ICA Bremen Cotton Round Test

in Cooperation with Bremer Baumwollboerse

carried out by Bremen Fibre Institute (FIBRE)

Bremen, 20.12.2017

Evaluation of the Test Results 2017 / 3

Tested Cotton: **US MOT**
Cotton Number: **RM 36**
Number of Laboratories: **119**

Argentina	-	Mali	1
Australia	1	Mauritius	1
Bangladesh	1	The Netherlands	1
Brazil	6	Pakistan	1
China	19	Poland	1
Czech Republic	3	Russia	-
Egypt	3	Senegal	1
France	1	Serbia	1
Germany	11	Slovenia	2
Greece	6	South Africa	-
Hungary	1	Spain	3
India	27	Sudan	1
Indonesia	1	Switzerland	2
Iran	1	Taiwan	1
Israel	1	Tanzania	1
Italy	1	Thailand	1
Japan	2	Tunisia	1
Kazakhstan	1	Turkey	4
Korea	1	United States	5
Latvia	1	Uzbekistan	2
		Vietnam	1

For any questions, please mail to gerardi@faserinstitut.de

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Explanations:

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**: US MOT (RM 36)**

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	0,053	0,040
Strength, g/tex	0,462	0,683
Length, UHM, inch	0,0049	0,0126
Length, UHM, mm	0,125	0,320

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:

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

- 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
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.

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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				
Lab.	Rep.	Mic.	Instrument	Standard Test Method
12		4.3	775	GB/T6498-08
17		4.0		
20	4	4.4	175	
22	3	4.1	Fibronaire	
29	4	4.1		ISO 2403
32	6	4.1		
32-2	6	4.2		
32-3	6	4.1		
37		4.5	Micromat	
56	2	4.3	Fibronaire	JIS
67	4	4.2	Fibronaire	
70	6	4.2	MK.1	ASTMD3818-92
76	4	4.3		
100	20	4.3	675	ASTMD1448-97
102	4	4.2	Fibronaire	ASTM
112	2	4.3	Fibronaire	ASTMD1448
128		4.3	Fibronaire	ASTM
129		4.2	Micronaire	BS 3181
131	6	4.1		ASTM
132	3	4.2	775	DIN 53941
132-2	3	4.2		ASTMD1448
142	3	4.1	80400	ISO
155		4.2		
162	6	4.2	WIRA	
167	3	4.4	275	
169	2	4.3	80400	
177	3	4.5	DPM 60	DIN 53941
183	3	4.1	Fibronaire	ASTMD1448
186	6	4.3		ASTM
193	3	4.2	Y145	GB/T6498-08
201	3	4.2	275	
203		4.2	900-1	
Average		4.23		
Median		4.2		
StdDev		0.12		
CV		2.7		
Min		4.0		
Max		4.5		
n		32		

PRESSLEY, STELOMETER								
Lab.	Pressley Tester				Stelometer			
	Rep.	PI (0)	PI (3.2)	Standard Test Method	Rep.	Bundle Tenacity gf/tex	Elongation %	Standard Test Method
29	10	7.7		ISO 3060				
46	10	8.4	3.5	ISO 3060				
56	5	7.9		JIS				
100	20	7.4		ASTMD41452T				
112					3	22.3	5.2	ASTM 1445
128		7.6		ASTM		20.2	4.7	ASTM
131	6	8.4	3.3	ASTM	6	20.5	6.3	ASTM
162	6	9.0			6	18.9	5.5	
177	4	5.8		DIN 53942				
193					12	20.1	5.4	GB/T13783-92
Average		7.77	3.4			20.38	5.4	
Median		7.8	3.4			20.2	5.4	
StdDev		0.96	0.1			1.21	0.57	
CV		12.3	2.9			5.9	10.5	
Min		5.8	3.3			18.9	4.7	
Max		9.0	3.5			22.3	6.3	
n		8	2			5	5	

Pressley	PI(0)	Av., gf/tex	41.63	StdDev, gf/tex	5.12	CV, %	12.3
	(3.2)	Av., gf/tex	23.12	StdDev, gf/tex	0.68	CV, %	2.9

DIGITAL - FIBROGRAPH *(further information see page "Multiple Devices")*									Span Length
Lab.	Rep.	2.5 % SL		50 % SL		UR	SFC (N)	SFC (W)	SFI
		mm	inch	mm	inch	%	%	%	
100	16	27.3	1.08	11.9	0.47	43		11.4	10.0
131	6	28.6	1.13	14.3	0.56	46			
132	10	28.0	1.10	12.3	0.48	44			
143		27.2	1.07	14.0	0.55	52			
Average									
Median									
StdDev									
CV									
Min									
Max									
n		4	4	4	4	4	0	1	1

COMB SORTER *(further information see page "Multiple Devices")*								Staple Length
Lab.	Rep.	Instrument	N			W		
			ML	CV	< 12.5 mm	ML	CV	<12.5 mm
			mm	%	%	mm	%	%
85	1	Joh.-Zweigle				22.6	39.5	17.0
85-2	1	Keisokki				22.2	39.2	16.0
85-3	1	Keisokki				22.3	38.5	17.0
85-4	1	Keisokki				22.3	38.9	17.0

ALMETER *(further information see page "Multiple Devices")*							Staple Length
Lab.	Rep.	N			W		
		ML	CV	< 12.5 mm	ML	CV	<12.5 mm
		mm	%	%	mm	%	%
58	3	18.2	43.1	30.4	21.5	36.8	15.9
112	4	23.36	32.64	10.94	26.73	26.52	2.38
132	5	17.7	39.3	26.8	21.5	31.4	12.0

Maturity, Fineness *(further information see page "Multiple Devices")*					
Lab	Fibrograph	Causticaire (18 % NaOH)	Microscopic Test		Gravimetric Fineness
	%	%	ASTM, %	BS, %	dtex
56		81			
70					1.75
85					1.65
85-2					1.67
85-3					1.67
85-4					1.61
112					1.91
129		58			
131		70			
177		85			1.87
193					1.84

IIC/SHIRLEY FM-TESTER *(further information see page "Multiple Devices")*				Maturity, Fineness
Lab.	Rep.	PM, %	MAT	FIN, mtex
32	6	74.3	0.83	185
32-2	6	74.5	0.83	186
32-3	6	73.8	0.82	185
37		89.2	1.11	161
70	6	82.8	0.94	170
100	20	72.6	0.8	190
102	2	83.7	0.95	154
128	8	84.0	0.95	172
186	6	80.6	0.91	178
Average		79.5	0.904	175.6
Median		80.55	0.91	177.5
StdDev		5.88	0.098	12.23
CV		7.4	10.8	7.0
Min		72.6	0.80	154
Max		89.2	1.11	190
n		9	9	9

HVI *(table is divided into 3 pages)*					General		
Lab.	Manufacturer	Instrument	Std. Test Method	Rep.	Each rep. consisting of		
					Mic. meas.	Combs for length/strength	Color readings
1	MAG	HVT Expert1201	ASTM	10	1	1	1
3	Premier	ART 2	ASTM	6	1	2	2
4	Premier	HFT		4	1	2	4
5	USTER	1000 Line6		12	1	2	2
5-2	USTER	1000 Line7		12	1	2	2
5-3	USTER	1000 Line8		12	1	2	2
6	USTER	1000	GB/T20392	6	1	2	2
7	Premier	ART 2	Manufacturer	4	4	4	4
9	Premier	ART		4	1	2	2
10	USTER	1000C	GB/T20392-06	3	1	2	2
10-10	USTER	1000C	GB/T20392-06	3	1	2	2
10-11	USTER	1000C	GB/T20392-06	3	1	2	2
10-2	USTER	1000C	GB/T20392-06	3	1	2	2
10-3	USTER	1000C	GB/T20392-06	3	1	2	2
10-4	USTER	1000C	GB/T20392-06	3	1	2	2
10-5	USTER	1000C	GB/T20392-06	3	1	2	2
10-6	USTER	1000C	GB/T20392-06	3	1	2	2
10-7	USTER	1000C	GB/T20392-06	3	1	2	2
10-8	USTER	1000C	GB/T20392-06	3	1	2	2
10-9	USTER	1000C	GB/T20392-06	3	1	2	2
11	Premier	ART 2	USDA	10	1	2	2
12	Premier	ART 2C	SN/T1512-11	12	1	2	2
13	USTER	Spectrum	internal	10	1	1	
14	USTER	1000	GB/T20392-06	6	1	2	2
15	USTER	900 SA		6	1	2	2
18	USTER	1000	individual	20	1	2	2
19	USTER	1000	SN/T1512-11		1	2	2
23	USTER	900 SA		10	1	2	2
24	USTER	Spectrum	USDA	10	1	2	2
25	USTER	1000		10	1	2	2
26	USTER	1000		10	1	2	2
27	USTER	900 A	ASTMD5867	6	1	2	2
28	Textechno	CCS-V5.3	ASTMD5867-05	10	3	10	
32	USTER	900 A		10	4	10	4
32-2	USTER	900 A		10	4	10	
32-3	USTER	900 A		10	4	10	4
33	USTER	1000C	GB/T20392	6	1	2	2
35	USTER	1000C	GB/T20392	3	1	2	2
38	USTER	1000	ASTM	6	1	2	2
39	Premier	ART 2	HVI Mode	6	1	1	1
40	USTER	900	internal	10	1	1	1
40-2	USTER	1000	internal	10	1	1	1
41	USTER	Spectrum		5	5	5	5
42	USTER	Spectrum			1	2	2
42-2	USTER	1000		6	1	2	2
44	USTER	Spectrum		10	1	2	2
44-2	Premier	ART 2		10	1	2	2
45	USTER	1000		5	1	2	2
49	USTER	1000	ASTM1776	6	1	2	2
52	USTER	1000	ASTM	6	6	6	6
55	MAG	HVT Expert1401	ASTMD5867-05	6	1	2	2
56	USTER	Spectrum I	HVI Test Method	5	1	2	2
57	MAG	HVT Expert1401	ASTMD5867-12	6	1	2	2
57-2	MAG	HVT Expert1401	ASTMD5867-12	6	1	2	2
58	USTER	1000	internal	10	1	2	2

