internal	5
109-1	0.945	24.0	35.0	1.165	29.6	9.2	AFIS Pro 2		
111-1	0.95	24.13	35.9	1.17	29.72	10.4	AFIS Pro 2	Internal	10
112-1	0.94	23.88	35.3	1.16	29.46	10.73	AFIS Pro	ASTM D 5866	3

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	Mean Length (W) (inch)	Mean Length (W) (mm)	CV Length (W) (%)	UOL (W) (inch)	UOL (W) (mm)	SFC (12.7) (W)	Model	Test Method	Repetitions
123-1	0.961	24.4	34.5	1.169	29.7	8.2	AFIS Pro	ASTM D 5866-2012	10
123-2	0.949	24.1	34.8	1.165	29.6	9.0	AFIS Pro 2	ASTM D 5866-2012	10
123-3	0.969	24.6	32.6	1.161	29.5	7.8	AFIS	ASTM D 5866-2012	10
129-1	0.98	24.9	34.45	0.998	25.35	8.6	Other	ASTM-D-5866-12	6
139-1	0.95	24.13	35.4	1.16	29.46	9.8	AFIS Pro 2	ASTM-D 5866	12
142-1	0.953	24.2	32.3	1.157	29.4	7.8	Other		5
148-1	0.961	24.4	33.4	1.165	29.6	7.9	AFIS Pro 2	ASTM-D 5866	10
148-3	0.957	24.3	34.0	1.165	29.6	8.1	AFIS Pro 2	ASTM-D 5866	
170-1	0.988	25.1	33.9	1.189	30.2	7.0	AFIS Pro	Manufacturer	6
176-1	1.01	25.65	33.2	1.21	30.73	7.5			
180-1	0.949	24.1	34.2	1.161	29.5	8.2	Autojet	ASTM	3
181-1	0.955	24.25	34.1	1.164	29.56	7.6	Autojet	ASTM	3
183-1	0.98	24.89	34.1	1.18	29.97		Afis Pro	ASTM-D 5866-05	3
186-1	0.98	24.9	33.6	1.193	30.3	7.7	AFIS Pro 2	ASTM	10
186-2	0.957	24.3	33.4	1.161	29.5	7.7	AFIS Pro	ASTM	10
193-1	0.99	25.15	33.3	1.19	30.23	7.7	AFIS Pro	ASTM-D 5866-2012	6
207-1	0.976	24.8	33.5	1.185	30.1	7.5	AFIS Pro	ASTM D 5866-12 & USTER Application Handbook V2.1 May 2005 245 654-04020	10
207-2	0.984	25.0	32.8	1.189	30.2	6.6	AFIS Pro	ASTM D 5866-12 & USTER Application Handbook V2.1 May 2005 245 654-04020	10

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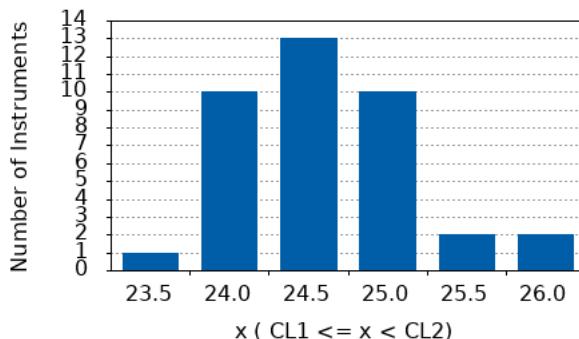
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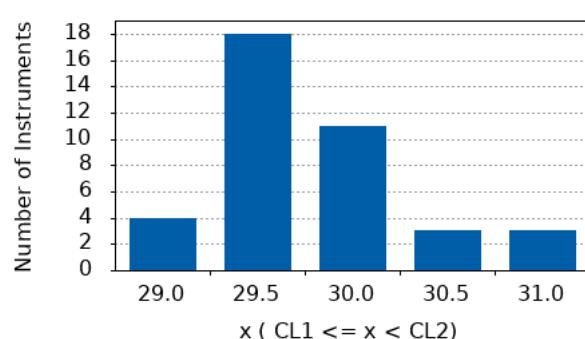


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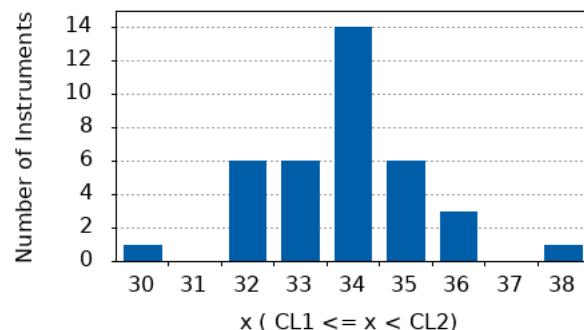
AFIS Mean Length (W), mm



