

## ICA Bremen Cotton Round Test

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

Bremen, 05.09.2014

### Evaluation of the Test Results 2014 / 2

Tested Cotton: **Cameroun**      Number of Laboratories: **125**  
Cotton Number: **RM 44**

Argentina	1	Mozambique	-
Australia	1	The Netherlands	1
Bangladesh	1	Pakistan	4
Brazil	2	Poland	2
China, PR	15	Russia	1
Czech Republic	3	Serbia	1
Egypt	3	Slovenia	2
France	1	South Africa	-
Germany	11	Spain	3
Greece	5	Sudan	1
Hungary	1	Switzerland	3
India	40	Tanzania	-
Iran	1	Thailand	4
Israel	1	Turkey	2
Italy	-	Uganda	1
Japan	1	United Kingdom	-
Kazakhstan	1	United States	6
Korea, R	1	Uzbekistan	1
Latvia	1	Vietnam, SR	2
Mali	1	Zimbabwe	-
Mauritius, Rep of	-		

For any questions, please mail to [gerardi@faserinstitut.de](mailto:gerardi@faserinstitut.de)

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## ICA Bremen Cotton Round Test 2014-2

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

### 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: **Cameroun (RM 44)**

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

HVI HVICCS	SD between bale layers (based on 10 tests per layer)	SD between single tests (based on 10 times 10 tests)
Mic	0,014	0,034
Strength, g/tex	0,197	0,678
Length, UHM, inch	0,005	0,015
Length, UHM, mm	0,127	0,391

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

#### result evaluation

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

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

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### assessment of the laboratory performance

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

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

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

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

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

### laboratory numbers

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

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

### registration and participation

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

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](mailto:axel@ica-bremen.org)
- Mrs Hannelore Gerardi for questions relating to the realization of the current tests,  
Tel. +49 421 218 58671, e-mail: [gerardi@faserinstitut.de](mailto:gerardi@faserinstitut.de)

With kind regards,

Axel Drieling  
Hannelore Gerardi

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MICRONAIRE				
Lab.	Rep.	Mic.	Instrument	Standard Test Method
12	6	3.7	775	GB/T6498-05
17		3.6		
20		3.7		
22	3	3.6	Fibronaire	
29	5	3.9	Sheffield	ISO 2403
35	3	3.9	775	
37		3.7		
56	2	3.6	Fibronaire	JIS
67		3.5		
70		3.7	MK.1	ASTMD3818-92
76	3	3.5	RM1070	
77		3.4		
79		3.8	Sheffield	ASTMD1446
92	10	3.8	DigiMic XT	ASTMD1448
93	4	3.8		ASTMD1448
102	3	3.6	Fibronaire	ICCS
115	6	4.0	Kaisokki	ASTM
116		3.3	STATEX	
126	4	3.8	IIC Shirley	ISO 2403
128		3.8	Fibronaire	ASTM
129	4	3.7	Sheffield	BS 3181
131	6	3.8		ASTM
132	3	3.7	775	DIN 53941
136	4	3.7	675	internal
142	3	3.6	804000	ISO
152	3	3.8		
162	6	3.7	WIRA	
167	3	3.6	275	
168		3.7		
169	3	3.7	Sheffield	
177	3	3.8	DPM 60	DIN 53941
183	3	3.6	Fibronaire	ASTMD1448
186	6	3.8	FMT	
201	2	3.7	275	
203		3.6	900-1	
Average		3.69		
Median		3.7		
StdDev		0.14		
CV		3.78		
Min		3.3		
Max		4.0		
n		35		

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	5	8.4		ISO 3060				
35					6	21.8	6.5	
56	5	7.9		JIS				
76	5	8.0						
79		8.3		ASTMD1445				
92					5	21.5	6.0	ASTM 1445
93	6	7.5	3.5	ASTMD1445	6	21.3	8.0	ASTM 1445
102					5	20.3	6.4	ICCS
116					10	21.9	5.6	
128		6.3	3.9	ASTM		22.3	6.5	ASTM
131	6	9.1	4.8	ASTM	6	(24.1)	6.3	ASTM
132					6	21.8	6.8	DIN ISO3060
136	4		(92.1)	internal				
152	6	7.7						
162	6	8.5		TPPSI	6	21.2	5.6	
177	4	6.51		DIN 53942				
Average		7.83				21.51	6.41	
Median		7.95				21.63	6.4	
StdDev		0.87				0.6	0.73	
CV		11.14				2.79	11.32	
Min		6.3				20.3	5.6	
Max		9.1				22.3	8.0	
n		10				8	9	
Pressley	PI(0)	Av., gf/tex	41.96	StdDev, gf/tex	4.67	CV, %	11.14	
	(3.2)	Av., gf/tex	0.00	StdDev, gf/tex	0	CV, %	0	



DIGITAL - FIBROGRAPH <i>(further information see page "Multiple Devices")</i>								Span Length	
Lab.	Rep.	2.5 % SL		50 % SL		UR	SFC (N)	SFC (W)	SFI
		mm	inch	mm	inch	%	%	%	
28	10	28.1	1.11	13.1	0.52	47	7.1		6.9
35	6	26.8	1.05	12.7	0.50	47			8.2
92	6	28.7	1.13	13.3	0.52	47			9.2
93	4	28.6	1.13	14.1	0.56	49			
102	5	26.5	1.04	11.7	0.46	44			
116		26.5	1.04	13.2	0.52	50			
131	6	31.0	1.22	13.4	0.53	42			
136	10	28.7	1.13	(23.2)	(0.92)	(81)			
143	2	28.3	1.11	14.2	0.56	50			
Average		28.13	1.108	13.21	0.52	47.0			
Median		28.30	1.114	13.27	0.522	47.0			
StdDev		1.42	0.056	0.81	0.032	2.8			
CV		5.03	5.034	6.10	6.102	6.0			
Min		26.5	1.04	11.7	0.46	42			
Max		31.0	1.22	14.2	0.56	50			
n		9	9	8	8	8	1	0	3

COMB SORTER <i>(further information see page "Multiple Devices")</i>						Staple Length		
Lab.	Rep.	Instrument	N			W		
			ML	CV	< 12.5 mm	ML	CV	<12.5 mm
			mm	%	%	mm	%	%
131	6	Keisokki	20.3	37.1	20.0			

ALMETER <i>(further information see page "Multiple Devices")</i>						Staple Length		
Lab.	Rep.	N			W			
		ML	CV	< 12.5 mm	ML	CV	<12.5 mm	
		mm	%	%	mm	%	%	
58	3	19.3	37.9	22.2	22.1	32.8	11.5	
132	5	17.7	40.1	26.0	21.7	31.8	11.6	
152	5	21.1	30.0	9.5	23.1	26.7	4.5	

Maturity, Fineness <i>(further information see page "Multiple Devices")</i>					
Lab	Fibrograph	Causticaire (18 % NaOH)	Microscopic Test		Gravimetric Fineness
	%	%	ASTM, %	BS, %	dtex
56		78			
70					1.56
79					1.47
129		72			
131		67			
177		78			1.89

IIC/SHIRLEY FM-TESTER (further information see page "Multiple Devices")				Maturity, Fineness
Lab.	Rep.	PM, %	MAT	FIN, mtex
37		81.3	0.95	157
70	6	86.8	0.99	139
93	4	80.5	0.9	145
102	2	72.4	0.81	158
128	8	73.0	0.82	161
186	6	76.2	0.86	158
Average		78.37	0.888	153.0
Median		78.36	0.88	157.4
StdDev		5.53	0.072	8.8
CV		7.06	8.099	5.8
Min		72.4	0.81	139
Max		86.8	0.99	161
n		6	6	6