HVI *(table is divided into 3 pages)*					General		
Lab.	Manufacturer	Instrument	Std. Test Method	Rep.	Each rep. consisting of		
					Mic. meas.	Combs for length/strength	Color readings
59	USTER	Classing	USDA	10	1	2	2
59-2	USTER	1000	USDA	10	1	2	2
59-3	USTER	1000	USDA	10	1	2	2
59-4	USTER	1000	USDA	10	1	2	2
60	USTER	1000M700	ASTM	6	1	2	2
63	MAG	HVT Expert1401	USDA		1	2	2
64	MAG	HVT Expert1401	ASTMD5867-05	6	1	2	2
65	Premier	ART 2	ASTM	6	1	2	2
66	Premier	ART	ICC	6	1	2	2
71	USTER	1000	SN/T1512-11	6	1	2	2
72	USTER	1000		6	1	2	2
73	USTER	1000	ASTM	6	1	2	2
78	USTER	1000		6	1	2	2
83	USTER	Spectrum I	SN/T1512-11	6	1	2	2
89	Premier	ART		6	1	2	2
89-2	Premier	ART		6	1	2	2
89-3	USTER	1000		6	1	2	2
89-4	USTER	1000		6	1	2	2
90	USTER	1000	ASTMD5867	10	1	2	2
91	USTER	1000		6	1	2	2
94	USTER	1000	USDA	6	1	2	2
94-2	USTER	1000	USDA	6	1	2	2
96	USTER	1000	GB/T20392-06	10	1	2	2
96-2	Premier	HFT	GB/T20392-06	10	1	2	
96-3	USTER	HFT	GB/T20392-06	10	1	2	
96-4	Premier	HFT	GB/T20392-06	10	1	2	2
98	USTER	1000	USDA. ASTM	12	1	2	4
99	MAG	HVT Expert1401	ASTMD5867-05	10	1	2	2
100	Textechno	CCS-V5.2	ASTMD5867-05		1	2	2
101	USTER	1000	ASTMD5687-12	6	1	2	2
102	USTER	910	ASTM	6	1	1	
102-2	USTER	SW700V3.1.3.18	ASTMD5867	6	1	1	1
103	USTER	1000	SN/T1512-11	6	1	2	2
104	USTER	1000	GB/T20392	3	1	2	2
107	Premier	ART 2	ASTMD5867-05	6	1	2	2
108	USTER	1000	ASTMD5867-12	12	1	2	2
109	USTER	1000			1	2	2
111	USTER	1000	internal	6	1	2	2
112	USTER	1000	ASTMD5867	6	1	2	2
113	Premier	ART	ASTM	6	1	2	2
113-2	MAG	HVT Expert1401	ASTM	6	1	2	2
114	Premier	ART 2		6	1	2	2
119	USTER	1000C	GB/T20392	3	1	2	2
121	USTER	1000	SN/T1512-11		1	2	2
123	USTER	1000	ASTMD5867-12	10	1	1	1
126	Premier	HFT	ASTM	6	1	2	
128	USTER	1000	ASTMD5867-12	10	1	2	2
129	USTER	900 SA	ASTMD5867		1	1	1
130	Premier	ART 3	ASTMD5867-05	6	1	2	2
131	USTER	Spectrum	USDA	6	1	2	2
132	Textechno	Fibrotest	ASTMD5867	1		10	
133	USTER	1000		6	1	2	2
139	Premier	ART 2	ASTMD5867-05	12	1	2	2
143	Premier	ART		6	1	2	2
143-2	USTER	Spectrum		6	1	2	2

HVI *(table is divided into 3 pages)* General

Lab.	Manufacturer	Instrument	Std. Test Method	Rep.	Each rep. consisting of		
					Mic. meas.	Combs for length/strength	Color readings
144	USTER	Spectrum	ASTM	6	1	2	2
145	Premier	ART 2			1	2	2
148	USTER	1000		6	1	2	2
154	USTER	900 A		10	1	2	2
158	USTER	900-2			1	2	2
160	USTER	Spectrum		5	5	5	
162	USTER	900 A	HVICC	6	1	2	2
163	USTER	900	ASTMD5867-12	6	3	5	2
170	SITEX	1000	Manufacturer	6	1	2	2
176	USTER	1000	HVICC	10	1	2	2
179	USTER	1000	SN/T1512-11	12	1	2	2
180	USTER	Spectrum	ASTM	6	1	2	2
181	USTER	Spectrum	ASTM	6	1	2	2
183	USTER	1000	ASTMD5867-05	6	1	2	2
186	Textechno	CCS	ASTM	10	1	2	
193	USTER	1000	GB/T20392-06	6	1	2	2
200	USTER	900 A	ASTMD5867	6	1	2	2
201	USTER	900		6	1	2	2
203	USTER	900			1	2	2
204	Premier	HFT	GB/T20392-06	15	1	1	1
204-2	USTER	1000	GB/T20392-06	10	1	1	1
207	USTER	1000	ASTMD5867-12	10	1	2	2
207-2	USTER	1000	ASTMD5867-12	10	1	2	2
209	MAG	HVT Expert1401	ASTMD5867-12	6	1	2	2

HVI	*(table is divided into 3 pages)*			Micronaire, Tenacity, Elongation	
Lab.	Micronaire	Tenacity		Elongation	
		ICCS, gf/tex	HVICCS, gf/tex	ICCS, %	HVICCS, %
1	4.2		28.5		6.4
3	4.2		27.5		6.0
4	4.4	20.4		6.2	
5	4.5		27.0		5.7
5-2	4.5		26.4		7.7
5-3	4.5		25.9		6.1
6	4.4		26.8		4.2
7	4.2	20.7		5.8	
9			28.4		
10	4.4		26.5		
10-10	4.2		28.0		
10-11	4.5		26.2		
10-2	4.3		26.6		
10-3	4.4		26.4		
10-4	4.4		25.7		
10-5	4.4		26.3		
10-6	4.4		26.1		
10-7	4.5		25.6		
10-8	4.3		28.0		
10-9	4.2		26.3		
11	4.2	20.2	29.0	5.8	6.4
12	4.3		27.8		6.5
13	4.1		28.5		5.2
14	4.4		26.1		6.1
15	4.3		28.1		6.7
18	4.5		28.5		6.2
19	4.2		27.7		6.9
23	4.1		27.8		6.8
24	4.3		29.2		6.2
25	4.3		26.0		7.1
26	4.3		26.6		6.2
27	4.3	19.5	27.1	6.9	8.3
28	4.4		26.9		6.7
32	4.0		28.1		6.2
32-2	4.1		28.3		6.3
32-3	4.1		27.3		6.0
33	4.3		26.4		5.6
35	4.4		26.8		5.4
38	4.3		28.6	(3.7)	
39	4.3		27.4		
40	4.3		25.3		(2.1)
40-2	4.3		26.0		3.9
41	4.4		27.0		7.2
42	4.3		24.8		6.4
42-2	4.2		28.0		5.0
44	4.3		27.9		
44-2	4.2		28.0		
45	4.3		27.2		5.0
49	4.3		26.9		5.7
52	4.3		28.1		(8.9)
55	4.3		28.0		5.3
56	4.1		26.8		5.8
57	4.3		26.5		5.9