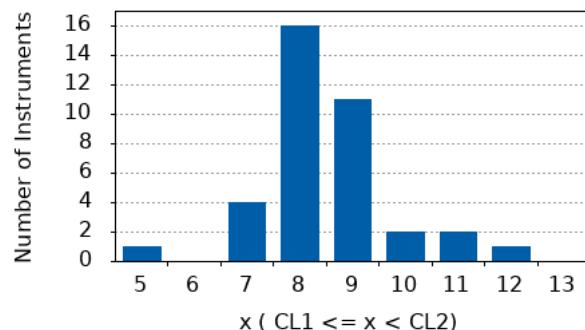
AFIS UQL (W), mm



AFIS CV Length (W), %



AFIS SFC (12.7mm) (W), %



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AFIS Fineness/Maturity

	Fineness (m tex)	Diameter (µm)	Mat. Ratio	-IFC- (%)	Model	Test Method	Repetitions
Average	164.5		0.88	6.68			
Median	164.5		0.88	6.5			
Stddev	4.6		0.02	0.91			
CV	2.8		2.8	13.7			
Min	147.0		0.78	3.8			
Max	181.0		1.0	10.0			
n	36		36	35			
Laboratory	Fineness (m tex)	Diameter (µm)	Mat. Ratio	-IFC- (%)	Model	Test Method	Repetitions
5-1	160.0		0.82	8.5	AFIS Pro 2	CCAA	5
14-1	172.0		0.9	3.8	AFIS Pro 2	ASTM D 5866	10
22-1	162.0		0.84	7.5	Autojet		10
28-1	181.0		1.0		Other		5
38-1	152.0		0.84	7.9	AFIS Pro	ASTM	5
40-1	171.0		0.9	6.4	AFIS Pro	INTERNAL	10
40-2	161.0		0.85	9.2	AFIS Pro	INTERNAL	10
40-3	147.0		0.93	5.9	AFIS Pro	INTERNAL	10
43-1	163.0		0.87	7.4	AFIS Pro 2	ASTM-D1234-2012	10
44-1	162.0		0.87	7.0	AFIS Pro		10
51-1	165.0		0.89	6.0		ISO	5
58-1	165.0		0.88	6.8	Autojet	Internal	10
58-2	157.0		0.84	7.1	AFIS Pro 2	Internal	10
90-1	160.0		0.87	5.6	AFIS 4.22	USTER Method	10
91-1	166.0		0.88	6.3	AFIS Pro 2	ASTM D 5866-12	10
96-1	163.0		0.78	10.0	AFIS Pro 2	NY/T 3272-2018	10
101-1	172.0		0.91	7.5	Pro 2		5
109-1	162.0		0.89	5.8	AFIS Pro 2	internal	
111-1	166.0		0.88	6.2	AFIS Pro 2	Internal	10
112-1	169.0		0.89	6.9	AFIS Pro	ASTM D 5866	3
123-1	166.0		0.88	5.9	AFIS Pro	ASTM D 5866-2012	10
123-2	170.0		0.91	5.6	AFIS Pro 2	ASTM D 5866-2012	10
123-3	167.0		0.89	7.1	AFIS	ASTM D 5866-2012	10
139-1	164.0		0.92	5.3	AFIS Pro 2	ASTM-D 5866	12
148-1	168.0		0.89	6.4	AFIS Pro 2	ASTM-D 5866	10
148-3	165.0		0.87	6.8	AFIS Pro 2	ASTM-D 5866	
170-1	160.0		0.86	7.8	AFIS Pro	Manufacturer	6
176-1	156.0		0.85	6.5			

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Managing Director: Bill Kingdon

Place of jurisdiction: Bremen

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carried out by Bremen Fibre Institute (FIBRE)