HVI <i>(table is divided into 3 pages)</i>					General		
Lab.	Manufacturer	Instrument	Std. Test Method	Rep.	Each rep. consisting of		
					Mic. meas.	Combs for length/strength	Color readings
4	USTER	900		5	1	2	2
5	USTER	1000 Line4		12	1	2	2
5-2	USTER	1000 Line5		12	1	2	2
7	USTER			10	1	2	2
8	USTER	Spectrum I	ASTMD5867-05	6	10	10	10
12	USTER	Spectrum I	SN/T1512-11	12	1	1	1
13	USTER	Spectrum	internal	10	1	1	1
16	USTER	Spectrum	SN/T1512-05	12	1	2	2
19	USTER	1000	SN/T1512-11		1	2	2
27	USTER	900 A	ASTMD5867-05	6	1	2	2
28	Textechno	Fibrotest			10		
31	USTER	900		6	1	2	2
32	USTER	900 A	internal	1	4	10	4
33	Premier	HFT	ICC	5	1	2	2
34	Premier	HFT	HVI Test Method	5	1	1	1
36	USTER	1000			1	2	2
38	USTER	1000			1	2	2
41	USTER	Spectrum		5			
43	USTER	1000			1	2	2
43-2	USTER				1	2	2
44	USTER	Spectrum	Manufacturer	10	1	1	1
48	Premier	HFT	ASTMD5867-05	8	1	2	2
49	USTER	1000			1	2	2
50	USTER	1000	internal	6	1	2	2
50-2	USTER	1000	internal	6	1	2	2
50-3	USTER	1000	internal	6	1	2	2
52	USTER	1000	ASTM	6	6	6	6
54	USTER	Spectrum	USDA		1	2	2
56	USTER	Spectrum I	HVI Test Method	5	1	2	2
58	USTER	1000	internal	10	1	2	2
60	USTER	1000M700	ASTM	6	1	2	2
60-2	USTER	1000	ASTM		1	2	2
61	USTER	900	ASTMD5867-05	6	1	2	2
62	Premier	ART 2	ASTM	6	6	6	6
71	USTER	Spectrum	SN/T1512-11	6	1	1	1
71-2	USTER	1000	SN/T1512-11	6	1	2	2
72	USTER	1000		10	2	2	2
78	USTER	Spectrum I		6	1	2	2
79	USTER	900			1	2	2
80	USTER	1000		10	1	1	1
83	USTER	Spectrum I	SN/T1512-11	6	1	2	2
84	USTER	1000	USDA	12	1	1	1
87	USTER	Spectrum	ASTMD5867-05	8	1	2	
87-2	USTER	1000	ASTMD5867-05	8	1	2	2
89	USTER	1000		10	1	2	2
89-2	USTER	1000		10	1	2	2
90	USTER	1000	ASTMD5867	10	1	2	2
91	USTER	1000		6	1	2	2
92	MAG	HVT Expert 1201	ASTMD5867	6	1	2	2
96	USTER	1000	GB/T20392-06	5	1	2	2
98	USTER	1000	USDA. ASTM	10	1	2	4
101	USTER	1000	ASTMD5867-12	6	1	2	2
102	USTER	900 B	ASTMD5867	1	3	6	4
102-2	USTER	Spectrum 1	ASTMD5867	6	1	1	1
102-3	USTER	SW700V3.1.3.18	ASTMD5867	6	1	1	1

HVI <i>(table is divided into 3 pages)</i>					General		
Lab.	Manufacturer	Instrument	Std. Test Method	Rep.	Each rep. consisting of		
					Mic. meas.	Combs for length/strength	Color readings
104	USTER	1000	USDA		1	2	2
105	USTER	Spectrum	Manufacturer	6	1	2	2
107	Premier	ART 2	ASTMD5867-05	6	1	2	2
108	USTER	1000	ASTMD5867-12	12	1	1	1
111	USTER	1000		6	1	2	2
115	Statex	Fibrotex	ASTM	6	1	2	
117	USTER	Spectrum	SN/T1512-11	12	1	1	1
118	USTER	1000M700	ASTMD5867-05	5	1	2	2
120	USTER	900 SA	ASTM	10	2	1	2
121	USTER	1000	SN/T1512-11		1	2	2
122	USTER	1000		5	1	2	2
123	USTER	Spectrum	ASTMD5867-05	8	1	1	1
125	USTER	1000	ASTM	6	6	6	6
126	Premier	HFT	ASTM	6	1	2	
128	USTER		ASTMD5867-12	10	1	2	2
129	USTER	900 SA	ASTMD5867	6	1	2	2
130	Premier	ART 2	ICC	6	1	2	2
131	USTER	900 A	USDA	6			
132	Textechno	Fibrotex		1		6	
134	USTER	Spectrum I	ASTMD5867-95	6	1	2	2
135	USTER	Spectrum I	ASTMD5867-95	6	1	2	2
143	Premier	ART		6	1	2	2
143-2	USTER	Spectrum		6	1	2	2
146	USTER	Spectrum		4	1	2	4
148	USTER	1000		6	1	2	2
154	USTER	900 A		10	1	2	2
156	USTER	Spectrum	USDA. ASTM	6	1	2	2
158	USTER	900		6	1	2	2
158-2	USTER	900		6	1	2	2
162	USTER	900 A	HVI Mode	6	1	2	2
176	USTER	1000	HVICC	10	1	2	2
179	USTER	1000	SN/T1512-12	4	1	2	2
183	USTER	1000	ASTMD5867-05	6	1	2	2
186	USTER	900		10	2	10	
201	USTER	900		6	1	2	2
202	Premier	ART	HVI Mode	10	1	2	2
203	USTER	900			1	2	2
204	Premier	HFT	GB/T20392-06	10	1	2	2
204-2	USTER	1000	GB/T20392-06	10	1	2	2
204-3	USTER	Spectrum I	GB/T20392-06	10	1	2	2
207	USTER	1000	ASTMD5867-12	10	1	2	2
207-2	USTER	1000	ASTMD5867-12	10	1	2	2
207-3	USTER	1000	ASTMD5867-12	10	1	2	2
207-4	USTER	1000	ASTMD5867-12	10	1	2	2
207-5	USTER	1000	ASTMD5867-12	10	1	2	2
209	Premier	ART 2	ASTM5867-05	6	1	2	2
209-2	MAG	HVT Expert 1201	ASTMD5867-05	6	1	2	2
213	Premier	ART	ICC	5	1	2	2
215	MAG	HVT Expert 1201	ASTMD5867-05	6	1	2	2
216	MAG	HVT Expert 1201	ASTMD5867-05	6	1	2	2
217	MAG	HVT Expert 1201	ASTMD5867-05	6	1	2	2
218	MAG	HVT Expert 1201	ASTMD5867-05	6	1	2	2
218-2	MAG	HVT Expert 1201	ASTMD5867-05	6	1	2	2
219	Premier	HFT		8	1	2	2
223	Premier	ART	ICC	4	1	2	2