HVI	*(table is divided into 3 pages)*			Micronaire, Tenacity, Elongation	
Lab.	Micronaire	Tenacity		Elongation	
		ICCS, gf/tex	HVICCS, gf/tex	ICCS, %	HVICCS, %
57-2	4.3		26.5		5.9
58	4.4		26.0		6.2
59	4.5		27.5		
59-2	4.6		27.1		
59-3	4.3		27.2		
59-4	4.4		27.0		
60	4.3		25.6		5.4
63	4.3		28.8		6.9
64	4.1		28.4		5.0
65	4.1		29.1		6.4
66	4.1	(17.9)		6.8	
71	4.2		26.9		8.3
72	4.5		25.9		
73	4.3		27.9		5.7
78	4.5		26.1		
83	4.2		25.3		5.4
89	4.2		27.2		
89-2	4.2		27.6		
89-3	4.3		26.4		
89-4	4.4		25.7		
90	4.2		26.3		6.1
91	4.3		25.8		7.5
94	4.3		25.9		
94-2	4.3		25.9		
96	4.4		25.9		4.9
96-2	4.4		27.4		6.5
96-3	4.2		27.2		6.5
96-4	4.2		27.2		6.5
98	4.4		25.8		
99	4.3		27.3		6.6
100	4.2		25.5		7.6
101	4.5		30.2		4.6
102	4.2		26.9		4.4
102-2	(3.9)		26.6		6.8
103	4.3		26.4		5.3
104	4.3		26.9		5.0
107	4.0		29.5		6.2
108	4.3		25.9		5.5
109	4.3		27.3		
111	4.3		25.7		5.3
112	4.4		26.7		6.5
113	4.2		27.0		6.3
113-2	4.2		25.0		6.2
114	4.3		30.1		6.6
119	4.4		26.9		5.9
121	4.3		28.4		7.0
123	4.2	20.8	28.8	5.5	5.6
126	4.0		28.3		
128	4.3		25.2		5.8
129	4.2	20.8	27.5	5.6	5.2
130	4.2	20.9	29.9	5.8	6.6
131	4.2		26.9		6.0
132			27.4		6.6

HVI	*(table is divided into 3 pages)*			Micronaire, Tenacity, Elongation	
Lab.	Micronaire	Tenacity		Elongation	
		ICCS, gf/tex	HVICCS, gf/tex	ICCS, %	HVICCS, %
133	4.5		26.0		
139	4.4		27.2		6.4
143	4.3		26.8		6.7
143-2	4.4		26.9		6.2
144	4.2		28.3		
145	(3.7)		28.8		
148	4.2		26.2		6.2
154	4.2		27.0		6.3
158	4.2		27.2		6.4
160	4.3		27.0		7.9
162	4.1		29.8		4.6
163	4.4	20.3			
170	4.5		26.7		6.7
176	4.3		26.7		6.3
179	4.3		26.5		6.1
180	4.5		28.9		6.5
181	4.4		29.0		7.6
183	4.3		26.6		5.3
186	4.3		25.4		7.8
193	4.3		27.4		5.8
200	4.2		26.4		
201	4.2		28.2		6.5
203	4.2				
204	4.3		25.1		6.4
204-2	4.3		27.7		5.0
207	4.2		25.9		6.3
207-2	4.3		26.6		6.0
209	4.2		27.8		6.2
Average	4.29	20.45	27.11	6.05	6.14
Median	4.29	20.55	27.0	5.8	6.2
StdDev	0.11	0.46	1.15	0.53	0.85
CV	2.6	2.3	4.2	8.8	13.8
Min	4.0	19.5	24.8	5.5	3.9
Max	4.6	20.9	30.2	6.9	8.3
n	130	8	129	8	92

HVI	*(table is divided into 3 pages)*					Length
Lab.	ICCS			HVICCS		
	2.5 % SL		UR	UHM		UI
	mm	inch	%	mm	inch	%
1				28.9	1.14	83.0
3				28.3	1.12	80.9
4	29.1	1.15	45.8			
5				27.9	1.10	81.0
5-2				27.9	1.10	80.2
5-3				28.0	1.10	80.6
6				27.8	1.09	80.9
7	29.0	1.14	46.7			
9				28.3	1.11	82.8
10				27.9	1.10	80.3
10-10				28.0	1.10	80.3
10-11				28.4	1.12	81.2
10-2				27.3	1.08	80.2
10-3				27.5	1.08	80.1
10-4				27.6	1.09	80.2
10-5				27.5	1.08	79.6
10-6				27.4	1.08	80.4
10-7				27.4	1.08	80.7
10-8				28.0	1.10	81.1
10-9				27.7	1.09	81.4
11	28.2	1.11	47.3	28.6	1.12	81.5
12				27.7	1.09	80.8
13				27.9	1.10	80.4
14				28.1	1.11	83.2
15				28.7	1.13	82.0
18				27.9	1.10	80.6
19				28.1	1.11	79.7
23				28.3	1.11	81.6
24				28.2	1.11	80.2
25				27.6	1.09	81.0
26				27.9	1.10	80.8
27	26.8	1.06	42.8	28.2	1.11	81.2
28	27.4	1.08	43.4	28.0	1.10	80.6
32				27.7	1.09	81.0
32-2				28.3	1.11	81.8
32-3				28.0	1.10	80.7
33				27.6	1.09	80.3
35				28.0	1.10	81.0
38				29.0	1.14	83.3
39				28.0	1.10	79.8
40				27.9	1.10	80.6
40-2				28.0	1.10	80.8
41				26.6	1.05	78.9
42				26.9	1.06	
42-2				28.3	1.11	
44				28.1	1.10	81.8
44-2				28.1	1.10	82.1
45				28.3	1.11	81.3
49				28.4	1.12	80.9
52				27.9	1.10	81.5
55				29.0	1.14	82.0
56				28.5	1.12	80.1

HVI	*(table is divided into 3 pages)*					Length
Lab.	ICCS			HVICCS		
	2.5 % SL		UR	UHM		UI
	mm	inch	%	mm	inch	%
57				28.3	1.11	81.3
57-2				28.3	1.11	81.3
58				28.0	1.10	81.8
59				27.3	1.07	81.0
59-2				28.2	1.11	81.2
59-3				28.0	1.10	80.6
59-4				28.2	1.11	80.8
60				27.8	1.09	80.6
63				28.5	1.12	82.6
64				26.7	1.05	82.0
65				28.4	1.12	81.7
66	26.6	1.05	43.0			
71				28.5	1.12	80.6
72				27.6	1.09	80.6
73				27.9	1.10	81.2
78				27.8	1.09	
83				28.0	1.10	80.6
89				27.5	1.08	79.9
89-2				27.5	1.08	81.0
89-3				27.6	1.09	81.0
89-4				27.5	1.08	80.6
90				28.3	1.11	82.2
91				27.7	1.09	81.1
94				27.7	1.09	81.0
94-2				27.7	1.09	81.0
96				27.7	1.09	81.0
96-2				27.4	1.08	80.2
96-3				27.7	1.09	81.3
96-4				27.7	1.09	81.3
98				27.9	1.10	82.0
99				28.4	1.12	82.2
100				28.2	1.11	81.7
101				29.3	1.15	82.2
102				28.2	1.11	81.9
102-2				27.9	1.10	81.4
103				28.0	1.10	81.3
104				28.0	1.10	81.1
107				28.1	1.11	81.5
108				28.2	1.11	80.6
109				28.2	1.11	81.6
111				27.1	1.07	79.5
112				27.4	1.08	79.8
113				27.7	1.09	81.6
113-2				27.4	1.08	81.2
114				27.4	1.08	81.5
119				28.1	1.11	81.6
121				27.8	1.10	81.3
123	28.1	1.11	44.8	28.2	1.11	80.9
126				27.5	1.08	80.5
128				27.4	1.08	80.5
129	28.5	1.12	45.0	28.5	1.12	83.0
130	28.6	1.13	48.1	28.1	1.11	81.4