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	Fineness (mtex)	Diameter (µm)	Mat. Ratio	-IFC- (%)	Model	Test Method	Repeti- tions
180-1	167.0			0.92	5.2	Autojet	
181-1	167.0			0.89	6.0	Autojet	
183-1	173.0			0.9	5.73	Afis Pro	
186-1	164.0			0.87	7.4	AFIS Pro 2	
186-2	164.0			0.88	6.2	AFIS Pro	
193-1	168.0			0.89	6.5	AFIS Pro	
207-1	163.0			0.87	7.2	AFIS Pro	
207-2	164.0			0.88	6.7	AFIS Pro	
						ASTM	3
						ASTM	3
						ASTM-D 5866-05	3
						ASTM	10
						ASTM	10
						ASTM-D5866-2012	6
						ASTM D5866-12 & USTER Application Handbook V2.1 May 2005 245 654-04020	10
						ASTM D5866-12 & USTER Application Handbook V2.1 May 2005 245 654-04020	10

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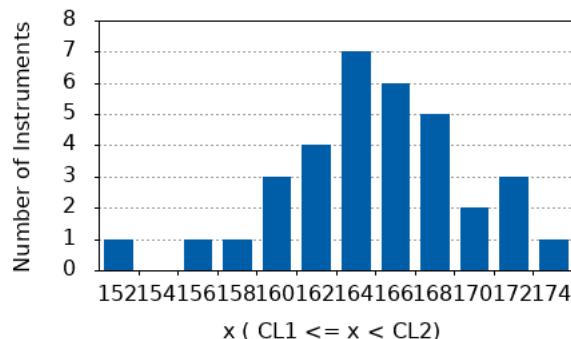
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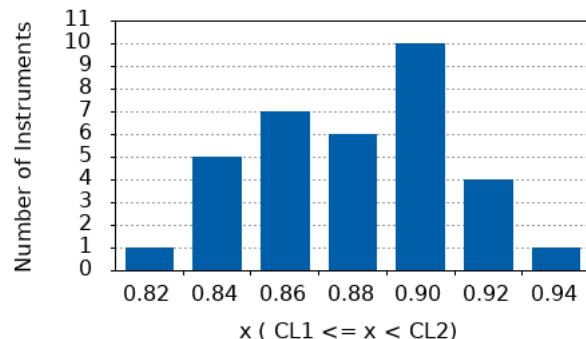


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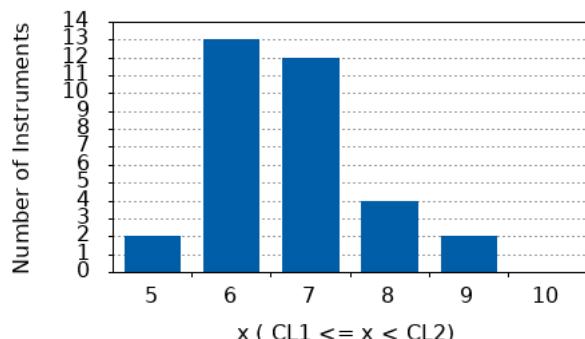
AFIS Fineness, mtex



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	166.8	672.4	25.6	1138.5	190.1	713.1			
Median	166.5	656.0	26.0	1152.0	190.0	709.0			10.0
Stddev	31.2	44.8	8.4	123.7	25.1	41.6			
CV	18.7	6.7	33.0	10.9	13.2	5.8			
Min	47.0	172.0	13.0	741.0	47.0	405.0			
Max	692.0	753.0	53.0	1465.0	249.0	972.0			
n	27	24	37	36	40	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	160.0	638.0	28.0	1026.0	188.0	696.0	AFIS Pro 2	CCAA	5
14-1	144.0	647.0	20.0	1120.0	165.0	709.0	AFIS Pro 2	ASTMD 5866	10
21-1	47.0	741.0	47.0	741.0	47.0	741.0	Afis119-064		5
22-1	188.0	730.0	22.0	1212.0	210.0	780.0	Autojet		10
27-1	177.0				121.0	405.0	AFIS Pro	ASTM	5
38-1				22.0	1155.0	201.0	AFIS Pro	INTERNAL	10
40-1				32.0	1244.0	200.0	AFIS Pro	INTERNAL	10
40-2				28.0	1129.0	209.0	AFIS Pro	INTERNAL	10
40-3				53.0	1203.0	234.0	AFIS Pro	INTERNAL	10
40-4					192.0	764.0	AFIS Pro	INTERNAL	10
41-1				24.0	1113.0	174.0	AFIS Pro 2		5
43-1					709.0			ASTM-D1234-2012	10
44-1	187.0	680.0	13.0	1080.0			AFIS Pro		10
51-1	200.0	172.0	28.0		200.0	738.0		ISO	5
58-1	190.0	660.0	17.0	812.0			Autojet	Internal	10
58-2	164.0	636.0	43.0	1247.0	207.0	765.0	AFIS Pro 2	Internal	10
90-1	216.0	730.0	33.0	1214.0	249.0	972.0	AFIS 4.22	USTER Method	10
91-1	154.0	659.0	32.0	1183.0	186.0	749.0	AFIS Pro 2	ASTM D 5866-12	10
91-2			210.0	654.0	Neptester	ASTM D 5866-12	10		
96-1	168.0	641.0	23.0	1090.0	191.0	695.0	AFIS Pro 2	NY/T 3272-2018	10
101-1	147.0	653.0	32.0	1210.0	179.0	751.0	Pro 2	internal	5