HVI <i>(table is divided into 3 pages)</i>					General		
Lab.	Manufacturer	Instrument	Std. Test Method	Rep.	Each rep. consisting of		
					Mic. meas.	Combs for length/strength	Color readings
238	Premier	ART	ICC	10	1	2	2
251	Premier	ART	ICC	5	1	2	2
267	Premier	ART	HVI Mode	6	1	2	2
271	Premier	ART	internal	10	1	1	1
271-2	USTER	900	internal	10	1	1	1
272	Premier	ART		6	1	1	2
287	Premier	ART 2	USDA	10	1	2	2
288	Premier	ART 2	Manufacturer	5	1	2	2
295	Premier	HFT		4	1	2	2
300	Premier	ART	ASTM		1	2	2
318	Premier	HFT	HVI User's Guide		1	2	2
319	Premier	ART	ASTMD5867-95	10	1	1	1
320	MAG	HVT Expert 1201	ASTM	10	1	1	1

HVI		<i>(table is divided into 3 pages)</i> Micronaire, Tenacity, Elongation			
Lab.	Micronaire	Tenacity		Elongation	
		ICCS, gf/tex	HVICCS, gf/tex	ICCS, %	HVICCS, %
4	3.8		27.9		6.9
5	3.7		28.8		7.1
5-2	3.7		30.1		7.6
7	3.8		27.0		7.6
8	3.5		28.9		9.3
12	3.7		29.0		6.5
13	3.7		29.4		5.9
16	3.8		27.7		6.4
19	3.7		28.6		6.6
27	3.8		28.3		6.1
28			29.6		
31	3.5	21.7	28.2	5.3	5.3
32	3.7		30.0		6.4
33	3.8	21.7		5.4	
34	3.8		30.1		6.8
36	3.6		29.2		6.6
38	(4.2)		29.7		3.3
41	3.8		31.7		3.7
43	3.8		28.5		5.9
43-2	3.9		29.4		5.9
44	3.8		28.8		7.6
48	3.7		30.1		6.6
49	3.8		28.3		7.3
50	4.0		28.8		7.2
50-2	4.0		28.1		9.7
50-3	3.8		28.2		6.9
52	3.8		28.1		7.5
54	3.8		29.4		4.4
56	3.6		28.1		5.4
58	3.8		28.0		8.6
60	3.8		30.0		6.1
60-2	3.8		29.4		10.1
61	3.8	21.3	29.4	5.9	7.6
62	3.7	21.6	31.3	6.4	6.1
71	3.7		29.0		6.5
71-2	3.9		27.3		8.1
72	3.8		27.1		
78	3.7		27.1		7.1
79	3.8		30.5		6.2
80	3.8		28.5		6.9
83	3.6		28.0		6.4
84	3.8		28.3		5.8
87	3.7		27.7		6.5
87-2	3.8		29.8		10.1
89	3.8		28.8		7.9
89-2	3.7		28.4		7.6
90	3.8		30.5		6.9
91	3.8		27.3		6.0
92	3.8	21.3	29.3	6.0	6.5
96	3.8		28.6		5.9
98	3.8		28.4		
101	3.8		28.1		5.5
102	3.6		28.6		5.0

HVI		<i>(table is divided into 3 pages)</i> Micronaire, Tenacity, Elongation			
Lab.	Micronaire	Tenacity		Elongation	
		ICCS, gf/tex	HVICCS, gf/tex	ICCS, %	HVICCS, %
102-2	3.6		29.2		5.7
102-3	3.8		27.9		6.1
104	3.8		28.8		5.5
105	3.8		29.5		6.7
107	3.8		29.5		
108	3.8		29.0		5.8
111	3.8		28.4		(10.8)
115	4.0	22.9		5.9	
117	3.9		28.0		7.1
118	3.9		28.9		6.5
120	3.8		27.7		8.6
121	3.8		29.1		7.2
122	3.8		30.1		5.9
123	3.7	22.5	27.8	(8.3)	8.2
125	3.9		28.2		7.7
126	3.9		29.3		5.8
128	3.8		28.7		6.7
129	3.7	22.2	30.2	6.5	6.2
130	3.7	21.6	29.1	6.0	6.6
131	3.6				
132			30.5		7.2
134	3.7		30.3		8.5
135	3.7		29.0		6.3
143	3.8		28.5		6.8
143-2	3.8		27.6		7.6
146	3.7		30.0		
148	3.8		28.4		7.5
154	3.8		27.0		8.2
156	3.7		28.4		8.1
158	3.7		29.2		7.3
158-2	3.8		29.4		6.8
162	3.7		31.0		6.8
176	3.8		28.0		6.4
179	3.9		28.8		6.2
183	3.8		29.6		6.3
186	3.7	20.2	26.1	7.3	6.8
201	3.7		28.9		7.0
202	3.7		28.1		5.9
203	3.6		32.0		
204	3.9		27.2		6.4
204-2	3.8		28.7		7.3
204-3	3.8		28.7		8.8
207	3.8		28.6		7.0
207-2	3.8		28.8		7.2
207-3	3.8		28.8		7.1
207-4	3.8		28.6		7.9
207-5	3.8		29.4		7.3
209	3.8		29.8		5.6
209-2	3.8		29.6		5.8
213	3.7	20.9		6.4	
215	3.6		29.8		5.4
216	3.8		29.2		5.5
217	3.8		29.3		5.6



HVI		<i>(table is divided into 3 pages)</i> Micronaire, Tenacity, Elongation			
Lab.	Micronaire	Tenacity		Elongation	
		ICCS, gf/tex	HVICCS, gf/tex	ICCS, %	HVICCS, %
218	3.8		29.5		6.2
218-2	3.7		26.2		5.3
219	3.8		30.8		
223	3.6	21.2		5.7	
238	(3.3)	24.4		6.4	
251	3.7	21.5		6.1	
267	3.6		28.6		6.7
271	3.8		28.2		6.4
271-2	4.0		30.8		(2.0)
272	3.8		29.1		(2.4)
287	3.8	21.1	29.3	5.9	6.6
288	(3.1)	23.4		5.8	
295	3.8	22.8		6.5	
300	3.6		30.9		6.8
318	3.9		30.1		
319	3.8	21.1	27.1	5.9	5.5
320	3.7	22.2		6.4	
Average	3.76	21.87	28.91	6.1	6.73
Median	3.79	21.6	28.8	6.0	6.6
StdDev	0.09	0.99	1.08	0.46	1.14
CV	2.44	4.53	3.73	7.62	17.0
Min	3.5	20.2	26.1	5.3	3.3
Max	4.0	24.4	32.0	7.3	10.1
n	118	19	113	18	102

HVI <i>(table is divided into 3 pages)</i>						Length
Lab.	ICCS			HVICCS		
	2.5 % SL		UR	UHM		UI
	mm	inch	%	mm	inch	%
4				28.3	1.11	82.0
5				28.3	1.11	80.5
5-2				28.2	1.11	80.8
7				27.6	1.09	80.1
8				(26.6)	(1.05)	(78.2)
12				27.4	1.08	81.0
13				28.2	1.11	81.2
16				27.7	1.09	81.6
19				27.9	1.10	80.6
27				28.0	1.10	81.9
28				28.3	1.11	83.0
31	26.5	1.04	43.7	27.1	1.07	83.0
32				28.6	1.12	81.7
33	28.3	1.12	46.5			
34				28.6	1.12	80.8
36				28.0	1.10	80.6
38				27.7	1.09	80.7
41				27.5	1.08	81.9
43				27.9	1.10	80.3
43-2				28.0	1.10	81.2
44				27.8	1.09	81.5
48				28.9	1.14	80.9
49				28.2	1.11	80.9
50				27.8	1.09	80.7
50-2				28.0	1.10	80.2
50-3				27.8	1.10	81.2
52				27.7	1.09	80.3
54				28.0	1.10	82.0
56				27.5	1.08	80.3
58				27.8	1.09	80.0
60				28.0	1.10	80.7
60-2				28.7	1.13	81.5
61	27.5	1.08	46.0	27.5	1.08	78.9
62	28.7	1.13	47.0	28.4	1.12	82.0
71				28.4	1.12	
71-2				28.0	1.10	
72				27.8	1.09	81.1
78				28.1	1.10	81.1
79				28.4	1.12	81.1
80				28.1	1.11	81.0
83				27.8	1.09	81.3
84				28.6	1.12	82.3
87				27.8	1.09	80.5
87-2				28.1	1.11	79.7
89				28.1	1.11	80.8
89-2				28.2	1.11	81.1
90				28.5	1.12	81.3
91				27.9	1.10	80.5
92	28.8	1.14	47.2	28.9	1.14	82.0
96				28.6	1.13	81.2
98				27.9	1.10	80.7
101				27.9	1.10	80.7