HVI	*(table is divided into 3 pages)*					Length
Lab.	ICCS			HVICCS		
	2.5 % SL		UR	UHM		UI
	mm	inch	%	mm	inch	%
131				27.3	1.08	79.6
132				28.2	1.11	80.8
133				27.9	1.10	
139				28.2	1.11	81.3
143				27.6	1.09	80.6
143-2				27.6	1.09	80.6
144				27.7	1.09	80.3
145				27.4	1.08	80.4
148				27.6	1.09	81.1
154				28.7	1.13	81.9
158				28.7	1.13	82.1
160				27.9	1.10	80.7
162				28.8	1.13	82.4
163	28.3	1.12	47.3			
170				27.8	1.09	80.2
176				28.9	1.14	81.4
179				28.2	1.11	81.4
180				28.6	1.13	82.0
181				28.2	1.11	81.5
183				27.9	1.10	(78.5)
186	27.3	1.07	44.5	27.5	1.08	81.0
193				28.1	1.11	81.1
200				28.0	1.10	81.0
201				28.7	1.13	81.5
203				27.6	1.09	
204				27.7	1.09	81.2
204-2				28.1	1.10	81.4
207				27.7	1.09	80.8
207-2				27.8	1.09	80.4
209				27.8	1.09	82.0
Average	27.99	1.102	45.34	27.95	1.100	81.09
Median	28.18	1.109	45.0	27.95	1.100	81.01
StdDev	0.85	0.03	1.85	0.45	0.02	0.78
CV	3.0	3.0	4.1	1.6	1.6	1.0
Min	26.6	1.05	42.8	26.6	1.05	78.9
Max	29.1	1.15	48.1	29.3	1.15	83.3
n	11	11	11	130	130	124

HVI *(table is divided into 3 pages)*						Color, Trash
Lab.	Color			Trash		
	Rd	+b	CG	leaf	area	cnt
1	(65)	10.0	53-1			
3	66	11.1	43-4			
4	69	10.3	43-1			
5	68	10.2	43-1	4	0.53	55
5-2	68	10.2	43-1	4	0.57	54
5-3	68	10.1	43.2	4	0.54	52
6	67	10.8	33	3	0.62	28
7	(65)	(12.4)	44-1			
9	(61)	10.5	53-4			
10	67	11.3	33			
10-10	68	10.5	33			
10-11	67	11.1	33			
10-2	68	11.3	33			
10-3	68	10.9	33			
10-4	69	10.7	33			
10-5	68	11.0	33			
10-6	68	11.0	33			
10-7	68	11.0	33			
10-8	68	11.0	33			
10-9	68	11.0	33			
11	(64)	10.9	43-4			
12	(64)	11.4	43-4	4	0.62	40
14	67	11.4	3		0.7	56
15	68	11.2	43-2	6	0.6	39
18	68	11.1	43-1	5	0.65	72
19	68	11.2	43-1	5	0.64	59
23	67	11.2	43-3			
24	66	11.5	43-3			
25	69	11.1	33-2	4	0.59	55
26	68	10.8	43-1	4	0.54	49
27	67	(12.6)	34-2	3	0.62	59
32	(52)	11.8	84-3			
32-3	67	11.0	43-3			
33	67	11.1	33-3	3	0.68	62
35	68	11.1	33	3	0.54	45
38	69	10.9	33-2	4	0.62	73
39	68	10.7	43-1	3		
40	65	11.4	43-4			
40-2	69	11.2	33-2	5	0.7	59
41	67	11.1	43-1		0.44	39
42	67	10.4			0.58	37
42-2	69	10.9			0.75	61
44	68	10.6	43-1			
44-2	(64)	10.8	53-3			
45	67	11.1	43-3	3	0.41	34
49	68	10.6	43-1	4	0.48	51
52	68	10.9	43-1	4	0.59	50
55	68	(13.2)	53-3			
56	66	11.1	43-4	3	0.3	26
57	68	11.5	33-4			
57-2	68	11.5	33-4			
58	67	11.3	43-3	5	0.72	59
59	68	10.7	43-1	5	0.6	55

HVI	*(table is divided into 3 pages)*					Color, Trash
Lab.	Color			Trash		
	Rd	+b	CG	leaf	area	cnt
59-2	68	10.3	43-1	4	0.53	40
59-3	68	10.3	43-1	6	0.94	55
59-4	69	10.3	43-1	5	0.75	45
60	68	10.5	43-1	5	0.71	55
63	69	11.4	33-4			
64	68	10.7	32-2			
65	67	11.1	43-3			
66	68	10.4	43-1			
71	68	10.8	43-1		0.53	57
72	68	10.9	43-1		0.45	44
73	68	11.0	43-1	5	0.72	60
78	68	10.7	43-1		0.43	39
83	68	10.8	43-1	1	0.06	5
89	68	9.9	42-2	8	(2.00)	(130)
89-2	69	10.0	43-1	8	(2.10)	(134)
89-3	69	10.2	43-1	7	(1.18)	31
89-4	69	9.9	42-1	6	0.93	47
90	68	10.9	33-2		0.35	36
91	67	11.0	43-1		0.57	51
94	68	11.1	43-1	4	0.52	45
94-2	67	11.2	43-3	5	0.63	56
96	67	10.1				
98	67	10.7			0.66	53
99	67	11.0	43-3			
100	66	10.6			0.71	38
101	(74)	(13.2)	13-3	2	0.19	21
102-2	68	10.6	43-1	6	0.63	60
103	68	11.0	43-1	4	0.58	49
104	68	11.1	33	3	0.55	47
107	66	11.2	43-3			
108	69	10.9	33-2	4	0.45	44
109	68	10.9	43-1	562	0.6	49
111	68	11.3			0.86	57
112	67	11.0	43-1	4	0.55	61
113	69	11.6	33-4			
113-2	69	11.1	43-1			
114	(65)	10.8	43-4			
119	67	11.0	33	3	0.52	46
121	68	10.7	43-1		0.6	60
123	68	11.0	43-1			
128	68	10.7			0.77	63
129	66	10.5	43-2			
130	67	10.2	43-2			
131	67	11.1			0.35	
133	68	10.6	43-1	3	0.33	46
139	(65)	10.6	53-1	1	0.11	13
143	68	11.5	43-3	4	0.48	26
143-2	68	11.2	43-1	3	0.3	19
144	66	11.0	43-2	2	0.25	21
145		11.0	43-1			
148	68	10.9	43-1	4	0.62	54
154	68	11.2	43-1	1	0.5	31
158	68	10.6	43-1	3	0.3	22

HVI	*(table is divided into 3 pages)*					Color, Trash
Lab.	Color			Trash		
	Rd	+b	CG	leaf	area	cnt
162	67	11.5	43-3			
163	(59)	(17.2)	25-2			
170	69	10.9	33-2	4	0.51	50
176	68	10.8	43-1	5	0.75	72
179	68	10.7	43-1	5	0.74	62
180	68	10.7	43-1	4	0.41	1
181	69	11.3	33-2	6	1.05	7
183	66	10.9	43-2	4	0.55	46
193	68	11.0	43-1	3	0.47	48
200	67	11.0	43-1			
201	67	11.4	43-3	3	0.35	40
203	69	(9.6)	42-2	6	0.74	34
204	(65)	10.6	4			
204-2	68	11.0	43-1	1	0.1	14
207	68	10.9	43-1	5	0.67	52
207-2	68	10.7	43-1	5	0.66	55
209	69	11.2	33-2			
Average	67.7	10.88			0.557	45.1
Median	67.8	10.9			0.58	49.0
StdDev	0.79	0.39			0.19	15.88
CV	1.2	3.6			33.3	35.2
Min	65	9.9			0.06	1
Max	69	11.8			1.05	73
n	110	117			73	73

HVI	*(table is divided into 3 pages)*			Short Fibre Index, Maturity
Lab.	ICCS SFI	HVICCS SFI	PM %	Maturity Ratio
1		8.5		0.85
3		10.1		0.86
4	6.3			0.83
5		11.0		0.87
5-2		9.9		0.86
5-3		11.4		0.87
6		(17.5)		0.89
7	9.0			
9		9.5		
12		10.5		0.87
13		9.9		0.86
14		11.2		0.86
15		9.7		0.83
18		11.2		0.87
19		10.9		0.87
23		8.7		
24		10.9		0.87
25		11.6		0.85
26		11.6		0.86
27	10.9	10.7		0.85
28		11.3	69	(0.75)
32		12.5		
32-2		13.5		
32-3		(16.6)		
33		(15.0)		0.86
35		(19.2)		0.86
38		9.4		
39		11.2		0.87
41		9.5		0.88
42		7.5		0.86
42-2		12.5		0.87
44		8.6		0.88
44-2		9.2		0.87
45		11.0		0.87
49		9.3		0.86
52		9.5		0.84
55		9.3		0.81
56		(14.7)		
57		11.3		0.85
57-2		11.3		0.85
58		10.6		0.86
59		10.3	88	
59-2		10.6		0.88
59-3		10.9		0.87
59-4		10.0		0.87
60		10.4		0.87
63		8.8		0.81
64		8.3		0.8
65		9.3		
66	12.3			
71		9.5		0.84
72		10.4		
73		11.7		0.86