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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
109-1	169.0	661.0	23.0	1162.0	192.0	720.0	AFIS Pro 2		
111-1	172.0	649.0	17.0	1122.0	190.0	692.0	AFIS Pro 2	Internal	10
112-1	174.0	753.0	44.0	1065.0			AFIS Pro	ASTM D 5866	3
123-1			19.0	866.0	183.0	659.0	AFIS Pro	ASTM D 5866-2012	10
123-2	158.0	656.0	16.0	1058.0	174.0	691.0	AFIS Pro 2	ASTM D 5866-2012	10
123-3			16.0	1174.0	199.0	692.0	AFIS	ASTM D 5866-2012	10
129-1			13.0	1121.0	163.0	695.0	Other	ASTM-D-5866-12	6
132-1				152.0		618.0	AFIS		10
139-1	165.0	673.0	15.0	995.0	180.0	700.0	AFIS Pro 2	ASTM-D 5866	12
142-1				138.0		663.0	Other		5
148-1	143.0	649.0	23.0	1181.0	166.0	722.0	AFIS Pro 2	ASTM-D 5866	10
148-2				175.0			Neptester		
148-3	153.0	639.0	28.0	1195.0	180.0	723.0	AFIS Pro 2	ASTM-D 5866	
170-1			20.0	1269.0	204.0	705.0	AFIS Pro	Manufacturer	6
176-1	692.0		26.0	1152.0	198.0	718.0			
180-1	163.0	654.0	13.0	928.0	177.0	675.0	Autojet	ASTM	3
181-1	159.0	608.0	30.0	1272.0	189.0	715.0	Autojet	ASTM	3
183-1			27.0	1064.0	189.0	707.0	Afis Pro	ASTM-D 5866-05	3
186-1	158.0	615.0	26.0	1043.0	184.0	676.0	AFIS Pro 2	ASTM	10
186-2	174.0		30.0	1140.0	204.0	730.0	AFIS Pro	ASTM	10
193-1			30.0	1465.0	191.0	802.0	AFIS Pro	ASTM-D5866-2012	6
207-1	203.0	743.0	31.0	1278.0	234.0		AFIS Pro	ASTM D5866-12 & USTER Application Handbook V2.1 May 2005 245 654-04020	10
207-2	204.0	750.0	31.0	1260.0	235.0		AFIS Pro	ASTM D5866-12 & USTER Application Handbook V2.1 May 2005 245 654-04020	10

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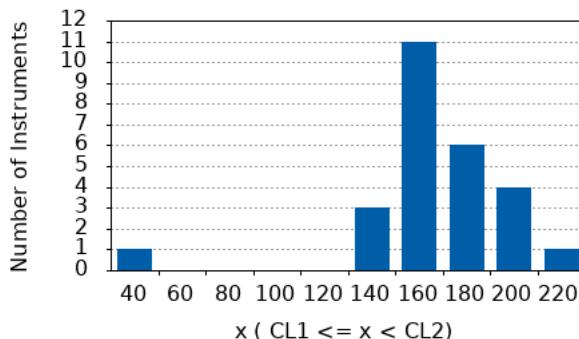
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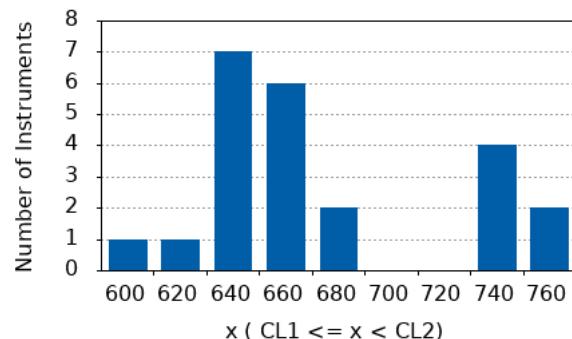