HVI <i>(table is divided into 3 pages)</i>						Length
Lab.	ICCS			HVICCS		
	2.5 % SL		UR	UHM		UI
	mm	inch	%	mm	inch	%
102				27.9	1.10	80.6
102-2				28.0	1.10	81.2
102-3				28.4	1.12	80.7
104				28.0	1.10	80.9
105				27.6	1.09	80.4
107				28.4	1.12	82.3
108				28.2	1.11	81.6
111				28.0	1.10	81.6
115	29.1	1.15	46.5			
117				27.5	1.08	81.1
118				28.2	1.11	81.2
120				27.4	1.08	79.9
121				27.7	1.09	80.7
122				28.2	1.11	81.3
123	29.1	1.14	(13.5)	28.4	1.12	80.3
125				27.6	1.09	80.6
126				27.6	1.09	79.6
128				28.1	1.11	
129	29.0	1.14	48.0	28.9	1.14	82.0
130	28.3	1.11	46.9	27.8	1.10	80.6
132				27.0	1.06	82.2
134				28.5	1.12	80.4
135				28.5	1.12	81.7
143				27.7	1.09	81.3
143-2				27.7	1.09	81.0
146				27.6	1.09	79.8
148				28.3	1.11	81.1
154				29.0	1.14	81.5
156				28.2	1.11	79.8
158				28.2	1.11	81.5
158-2				28.4	1.12	82.0
162				28.6	1.13	81.8
176				28.2	1.11	82.0
179				28.2	1.11	80.0
183				28.2	1.11	81.1
186	27.6	1.09	45.8	28.4	1.12	80.9
201				28.4	1.12	80.6
202				28.8	1.13	81.8
203				28.4	1.12	
204				27.7	1.09	82.0
204-2				28.1	1.10	81.1
204-3				28.1	1.11	81.0
207				28.1	1.11	81.0
207-2				27.9	1.10	80.6
207-3				28.0	1.10	81.5
207-4				28.0	1.10	81.1
207-5				27.9	1.10	80.8
209				28.4	1.12	82.8
209-2				28.5	1.12	83.1
213	27.2	1.07	44.7			
215				28.2	1.11	81.9
216				28.4	1.12	82.4

HVI <i>(table is divided into 3 pages)</i>						Length
Lab.	ICCS			HVICCS		
	2.5 % SL		UR	UHM		UI
	mm	inch	%	mm	inch	%
217				28.4	1.12	82.1
218				28.2	1.11	82.6
218-2				27.3	1.08	81.1
219				28.2	1.11	81.8
223	27.3	1.08	45.5			
238	26.7	1.05	48.9			
251	27.9	1.10	44.0			
267				28.4	1.12	81.1
271				29.3	1.16	81.9
271-2				28.4	1.12	81.5
272				27.8	1.10	81.7
287	28.7	1.13	46.3	28.3	1.12	81.8
288	29.3	1.15	45.2			
295	28.9	1.14	47.3			
300				28.2	1.11	82.0
318				28.6	1.13	82.0
319	27.5	1.08	44.0	29.2	1.15	80.8
320	28.8	1.13	44.0			
Average	28.17	1.109	45.98	28.11	1.107	81.18
Median	28.33	1.115	46.16	28.13	1.107	81.1
StdDev	0.86	0.034	1.49	0.41	0.016	0.77
CV	3.05	3.052	3.25	1.47	1.471	0.95
Min	26.5	1.04	43.7	27.0	1.06	78.9
Max	29.3	1.15	48.9	29.3	1.16	83.1
n	19	19	18	112	112	108

HVI				Color, Trash		
Lab.	Color			Trash		
	Rd	+b	CG	leaf	area	cnt
4	76	11.7	13-1	5	(1.06)	7
5	77	11.7	13-1	2	0.12	19
5-2	77	11.9	13-1	2	0.1	16
7	75	12.7	13-3		0.11	16
8	76	13.4	13-3	3	0.24	13
12	76	11.9	13-1	1	0.11	11
13	77	11.3	12-1		0.06	5
16	77	11.4	12-1	1	0.07	7
19	75	11.8	13-1	1	0.15	14
27	76	12.0	13-1	1	0.15	12
31	76	11.8	13-2	1	0.05	10
32	74	(15.5)	24-3			
33	(70)	13.3	24-2		(1.74)	
34	75	11.3	23-1			
36	77	12.0	13	2	0.16	18
38	77	12.2	13-1	1	0.13	17
41	73	12.6	13-4		0.14	11
43	77	12.3	13-1		0.12	14
43-2	77	11.7	13	2	(11.00)	14
44	77	12.1	13-1		0.09	1
48	76	11.6	13-1			
49	77	12.1	13-1	1	0.13	17
50	78	11.8	12-1	1	0.14	13
50-2	78	11.8	12-1	1	0.13	14
50-3	78	12.2	13-1	2	0.17	22
52	77	12.5	13-1	2	0.15	19
54	76	12.2	13-1	1	0.07	4
56	77	12.1	13-1	1	0.1	9
58	77	12.5	13-1	1	0.17	14
60	78	12.5	13-1	1	0.1	13
60-2	77	12.0	13-1	1	0.14	19
61	73	12.5	13-4			
71	76	11.7			0.08	6
71-2	77	11.9			0.13	18
72	77	12.5	13-1		0.13	16
78	76	(10.3)	22-1	1	0.09	10
79	75	10.8	22-1	1	0.24	19
80	78	12.5	13-1	1	0.15	28
83	78	12.2	13-1		0.05	4
84	77	12.4	13-1	3	(0.34)	16
87-2	77	12.0	13-1	1	0.11	16
89	77	12.1	13-1	2	0.14	16
89-2	78	12.1	13-1	2	0.14	18
90	78	11.6	12-1		0.1	12
91	78	11.6	12-1	1	0.14	14
92	77	11.2	12-1			
96	77	12.1				
98	77	12.0			0.12	14
101	76	11.7	13-1	1	0.16	26
102	76	11.6				
102-2	76	12.0	13-1	1	0.09	11
102-3	76	12.2		2	0.21	24
104		12.1	13-1		0.16	18