HVI *(table is divided into 3 pages)*				Short Fibre Index, Maturity
Lab.	ICCS SFI	HVICCS SFI	PM %	Maturity Ratio
78		12.3		0.87
89		11.2		0.84
89-2		10.8		0.85
89-3		9.9		0.86
89-4		10.2		0.87
90		9.8		0.86
91		11.1		0.85
94		11.1		0.86
94-2		10.9		0.86
99		9.2		0.85
100		10.1	73	0.8
101		9.0		0.88
102-2		10.4		0.86
103		8.7		0.87
104		(19.5)		0.87
107		9.5		0.87
108		10.2		0.86
109		8.9		0.87
111		13.2		0.87
112		12.7		0.86
113		9.8		0.82
113-2		10.2		0.81
114		10.1		0.88
119		(18.2)		0.88
121		11.1		0.86
123	13.0	13.9		0.86
126		11.6	82	
128		11.1	77	0.86
129	10.2	9.4		
130	4.7	9.8		0.88
131				0.86
132		10.5		
133		11.5		
139		9.8		
143		10.7		0.82
143-2		10.7		0.87
144		11.6		0.84
145		10.6		0.85
148		10.9		0.86
154		7.6		
158		8.6		0.84
160		9.1		0.9
162		7.3		
163	10.7			
170		12.5		
176		8.2		0.86
179		9.3		0.86
180		9.0		0.88
181		8.9		0.88
183		11.8		0.87
186	11.8	11.1		
193		10.3		0.86
201		9.3		0.83

HVI *(table is divided into 3 pages)*				Short Fibre Index, Maturity
Lab.	ICCS SFI	HVICCS SFI	PM %	Maturity Ratio
203		10.1		
204		9.9		0.81
204-2		9.2		0.87
207		10.7		0.86
207-2		11.0		0.86
209		8.8		0.82
Average	9.87	10.3	77.7	0.857
Median	10.7	10.3	77.0	0.86
StdDev	2.77	1.27	7.51	0.02
CV	28.1	12.3	9.7	2.3
Min	4.7	7.3	69	0.8
Max	13.0	13.9	88	0.9
n	9	100	5	88

AFIS				General
Lab.	Manufacturer	Instrument	Std. Test Method	Repetitions
14	USTER	1408248	ASTMD5866	6
21	USTER	1190064		
22	USTER	Autojet		10
24	USTER			
27	USTER	Neptester 740		
28	Textechno	CCS-V5.3		
31	USTER	4.22		5
32	USTER	AFIS Pro 2		10
32-2	USTER	AFIS Pro 2		10
32-3	USTER	AFIS Pro 2		10
38	USTER		ASTM	5
40	USTER	AFIS 1	internal	10
40-2	USTER	AFIS 2	internal	10
40-3	USTER	AFIS 3	internal	10
40-4	USTER	AFIS 4 KS2	internal	10
41	USTER			5
44	USTER			10
51	USTER	AFIS Pro 2	ISO-9001	5
58	USTER	AFIS Pro 2	internal	10
58-2	USTER	AFIS Pro 2	internal	10
59	USTER			5
90	USTER	4.22		10
91	USTER	AFIS Pro 2		10
96-3	USTER			10
100	USTER			
101	USTER	AFIS Pro	internal	5
102	USTER	4.22	ASTM	
109	USTER	AFIS Pro 2		5
111	USTER	AFIS Pro	internal	10
112	USTER	AFIS Pro	ASTMD5866	3
123	USTER		ASTMD5866-12	10
123-2	USTER	AFIS Pro	ASTMD5866-12	10
123-3	USTER	AFIS Pro 2	ASTMD5866-12	10
128	USTER	Neptester	ASTM	4
129	USTER	AFIS Pro		
132	Textechno			
139	USTER	AFIS Pro 2	ASTMD5866-05	12
142	USTER			
143	USTER		ASTMD5866	5
144	USTER	AFIS Pro	ASTM	5
145	USTER			
148	USTER	AFIS Pro		10
148-2	USTER	AFIS Pro 2		
148-3	USTER	AFIS Pro 2		
148-4	USTER	Neptester 720		
154	USTER			10
158	USTER	3000		5
170	USTER	AFIS Pro	Manufacturer	6
176	USTER	AFIS Pro		10
180	USTER	AFIS Pro 2	ASTM	3
181	USTER	AFIS Pro 2	ASTM	3
183	USTER	AFIS Pro	ASTMD5866-05	3
186	USTER	AFIS Pro		10
186-2	USTER	AFIS Pro 2		10
200	USTER			
207	USTER	AFIS Pro	ASTMD5866-12	10

AFIS L *(table is divided into 2 pages)*								Length
Lab.	N							
	ML		CV	2.5 %		5%		SFC
	mm	inch	%	mm	inch	mm	inch	%
14	17.7	0.70	54.2			32.9	1.30	31.7
21	18.8	0.74	48.3	34.9	1.37	32.6	1.28	26.8
22	17.8	0.70	55.1	35.3	1.39	32.8	1.29	34.5
24	19.4	0.76	49.3			33.6	1.32	24.8
31	19.0	0.75	50.7	36.3	1.43	33.9	1.33	29.1
32	18.5	0.73	52.5			33.1	1.30	29.4
32-2	18.5	0.73	52.5			33.2	1.31	29.0
32-3	19.3	0.76	50.1			33.5	1.32	26.1
38	20.0	0.79	53.5	37.9	1.49	35.1	1.38	27.0
40	19.3	0.76	52.7	36.8	1.45	34.3	1.35	29.9
40-2	19.6	0.77	53.7	38.1	1.50	35.3	1.39	30.6
40-4	19.1	0.75	51.5	35.8	1.41	33.8	1.33	28.9
41	17.6	0.69	51.9	35.1	1.38	32.5	1.28	33.2
44	17.7	0.70				32.8	1.29	32.1
51	17.9	0.70	52.4			32.8	1.29	30.6
58	18.1	0.71	52.5			33.1	1.30	30.2
58-2	18.1	0.71	52.7	35.4	1.39	33.2	1.31	32.5
90	19.5	0.77	50.7	36.1	1.42	33.8	1.33	26.8
91	18.5	0.73	49.1			32.7	1.29	28.3
96-3	18.3	0.72	43.0					
101	20.4	0.80	50.0			35.0	1.38	24.0
102	19.0	0.75	52.0	36.2	1.43	33.8	1.33	29.3
109	18.0	0.71	52.1			32.8	1.29	30.4
111	18.0	0.71	51.2			32.8	1.29	33.0
112	19.1	0.75	51.3			33.8	1.33	30.0
123	19.2	0.76	52.8			34.1	1.34	29.3
123-2	18.2	0.72	52.8			33.0	1.30	29.5
123-3	18.6	0.73	51.1			33.5	1.32	29.0
129	18.2	0.72	(62.1)			(36.1)	(1.42)	36.5
139						32.8	1.29	
142	18.1	0.71	48.9	34.7	1.37	32.5	1.28	28.4
143	17.6	0.69	58.1	35.7	1.41	33.1	1.30	35.0
144	18.2	0.72	52.0			32.6	1.28	28.4
145	(23.1)	(0.91)	(37.3)			33.3	1.31	33.7
148	17.9	0.70	52.6			32.5	1.28	30.5
148-2	17.8	0.70	53.9			32.5	1.28	31.1
148-3	18.0	0.71	52.9			32.9	1.30	30.9
154	19.2	0.76	53.5	36.0	1.42	33.5	1.32	28.7
158	17.6	0.69	58.3	35.8	1.41	33.3	1.31	35.3
170	19.0	0.75	49.5			33.5	1.32	27.2
176	19.8	0.78	49.4			34.3	1.35	25.9
180	19.3	0.76	49.2			33.8	1.33	25.3
181	16.2	0.64	59.3			32.0	1.26	38.0
183	19.1	0.75	49.9			33.0	1.30	27.5
186	18.1	0.71	53.5					30.5
186-2	18.8	0.74	50.6					28.9
207	19.4	0.76	49.6			33.6	1.32	24.8
Average	18.56	0.731	51.88	36.01	1.418	33.32	1.312	29.84
Median	18.5	0.728	52.0	35.81	1.41	33.2	1.307	29.4
StdDev	0.8	0.03	2.79	0.98	0.04	0.73	0.03	3.14
CV	4.3	4.3	5.4	2.7	2.7	2.2	2.2	10.51
Min	16.2	0.64	43.0	34.7	1.37	32.0	1.26	24.0
Max	20.4	0.80	59.3	38.1	1.50	35.3	1.39	38.0
n	45	45	43	15	15	43	43	45