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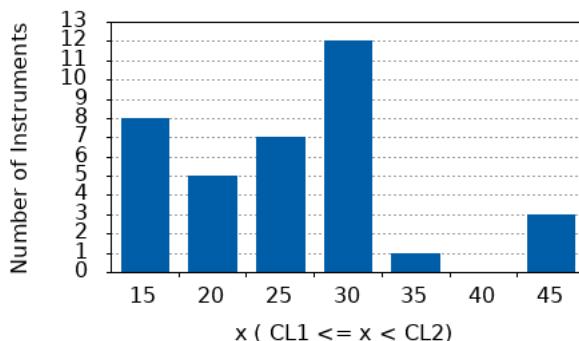
AFIS Fiber Nep Count, cnt/g



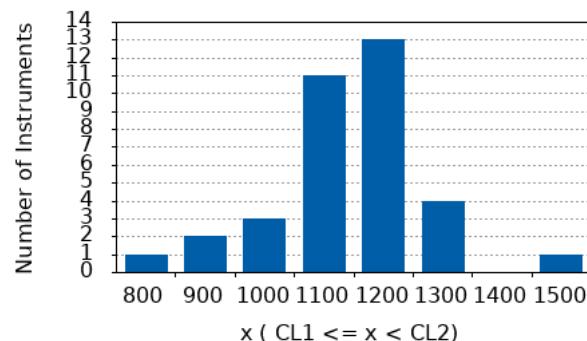
AFIS Fiber Nep Size, µm



AFIS SC Nep Count, cnt/g



AFIS SC Nep Size, µm



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AFIS Trash

	Trash Count (cnt/g)	Trash Size (µm)	Dust Count (cnt/g)	Dust Size (µm)	Total Trash Cnt (cnt/g)	Total Trash Size (µm)	V.F.M (%)	Model	Test Method	Repetitions
Average	38.6	764.6	182.1	209.3	220.5	333.2	0.78			
Median	37.0	915.0	173.5	211.0	212.5	340.0	0.82			10.0
Stddev	7.5	328.0	35.9	9.3	40.7	22.7	0.17			
CV	19.3	42.9	19.7	4.4	18.5	6.8	21.2			
Min	27.0	312.0	117.0	192.0	152.0	207.0	0.48			
Max	55.0	1156.0	546.0	221.0	588.0	366.0	1.31			
n	23	12	23	8	23	18	23			
Laboratory	Trash Count (cnt/g)	Trash Size (µm)	Dust Count (cnt/g)	Dust Size (µm)	Total Trash Cnt (cnt/g)	Total Trash Size (µm)	V.F.M (%)	Model	Test Method	Repetitions
21-1	42.0		546.0		588.0	207.0	0.89	Afis119-064		5
22-1	41.0		177.0		217.0	333.0	0.82	Autojet		10
38-1	38.0	312.0	219.0		257.0		0.82	AFIS Pro	ASTM	5
43-1	36.0		148.0		183.0	340.0	0.64	AFIS Pro 2	ASTM-D1234-2012	10
51-1	51.0	925.0	230.0	212.0	280.0	345.0	1.03		ISO	5
58-1	55.0		237.0		292.0	348.0	1.31	Autojet	Internal	10
58-2	41.0	913.0	157.0	221.0	198.0	366.0	0.82	AFIS Pro 2	Internal	10
90-1	27.0		194.0		221.0	276.0	0.48	AFIS 4.22	USTER Method	10
91-1	34.0	1057.0	162.0	204.0	197.0	348.0	0.92	AFIS Pro 2	ASTM D 5866-12	10
101-1	33.0	915.0	164.0	217.0	197.0	333.0	0.73	Pro 2	internal	5
111-1	31.0	1156.0	204.0	192.0	235.0	329.0	1.04	AFIS Pro 2	Internal	10
112-1	44.0	360.0	158.0		202.0		0.85	AFIS Pro	ASTM D 5866	3
129-1	29.0		152.0		182.0		0.515	Other	ASTM-D-5866-12	6
142-1	46.0		262.0		308.0	282.0	0.76	Other		5
148-1	38.0	961.0	170.0	203.0	208.0	340.0	0.86	AFIS Pro 2	ASTM-D 5866	10
148-3	37.0	915.0	167.0	215.0	204.0	343.0	0.8	AFIS Pro 2	ASTM-D 5866	
176-1	32.0		136.0		168.0	332.0	0.51			
183-1	35.0		117.0		152.0	351.0	0.55	Afis Pro	ASTM-D 5866-05	3
186-1	35.0	1009.0	188.0	210.0	223.0	340.0	0.91	AFIS Pro 2	ASTM	10
186-2	30.0		151.0		182.0	322.0	0.6	AFIS Pro	ASTM	10
193-1	45.0		209.0		254.0	336.0	0.96	AFIS Pro	ASTM-D5866-2012	6
207-1	51.0	338.0	208.0		259.0		0.86	AFIS Pro	ASTM D5866-12 & USTER Application Handbook V2.1 May 2005 245 654-04020	10