HVI				Color, Trash		
Lab.	Color			Trash		
	Rd	+b	CG	leaf	area	cnt
105	77	11.8	13-1	1	0.1	9
107	76	11.6	13-2			
108	77	12.4	13-1	2	0.18	25
111	77	11.6			0.16	17
117	77	12.1	13-1	1	0.1	9
118	76	12.2	13-1	19	0.14	1
120	75	11.3	12-2			
121	78	12.1	13-1		0.11	16
122	77	12.4	13	1	0.18	13
123	76	11.8	13-1	1	0.15	16
125	77	12.6	13-1	2	0.17	21
128		12.1			0.13	14
129	75	12.4	13-1			
130	77	12.2	13-1			
131	75	12.9				
134	76	12.3	13-1	1	0.09	10
135	75	11.7	13-2	1	0.1	15
143	78	11.1	12-1	1	0.1	9
143-2	78	12.2	13-1	1	0.07	4
146	75	11.8	13-2	1	0.13	11
148	77	11.5	12-1	1	0.15	16
154	76	11.5	12-1	1	0.1	9
156	77	11.7	12-1			
158	76	12.0	13-1	1		1
158-2	76	11.7	13-1	1	0.1	8
162	75	12.5	13-3			
176	77	12.2	13-1	1	0.16	26
179	77	12.2	13-1	1	0.14	19
183	77	12.6	13-1	1	0.1	11
201	75	12.1	13-1	1	0.12	6
202	73	12.8	13-4			
203	77	10.6	12-2	1	0.11	8
204	76	12.2	13-1			
204-2	76	12.3	13-1	1	0.11	14
207	77	12.1	13-1	1	0.1	12
207-2	77	12.3	13-1	1	0.11	13
207-3	77	12.2	13-1	1	0.12	15
207-4	77	12.0	13-1	1	0.13	15
207-5	77	12.2	13-1	1	0.18	16
209	76	11.5	13-2			
209-2	76	11.4	13-2			
213	75	10.9	22-1			
215	77	(13.8)	13-3	3		
216	77	12.1	13-1			
217	79	10.5	12-1			
218	76	11.4	13-2			
218-2	73	11.4	23-1			
223	76	12.2	13-1			
238	(59)	13.2	54-3			
251	(72)	(16.3)	24-3			
267	78	11.7	12-1			
271	77	11.8	13-1	5	(0.54)	(33)
271-2	75	12.1	13-2			

HVI				Color, Trash		
Lab.	Color			Trash		
	Rd	+b	CG	leaf	area	cnt
272	79	12.6	13-1			
287	76	12.0	13-1			
288	77	11.9	13-1			
300	74	11.9	13-2			
319	(71)	11.3	33-1			
320	74	11.0	23-2			
Average	76.4	11.98			0.126	13.5
Median	76.7	12.0			0.13	14.0
StdDev	1.2	0.51			0.038	5.8
CV	1.6	4.22			30.169	42.8
Min	73	10.5			0.05	1
Max	79	13.4			0.24	28
n	106	108			71	75

HVI		<i>(table is divided into 3 pages)</i>			Short Fibre Index, Maturity	
Lab.	ICCS SFI	HVICCS SFI	PM %	Maturity Ratio		
4		(3.1)				
5		8.8				
5-2		9.0				
7		9.8				
8		11.9			0.85	
12		10.9			0.84	
13		8.5			0.85	
16		11.3			0.85	
19		10.2			0.85	
27		8.8			0.85	
28		6.9				
32		10.7				
33	6.7				0.82	
34		9.5			0.82	
38					0.85	
41		8.2			0.87	
43		9.4				
44		10.4			0.86	
48		9.3				
49		7.9			0.84	
50		8.8			0.85	
50-2		11.0			0.83	
50-3		9.3			0.85	
52		10.2			0.83	
54		9.2			0.86	
56		(13.7)				
58		11.0			0.83	
60		8.9			0.85	
60-2		10.4			0.82	
61	9.4	10.0				
62	6.1	9.2				
71					0.85	
71-2					0.84	
72		9.8				
78		12.6			0.84	
80		10.2			0.84	
84		8.8	85			
87		11.0			0.84	
87-2		10.7			0.82	
89		10.5			0.84	
89-2		9.7			0.84	
90		9.3			0.84	
91		10.9			0.85	
92	9.7	9.2			0.82	
101		10.5			0.85	
102-2		7.1			0.84	
102-3		8.6			0.85	
104		9.6			0.86	
105		10.1				
107		9.1			0.85	
108		8.5			0.85	
111		10.0			0.82	
115	3.4					



HVI		Short Fibre Index, Maturity		
<i>(table is divided into 3 pages)</i>				
Lab.	ICCS SFI	HVICCS SFI	PM %	Maturity Ratio
117		9.9		0.85
118		9.5		0.84
120		8.8	82	
121		9.3		0.84
122		9.9		0.85
123	10.7	9.9		0.87
125		10.1		0.84
126		11.5		
128		9.5	76	0.85
130	6.2	10.6		0.85
132		7.9		
134		9.5		0.83
135		7.6		0.85
143		10.5		0.81
143-2		10.4		0.84
146		10.6		0.87
148		11.7		0.84
154		7.1		
156		11.0		0.88
158		9.0		0.84
158-2		8.2		0.84
162		8.5		
176		8.7		0.85
179		10.7		0.85
183		9.0		0.85
186	7.9	7.6		
201		10.1		0.82
202		8.8		0.81
203		8.8		0.82
204		9.2		0.81
204-2		9.6		0.84
204-3		7.8		0.88
207		9.3		0.84
207-2		9.9		0.84
207-3		9.0		0.84
207-4		9.8		0.84
207-5		10.2		0.84
209		8.4		0.85
209-2		8.2		0.86
213	10.0			
215		9.4		(0.78)
216		8.2		(0.78)
217		8.0		(0.78)
218		8.5		0.84
218-2		10.4		(0.77)
219		10.0		0.82
223	9.0			
238				0.82
251	9.4			0.82
267		9.9		0.84
271		8.8		
272		8.7		0.81
288	10.0			

HVI		<i>(table is divided into 3 pages)</i>			Short Fibre Index, Maturity	
Lab.	ICCS SFI	HVICCS SFI	PM %	Maturity Ratio		
295	5.1			0.83		
300		8.3				
318		9.4		0.82		
319	13.7	9.2		0.81		
320	5.7			(0.77)		
Average	8.2	9.49		0.841		
Median	9.0	9.44		0.84		
StdDev	2.66	1.1		0.016		
CV	32.39	11.55		1.868		
Min	3.4	6.9		0.81		
Max	13.7	12.6		0.88		
n	15	97	3	80		

AFIS				General
Lab.	Manufacturer	Instrument	Std. Test Method	Repetitions
7	USTER			10
22	USTER	Autojet		10
27	USTER			
31	USTER			5
32	USTER	AFIS Pro 2		10
38	USTER			
39	USTER			
41	USTER			
43	USTER			5
44	USTER	AFIS Pro	internal	10
51	USTER		ISO-9001	5
58	USTER		internal	10
80	USTER			10
90	USTER		Manufacturer	10
91	USTER	AFIS Pro 2		10
91-2	USTER	MN100		10
101	USTER	296350	B-PA F02	5
101-2	USTER	AFIS Pro 2	B-PA F02	5
102	USTER		ICCS	3
105	USTER		Manufacturer	5
111	USTER	AFIS Pro 2		10
111-2	USTER	MD 100		
118	USTER		ASTMD5866-05	5
120	USTER	AFIS Pro 2	ASTM	8
123	USTER		ASTMD5866-05	10
123-2	USTER	AFIS Pro	ASTMD5866-05	10
123-3	USTER	AFIS Pro 2	ASTMD5866-05	10
128	USTER		ASTM	4
129	USTER	AFIS Pro	ASTMD5866-12	5
132	USTER			
134	USTER	AFIS Pro	ASTMD5848-95	5
142	USTER			5
143	USTER		ASTM5866	5
148	USTER	AFIS Pro 2		10
148-2	USTER	AFIS Pro		10
154	USTER			10
158	USTER			5
176	USTER			10
183	USTER	AFIS Pro	ASTMD5866-05	5
186	USTER		Manufacturer	10
186-2	USTER	AFIS Pro	Manufacturer	10
207	USTER	AFIS Pro	ASTMD5866-05	10
238	USTER			
271	USTER		internal	10
272	USTER			6
288	USTER		Manufacturer	4