AFIS L	*(table is divided into 2 pages)*					Length
Lab.	W					
	ML		CV	UQL		SFC
	mm	inch	%	mm	inch	%
14	22.9	0.90	38.1	28.9	1.14	11.9
21	23.2	0.91	34.2	28.9	1.14	10.3
22	23.1	0.91	37.9	29.0	1.14	13.3
24	24.0	0.94	34.6	29.5	1.16	
28	22.2	0.87		29.9	1.18	11.8
31	23.9	0.94	36.1			11.0
32	23.5	0.93	36.2	29.2	1.15	10.5
32-2	23.6	0.93	36.5	29.3	1.15	10.2
32-3	24.1	0.95	34.5	29.7	1.17	8.9
38	25.6	1.01	34.3	31.1	1.22	
40	24.6	0.97	35.6	30.2	1.19	10.4
40-2	25.1	0.99	37.7	31.0	1.22	11.1
40-4	24.4	0.96	35.2	29.7	1.17	10.2
41	22.3	0.88	37.9	28.1	1.11	14.1
44	23.1	0.91		29.0	1.14	11.5
51	(18.3)	(0.72)	(50.3)	28.7	1.13	11.0
58	23.1	0.91	37.2	29.1	1.15	
58-2	23.1	0.91	37.5	28.9	1.14	
90	24.5	0.96	34.0	29.8	1.17	8.9
91	23.0	0.91	36.7	28.7	1.13	11.4
96-3	23.3	0.92		29.3	1.15	(21.7)
100	22.4	0.88		30.5	1.20	11.3
101	25.5	1.00	33.4	31.1	1.22	7.3
102	24.2	0.95	36.3	29.8	1.17	10.5
109	23.0	0.91	37.3	28.8	1.13	11.6
111	22.9	0.90	38.1	28.7	1.13	13.9
112	24.1	0.95	37.6	29.7	1.17	11.6
123	24.5	0.96	35.8	30.1	1.19	10.2
123-2	23.3	0.92	36.8	29.0	1.14	10.6
123-3	23.4	0.92	37.0	29.3	1.15	11.1
129	25.1	0.99	39.4	(32.0)	(1.26)	12.1
139	23.1	0.91		29.0	1.14	12.4
142	22.5	0.89	35.2	27.9	1.10	11.4
143	23.5	0.93	37.7	29.3	1.15	12.3
144	23.1	0.91	36.3	28.6	1.13	10.2
145			37.3	29.2	1.15	
148	22.9	0.90	37.1			11.4
148-2	22.9	0.90	36.9	28.7	1.13	11.2
148-3	23.0	0.91	37.5	28.9	1.14	11.7
154	24.6	0.97	33.8	29.9	1.18	8.8
158	23.5	0.93	37.4	29.4	1.16	12.4
170	23.6	0.93	37.1	29.3	1.15	10.5
176				30.2	1.19	9.0
180	23.9	0.94	34.8	29.6	1.16	8.9
181	21.9	0.86	40.5	28.1	1.11	14.7
183	23.9	0.94	35.0	29.2	1.15	10.0
186	23.2	0.91	37.4	29.3	1.15	11.1
186-2	23.6	0.93	37.3	29.6	1.17	11.3
207	24.2	0.95	34.5	29.7	1.17	8.4
Average	23.58	0.928	36.47	29.37	1.156	10.99
Median	23.45	0.923	36.85	29.3	1.154	11.1
StdDev	0.85	0.03	1.56	0.72	0.03	1.51
CV	3.6	3.6	4.3	2.4	2.4	13.7
Min	21.9	0.86	33.4	27.9	1.10	7.3
Max	25.6	1.01	40.5	31.1	1.22	14.7
n	46	46	42	46	46	43

AFIS D / M					Diameter, Maturity
Lab.	D (N) µm	CV (D(N)) %	Fineness mtex	IFC %	Mat. Ratio
14			151	8.9	0.82
22			156	9.6	0.8
24			165	7.0	0.89
28			(215)		0.75
31			155	9.3	0.81
32			164	6.2	0.89
32-2			167	5.7	0.9
32-3			162	6.1	0.89
38			150	7.0	0.83
40			164	6.4	0.86
40-2			164	8.4	0.86
40-4			(122)	(32.3)	(0.68)
41	13.5				
44			155	7.8	0.83
51			162	6.3	0.87
58			157	7.3	0.85
58-2			160	8.5	0.85
90			160	6.2	0.87
91			158	7.7	0.85
96-3			160	6.6	0.88
100			(189)		0.81
101			163	7.4	0.87
102			150	(13.0)	0.76
109			164	5.7	0.88
111			161	7.0	0.85
112			151	9.8	0.79
123			163	7.7	0.86
123-2			158	6.7	0.84
123-3			161	7.0	0.86
139			162	7.2	0.87
143			158	7.1	0.85
144			154	8.4	0.85
145			162	7.2	0.86
148			159	9.1	0.82
148-2			162	7.3	0.86
148-3			162	6.1	0.87
154			(141)	(15.2)	0.74
158			155	8.1	0.85
170			158	9.2	0.84
176			(136)	(20.3)	(0.66)
180			162	6.7	0.88
181			161	6.1	0.86
183			158	6.9	0.86
186			149	(11.5)	0.78
186-2			155	8.4	0.83
207			163	7.1	0.88
Average			159.0	7.4	0.845
Median			160.0	7.15	0.85
StdDev			4.59	1.12	0.04
CV			2.9	15.1	4.5
Min			149	5.7	0.74
Max			167	9.8	0.9
n	1	0	40	38	43

AFIS T				Trash
Lab.	Total Trash		Dust	V. F. M.
	Mean Diameter µm	Cnt/g	Cnt/g	%
21	(232)	(1533)	(1414)	2.88
22		(109)	629	2.5
31	308	829	722	2.92
32	303	681	594	2.03
32-2	307	682	594	2.07
32-3	317	604	517	1.88
51	304	678	589	1.81
58	332	622	527	2.16
58-2	314	721	615	2.31
90	320	594	508	1.77
91	315	546	472	1.89
100		254		
101	334	221	189	(0.69)
102		(65)	372	1.48
111	317	636	541	1.88
112	297	630	544	1.59
129	306	616	530	1.87
142	270	899	800	2.07
143	280	705	627	1.66
148	336	660	553	2.57
148-2	296	829	729	2.31
148-3	295	805	709	2.32
154	268	1067	948	2.71
158	283	780	676	1.99
176		849	726	2.13
183	291	953	836	2.6
186	295	649	562	1.68
186-2	317	783	669	2.37
207	333	701	582	2.36
Average	305.8	692.1	605.9	2.141
Median	306.5	681.5	594.0	2.07
StdDev	19.11	180.77	146.91	0.39
CV	6.3	26.1	24.2	18.2
Min	268	221	189	1.48
Max	336	1067	948	2.92
n	24	26	27	27