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	Trash Count (cnt/g)	Trash Size (µm)	Dust Count (cnt/g)	Dust Size (µm)	Total Trash Cnt (cnt/g)	Total Trash Size (µm)	V.F.M (%)	Model	Test Method	Repetitions	
500	207-2	36.0	314.0	196.0		232.0		0.78	AFIS Pro	ASTM D5866-12 & USTER Application Handbook V2.1 May 2005 245 654-04020	10



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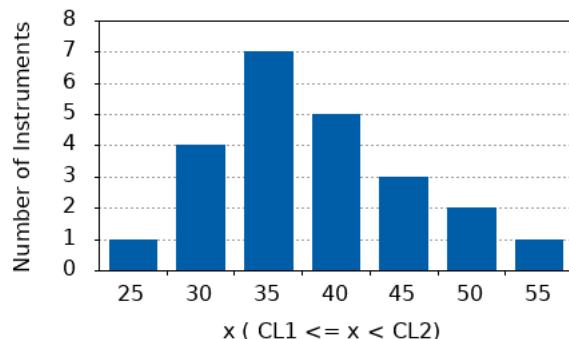
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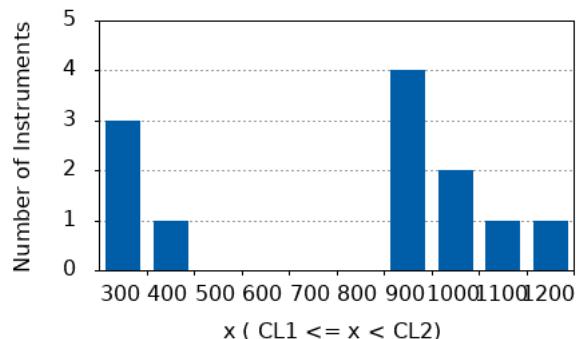


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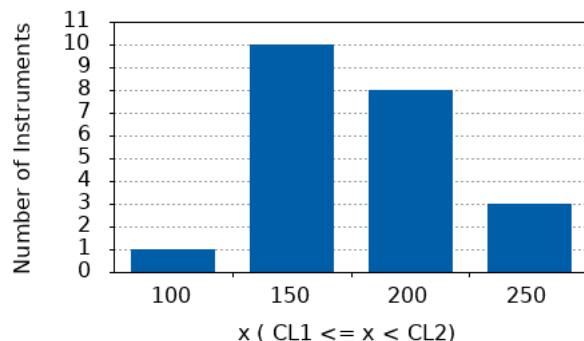
AFIS Trash Count, cnt/g



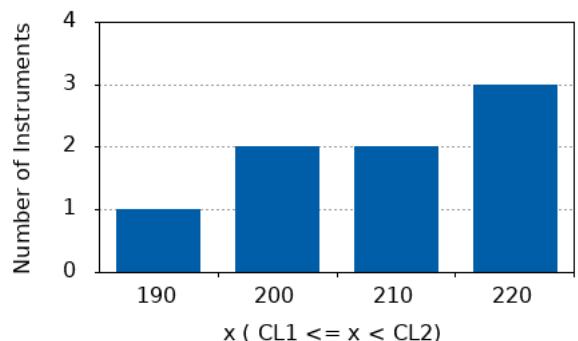
AFIS Trash Size, μm



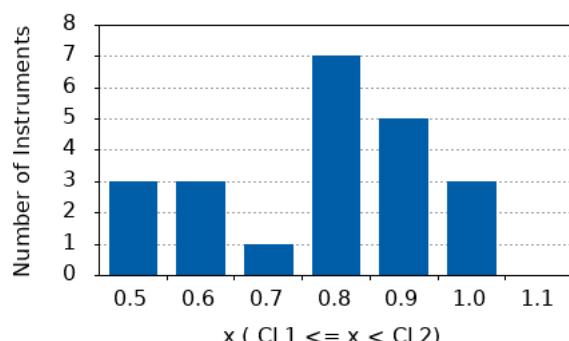
AFIS Dust Count, cnt/g



AFIS Dust Size, μm



AFIS V.F.M., %



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