AFIS L								Length
Lab.	N							
	ML		CV	2.5 %		5%		SFC
	mm	inch	%	mm	inch	mm	inch	%
7	16.9	0.67	58.0	36.6	1.44	33.2	1.31	37.2
22	18.5	0.73	53.3	36.3	1.43	33.5	1.32	31.4
31	20.2	0.80	47.7	37.3	1.47	34.4	1.35	24.1
32	17.5	0.69	56.3			33.0	1.30	31.8
38	20.3	0.80	50.0	37.8	1.49	34.9	1.37	24.0
39	17.7	0.70	50.4	34.6	1.36	32.0	1.26	29.5
41	19.0	0.75	45.5	35.4	1.39	32.7	1.29	24.9
43	17.8	0.70	(39.0)			33.3	1.31	33.3
44	19.0	0.75	49.2			33.4	1.31	27.0
51	18.5	0.73	51.3			33.3	1.31	27.0
58	18.7	0.74	50.2	35.7	1.41	33.2	1.31	28.6
80	16.0	0.63	(66.3)			32.3	1.27	40.4
90	18.5	0.73	54.2	36.5	1.44	33.8	1.33	30.2
91	18.1	0.71	53.0			33.2	1.31	28.9
101	17.9	0.70	55.5	37.4	1.47	34.0	1.34	34.9
101-2	18.3	0.72	51.5			33.0	1.30	27.8
102	19.1	0.75	50.0	36.2	1.43	33.3	1.31	27.8
105	18.0	0.71	54.2	35.8	1.41	33.0	1.30	32.7
111	18.0	0.71	53.8					32.1
118	19.3	0.76	49.0	36.7	1.44	33.9	1.33	26.8
120	17.5	0.69	56.0			32.9	1.30	32.1
123	19.8	0.78	47.0			33.9	1.33	24.3
123-2	18.2	0.72	54.1			33.4	1.31	29.7
123-3	17.5	0.69	55.6			32.8	1.29	32.1
129	19.1	0.75	51.8			34.1	1.34	26.4
134	18.3	0.72	(2.9)			32.8	1.29	30.8
142	18.3	0.72	48.1	34.5	1.36	32.0	1.26	26.3
143	18.0	0.71	58.0	37.1	1.46	34.0	1.34	33.7
148	18.0	0.71	51.9			32.6	1.28	29.0
148-2	17.8	0.70	53.6			33.0	1.30	31.4
154	19.5	0.77	50.9	36.5	1.44	34.0	1.34	26.2
158	18.3	0.72	56.5	36.3	1.43	33.8	1.33	31.4
176	19.5	0.77	50.8	36.6	1.44	33.9	1.33	33.5
183	18.0	0.71	53.5			33.3	1.31	32.3
186	19.0	0.75	52.2	36.6	1.44	33.9	1.33	29.4
186-2	19.1	0.75	52.0			33.9	1.33	26.9
207	18.9	0.74	50.1			33.6	1.32	25.5
271	17.8	0.70	55.8	36.1	1.42	33.3	1.31	34.5
272	17.5	0.69	51.7	35.1	1.38	32.3	1.27	30.6
288	18.5	0.73	53.2	37.2	1.46	34.4	1.35	31.2
Average	18.4	0.724	52.32	36.3	1.429	33.36	1.314	29.94
Median	18.3	0.72	52.0	36.5	1.437	33.3	1.311	29.95
StdDev	0.86	0.034	3.02	0.88	0.035	0.67	0.026	3.66
CV	4.68	4.676	5.77	2.43	2.432	2.0	1.997	12.21
Min	16.0	0.63	45.5	34.5	1.36	32.0	1.26	24.0
Max	20.3	0.80	58.0	37.8	1.49	34.9	1.37	40.4
n	40	40	37	21	21	39	39	40

AFIS L						Length
Lab.	W					SFC %
	ML		CV %	UQL		
	mm	inch		mm	inch	
7	22.6	0.89	41.9	28.5	1.12	15.2
22	23.6	0.93	37.9	29.2	1.15	11.8
31	24.8	0.98	34.5	30.0	1.18	
32	23.1	0.91	37.9	28.8	1.13	10.9
38	25.3	1.00	33.3	30.3	1.19	
39	22.2	0.87	36.0	27.4	1.08	11.6
41	22.9	0.90	35.4	28.0	1.10	10.4
43	22.9	0.90	(53.9)	28.7	1.13	13.2
44	23.5	0.93	36.8	29.1	1.14	10.3
51	(18.3)	(0.72)	(52.1)	28.4	1.12	9.4
58	23.4	0.92	36.5	28.9	1.14	11.0
80	23.1	0.91	39.0	28.7	1.13	12.8
90	23.9	0.94	36.4	29.4	1.16	10.3
91	23.2	0.91	37.7	28.6	1.13	10.3
101	23.3	0.92	41.1	29.5	1.16	14.4
101-2	23.1	0.91	36.7	28.5	1.12	10.0
102	23.9	0.94	36.1	29.2	1.15	10.4
105	23.4	0.92	38.5	28.7	1.13	12.4
111	23.1	0.91	38.1	28.7	1.13	12.2
118	23.9	0.94	35.6	29.3	1.15	10.0
120	23.0	0.91	37.8	28.7	1.13	11.2
123	24.1	0.95	35.6	29.2	1.15	9.3
123-2	23.5	0.93	37.2	29.0	1.14	10.2
123-3	23.0	0.91	38.4	28.5	1.12	11.5
129	24.3	0.96	36.6	29.6	1.17	8.8
134	23.1	0.91	(1.7)	28.4	1.12	11.9
142	22.5	0.89	34.5	27.5	1.08	10.0
143	24.0	0.94	38.3	29.8	1.17	11.6
148	22.8	0.90	37.2	28.1	1.11	10.7
148-2	22.9	0.90	38.9	28.5	1.12	
154	24.6	0.97	33.8	29.7	1.17	8.3
158	24.2	0.95	36.0	29.7	1.17	10.0
176	24.6	0.97	35.1	29.9	1.18	14.1
183	23.4	0.92	38.9	28.7	1.13	12.6
186	24.1	0.95	36.5	29.7	1.17	10.5
186-2	24.2	0.95	36.0	29.6	1.17	8.8
207	23.7	0.93	36.0	29.2	1.15	8.9
238	23.0	0.91	39.4	28.7	1.13	11.8
271	23.1	0.91	38.4	29.0	1.14	13.0
272	22.4	0.88	37.8	27.7	1.09	12.2
288	23.7	0.93	37.5	29.7	1.17	11.9
Average	23.48	0.925	37.09	28.95	1.14	11.15
Median	23.37	0.92	37.0	28.9	1.138	10.95
StdDev	0.69	0.027	1.82	0.67	0.027	1.61
CV	2.96	2.956	4.91	2.33	2.327	14.4
Min	22.2	0.87	33.3	27.4	1.08	8.3
Max	25.3	1.00	41.9	30.3	1.19	15.2
n	40	40	38	41	41	38