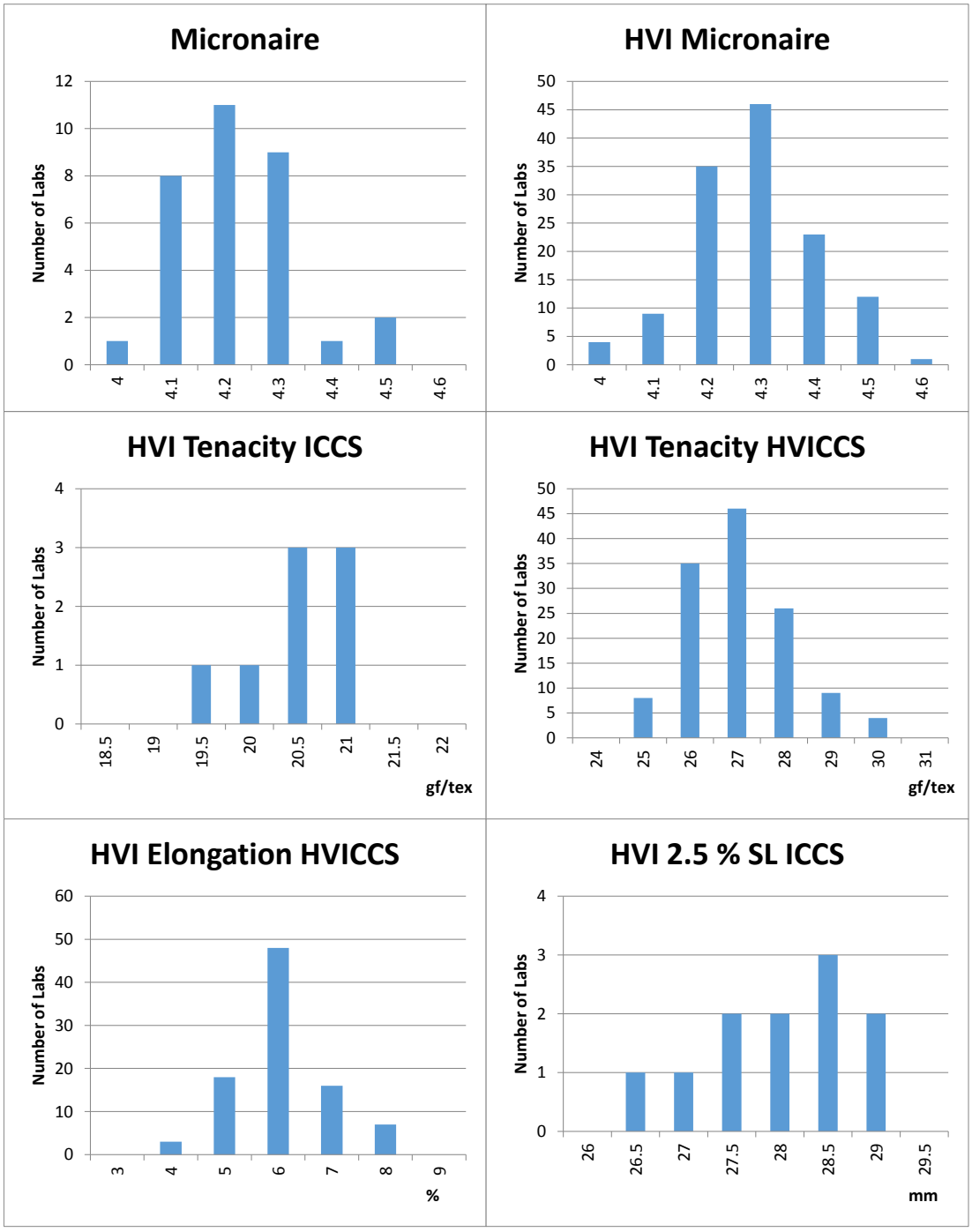
AFIS N *(table is divided into 2 pages)*					Neps
Lab.	Total Neps		SCN		
	Mean Diameter µm	Cnt/g	Mean Diameter µm	Cnt/g	
14	707	350	1183	20	
21	758	(87)			
22	708	274	1105	17	
24	696	279	1357	10	
27		280			
31	829	308	1201	13	
32	699	264	987	18	
32-2	696	274	966	18	
32-3	690	279	965	16	
38	(401)	(170)			
40	709	262	1170	12	
40-2	(792)	275	1398	18	
40-3	(810)	327	1497	27	
40-4	704	272	1093	11	
41	649	268			
44	714	276	1059	12	
51	715	274	1263	20	
58	713	276	1230	22	
58-2	673	262	780	11	
59	723	278	1008	21	
90	(959)	349	1202	19	
91	682	241	1102	8	
96-3	709	296	1013	13	
100		368		31	
101	727	268	1243	28	
102	(328)	(437)	1032	26	
109	679	261	992	13	
111	683	329	1030	22	
112	721	271	1312	18	
123	687	294	1105	15	
123-2	723	304	1039	14	
123-3	694	310	1143	16	
128		307			
129	740	247	1259	35	
132	635	291			
139	697	311	1039	15	
142	654	227			
143	700	269	1259	19	
144	702	301	1240	19	
145	733	255	1218	9	
148	691	263	980	13	
148-2	693	274	1150	15	
148-3	701	244	1210	14	
148-4		318			
154	763	291	1351	(40)	
158	699	223	968	16	

AFIS N	*(table is divided into 2 pages)*			Neps
Lab.	Total Neps		SCN	
	Mean Diameter µm	Cnt/g	Mean Diameter µm	Cnt/g
170	708	240	1342	18
176	676	312	1010	25
180	708	260	1087	18
181	722	276	1223	10
183	685	265	956	14
186	721	284	1066	27
186-2	674	298	1043	17
200	706	316	1178	22
207	719	295	1220	27
Average	704.7	283.4	1136.4	17.9
Median	703.0	276.0	1124.0	17.5
StdDev	30.88	30.03	142.48	6.05
CV	4.4	10.6	12.5	33.9
Min	635	223	780	8
Max	829	368	1497	35
n	46	52	46	46

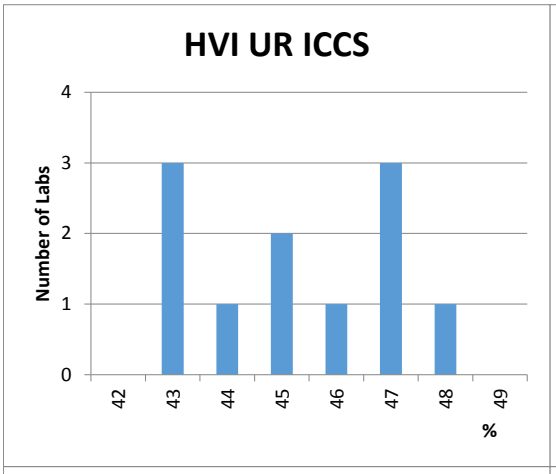
aQura *(further information see page "Multiple Devices")*							Length, Neps
Lab.	Repetitions	5.0 % L (n)	50 % L (n)	SFC (n) <12.7 mm	SFC (w) <12.7 mm	Fibre Neps	SCN
		mm	mm	%	%	Cnt/g	Cnt/g
3	4	29.8		27.6	12.9	272	46
44-2	10	27.8		28.9	13.4	291	44
114	5	29.9		28.6	13.7	299	28
127	4	29.1		33.7	17.6	319	39
Average							
Median							
StdDev							
CV							
Min							
Max							
n		4	0	4	4	4	4

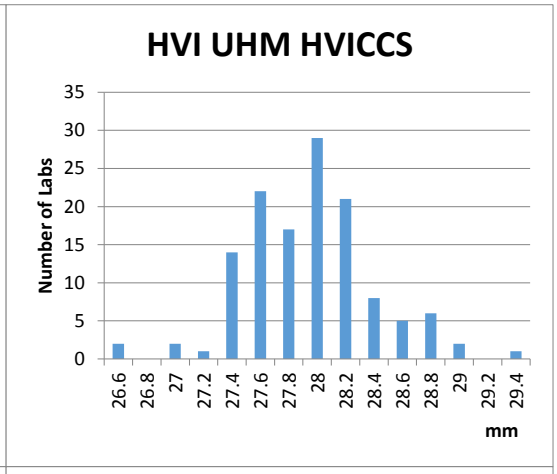
Multiple Devices		*(information not provided in the respective table)*			General
Lab.	Device	Manufacturer	Instrument	Std. Test Method	Repetitions
3	aQura	Premier		ASTM	4
32	FMT	Wira			6
32-2	FMT	Wira			6
32-3	FMT	Wira			6
37	FMT		Micromat		
44-2	aQura	Premier			10
56	Causticaire		Micronaire	JIS	2
58	ALMeter		AL 101	internal	3
70	FMT	SDL	MK.1	ASTMD3818-92	6
70	GravFineness			ISO 1973-95	5
85	GravFineness			UNIENISO1973	10
85	CombSorter		Joh.-Zweigle	UNI10170-94	1
85-2	CombSorter		Keisokki	UNI10170-94	1
85-2	GravFineness			UNIENISO1973	10
85-3	GravFineness			UNIENISO1973	10
85-3	CombSorter		Keisokki	UNI10170-94	1
85-4	CombSorter		Keisokki	UNI10170-94	1
85-4	GravFineness			UNIENISO1973	10
100	DigitalFibrograph		Fibrotest-CCS	ASTMD1447-07-12	16
100	FMT	Wira	FM-CCS	ASTMD3813-92	20
102	FMT		Micromat	ASTM	2
112	GravFineness				3
112	ALMeter				4
114	aQura	Premier	aQura2		5
127	aQura	Premier			4
128	FMT		Micromat	ASTM	8
129	Causticaire		Microscope	IS 236	
131	Causticaire		Fibroscope	British	
131	DigitalFibrograph		530	ASTM	6
132	DigitalFibrograph		Fibrotest	ASTMD1447	10
132	ALMeter	Uster	AL100	DIN 53806	5
143	DigitalFibrograph				
177	GravFineness			ASTMD1577-90	3
177	Causticaire				3
186	FMT	Wira		ASTM	6
193	GravFineness			GB/T6100-07	2

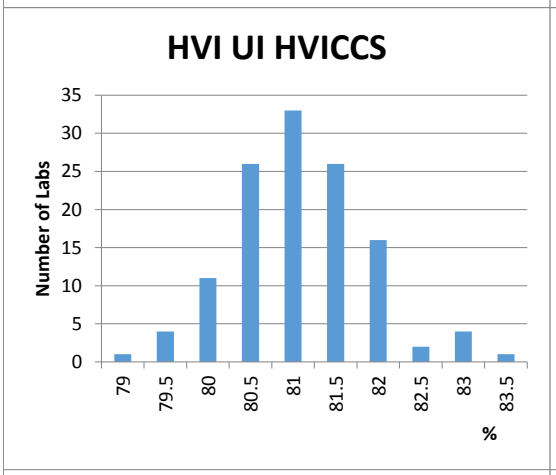
Graphics of selected round test data

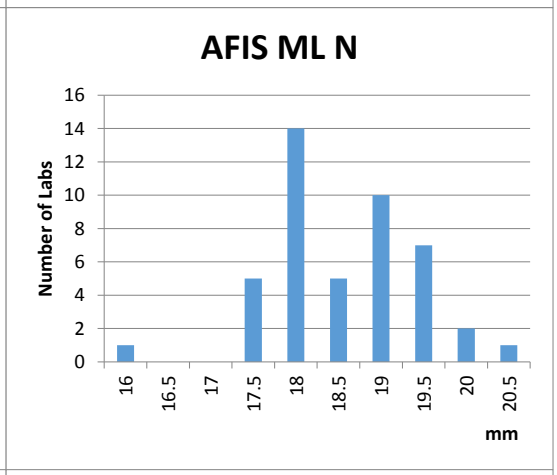


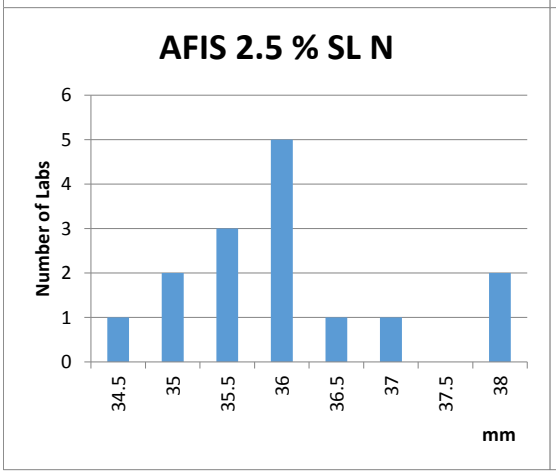
Graphics of selected round test data

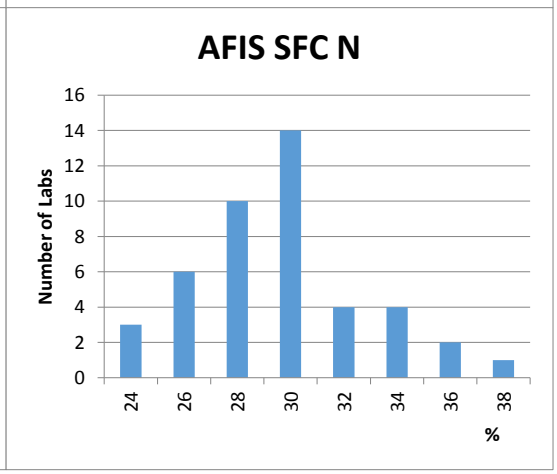




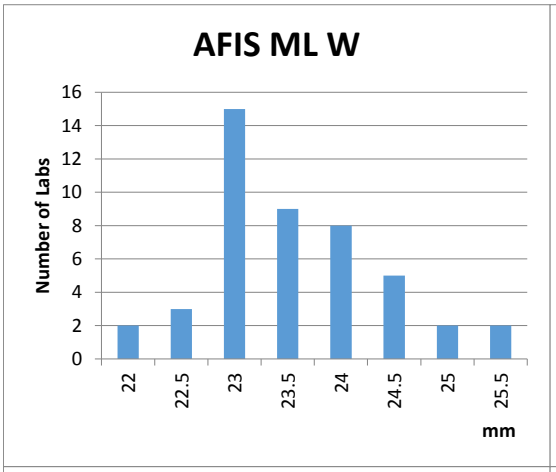


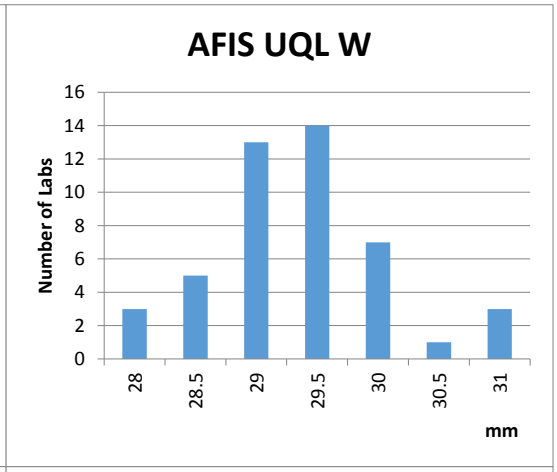


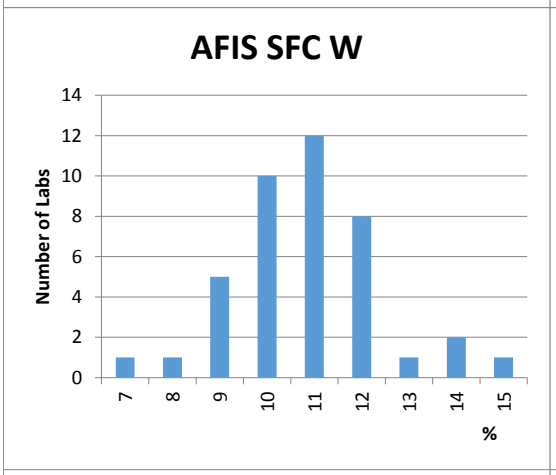


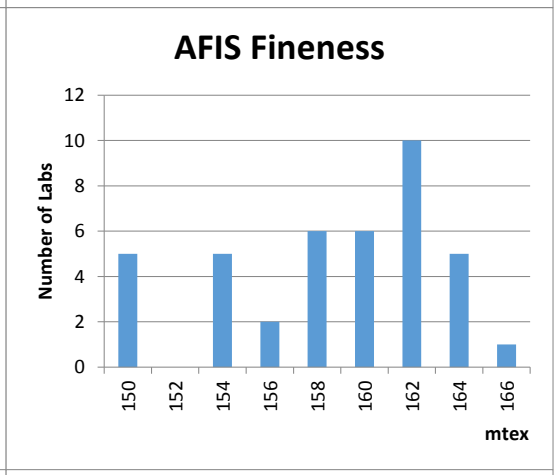


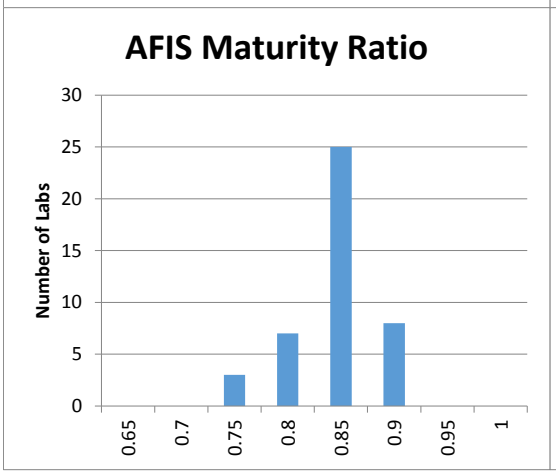
Graphics of selected round test data

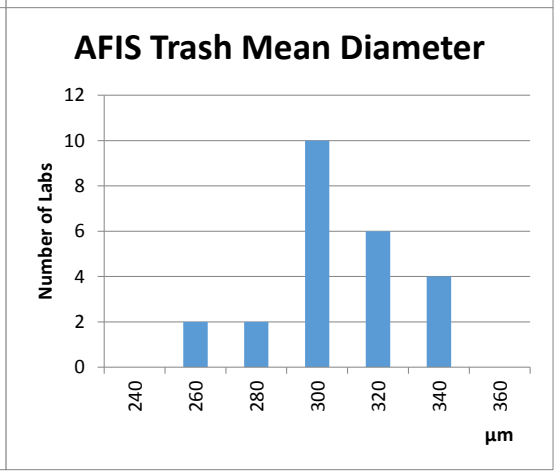












Graphics of selected round test data