AFIS D / M		Diameter, Maturity					
Lab.	D (N) μm	CV (D(N)) %	Fineness mtex	IFC %	Mat. Ratio		
22	12.9		148	10.2	0.81		
31			148	8.3	0.84		
32			148	8.7	0.84		
38			142	6.7	0.84		
41							
43			153	7.9	0.88		
44			143	10.1	0.81		
51			143	6.8	0.82		
58			146	10.2	0.8		
80			152	11.6	0.84		
90			151	7.4	0.85		
91			152	7.7	0.86		
102			142	11.5	0.79		
105			148	8.9	0.82		
111			147	7.6	0.86		
118			151	7.2	0.85		
120			148	8.7	0.83		
123			149	9.3	0.84		
123-2			147	9.0	0.85		
123-3			155	7.8	0.86		
129			(114)	(25.2)	(0.60)		
134			148	7.5	0.86		
143			142	7.6	0.82		
148			153	6.9	0.87		
148-2			151	7.8	0.87		
154			136	13.8	0.78		
158			139	8.5	0.82		
176			149	14.8	0.81		
183			146	8.6	0.84		
186			144	10.9	0.79		
186-2			144	9.2	0.83		
207			153	8.1	0.86		
238	150	9.5	0.84				
271	138	14.5	(0.73)				
272	10.9						
288			150	8.7	0.87		
Average			147.2	9.15	0.836		
Median			148.0	8.7	0.84		
StdDev			4.7	2.1	0.026		
CV			3.2	23.0	3.097		
Min			136	6.7	0.78		
Max			155	14.8	0.88		
n	2	0	33	33	32		

AFIS T				Trash
Lab.	Mean Diam. µm	Trash Cnt/g	Dust Cnt/g	V. F. M. %
22	360	40	165	1.06
31	369	38	181	1.37
32	316	36	210	1.1
38	299	36	203	0.79
43	372	37	153	1.07
51	350	23	117	0.65
58	345	43	221	1.41
90	359	33	138	0.88
91	359	36	163	1.11
102	333	21	124	0.64
111	(1107)	24	165	0.7
129	263	34	(415)	1.02
134	319	33	158	0.62
142	324	44	225	1.14
143	323	33	177	0.84
148	325	34	176	0.93
148-2	382	34	137	1.06
154	290	41	262	0.97
158	284	33	241	0.91
183	328	21	144	0.71
186	333	31	166	0.87
186-2	326	36	184	0.91
207	340	31	155	0.78
272	299	43	282	1.1
Average	330.3	34.0	180.3	0.943
Median	328.0	34.0	166.0	0.92
StdDev	30.1	6.5	43.1	0.212
CV	9.1	19.1	23.9	22.478
Min	263	21	117	0.62
Max	382	44	282	1.41
n	23	24	23	24

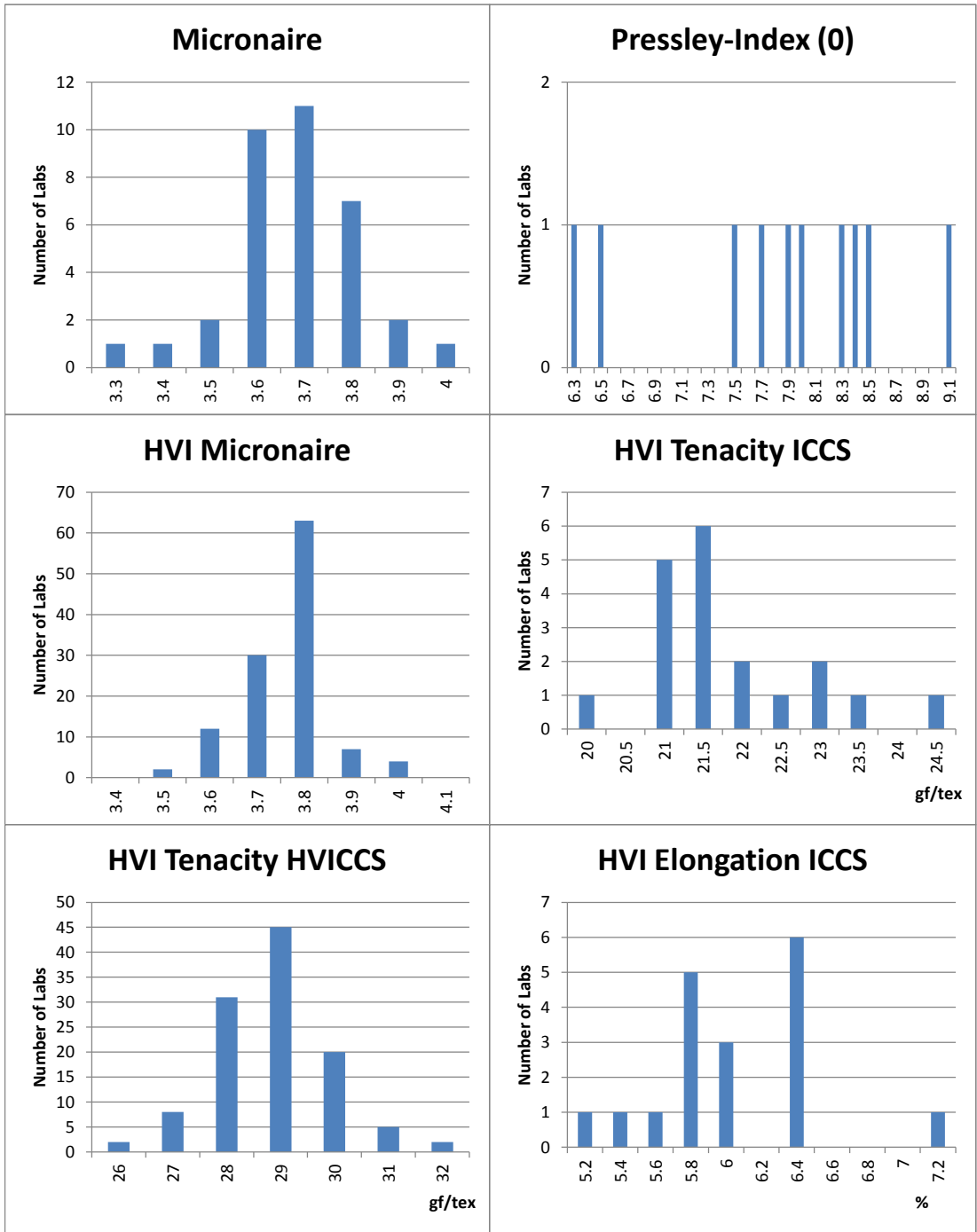
AFIS N		Neps		
Lab.	Neps		SCN	
	Mean Diameter µm	Cnt/g	Mean Diameter µm	Cnt/g
7	797	256		
22	744	325	1181	32
27		340		
31	733	383	1200	32
32	742	335	1063	37
38	743	344	1197	28
39	671	261		
41	685	337		
43	754	418	1284	46
44	746	363	1529	30
51	748	375	1410	38
58	728	351	1250	21
80	711	392	1044	34
90	728	389	1292	29
91	723	363	1329	29
91-2	689	320		
101	793	306		
101-2	756	365		
102	697	(222)	1036	29
105	720	347	1306	30
111	732	361	1244	37
111-2	700	319		
118	741	383	1249	37
120	657	346	1205	(68)
123	716	373	1064	33
123-2	718	402	1007	28
123-3	769	364	1317	41
128		297		
129	(872)	418	1550	47
132	671	351		
134	703	341	1122	30
142	677	382		
143	740	354	1308	38
148	713	363	1062	47
148-2	732	364	1102	34
154	761	324	1312	51
158	698	370	984	32
176	737	301	1131	22
183	734	325	1224	32
186	725	357	1160	29
186-2	768	367	1305	48
207	747	328	1359	34
238	751	398	1299	33
271	715	360	1325	(6)
272	688	308		
288	708	380	1040	17
Average	725.8	351.2	1220.3	33.9
Median	728.0	357.0	1234.0	32.5
StdDev	31.3	35.5	140.4	7.9
CV	4.3	10.1	11.5	23.2
Min	657	256	984	17
Max	797	418	1550	51
n	43	45	34	32



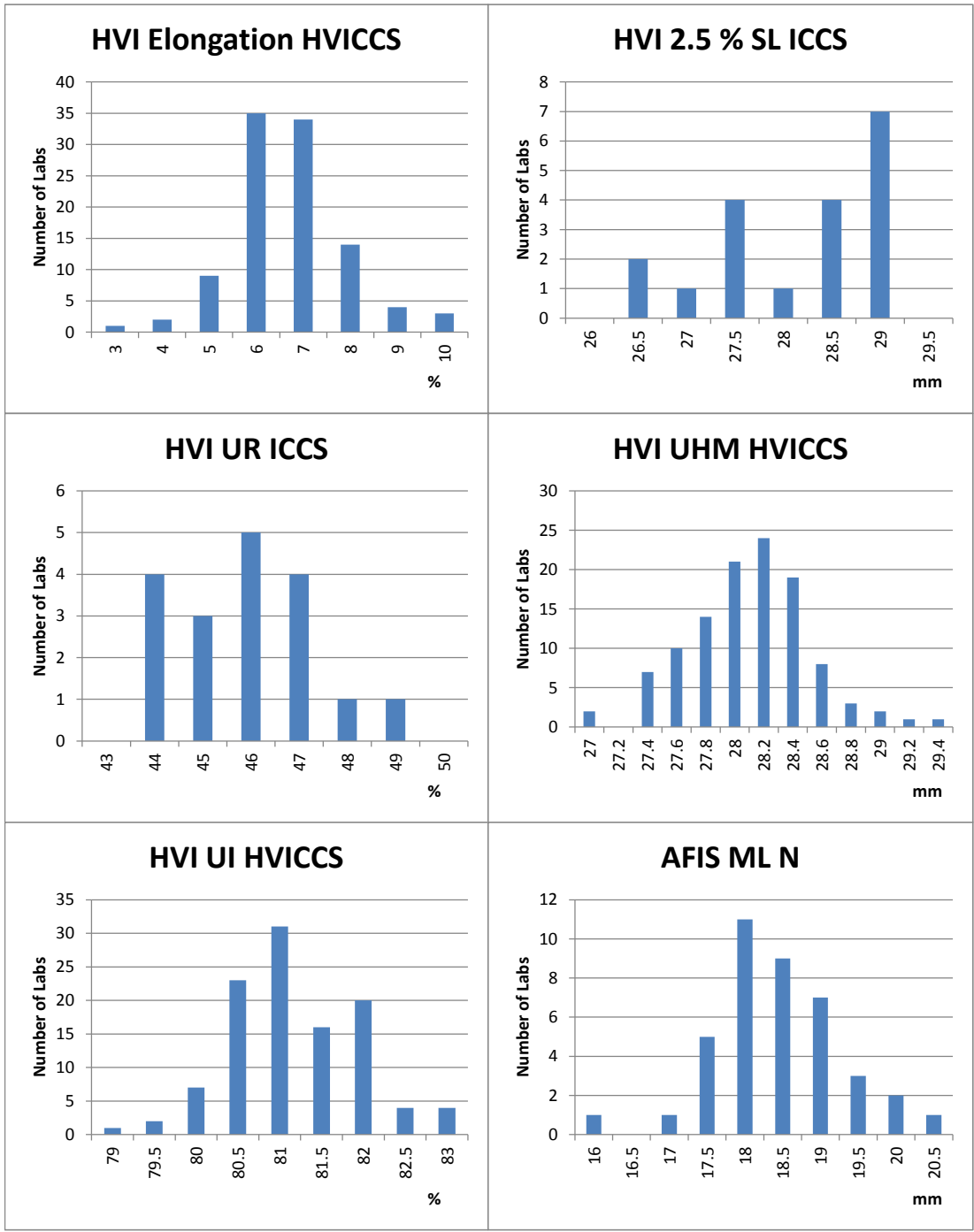
aQura <i>(further information see page "Multiple Devices")</i>						Length, Neps	
Lab.	Repetitions	5.0 % L (n)	50 % L (n)	SFC (n) <12.7 mm	SFC (w) <12.7 mm	Fibre Neps	SCN
		mm	mm	%	%	Cnt/g	Cnt/g
116	4	30.2	17.7	25.8	4.6	368	63
127	4	30.9	18.0	10.5	(23.1)	360	39
130	4	31.1	17.7	22.2	10.1	289	45
146	6	29.8		25.2	4.4	362	34
213	5	30.3	17.7	26.8	12.7	190	21
251	4	29.8		13.3	5.6	368	69
277	4		18.7	20.8	8.2	250	34
300	4	31.0	20.3	17.0	7.0	309	40
Average		30.43	18.35	20.21	7.5	312.0	43.1
Median		30.3	17.86	21.5	7.0	334.5	39.5
StdDev		0.55	1.03	6.06	3.05	65.8	15.8
CV		1.79	5.64	29.97	40.66	21.1	36.7
Min		29.8	17.7	10.5	4.4	190	21
Max		31.1	20.3	26.8	12.7	368	69
n		7	6	8	7	8	8

Multiple Devices <i>(information not provided in the respective table)</i>					General
Lab.	Device	Manufacturer	Instrument	Std. Test Method	Repetitions
28	DigitalFibrograph	Textechno	Fibrotest		10
35	DigitalFibrograph	USTER	730		6
37	FMT				
56	Causticaire		Micronaire	JIS	2
58	ALMeter			internal	3
70	GravFineness	SDL	MK.1	ISO 1973-95	5
70	FMT	SDL	MK.1	ASTMD3818-92	6
79	GravFineness			RSTUz620-94	
92	DigitalFibrograph		DigiLen	ASTMD 5332	6
93	DigitalFibrograph			ASTM1447	4
93	FMT		WIRA	ISO	4
102	DigitalFibrograph		530	ICCS	5
102	FMT	SDL	FMT 3	ICCS	2
116	DigitalFibrograph		Bitra		
116	aQura	Premier			4
127	aQura	Premier			4
128	FMT		Micromat	ASTM	8
129	Causticaire		Microscope	IS 236	4
130	aQura	Premier			4
131	DigitalFibrograph		530	ASTM	6
131	CombSorter		Keisokki	ASTM	6
131	Causticaire		Fibroscope	British	
132	ALMeter	Peyer	AL100	DIN 53806	5
136	DigitalFibrograph		630	internal	10
143	DigitalFibrograph	USTER	330	ABNTNBR13154-94	2
146	aQura	Premier			6
152	ALMeter	Peyer			5
177	Causticaire			DIN53943-4	3
177	GravFineness			ASTMD1577-90	4
186	FMT	SDL	FMT	USDA	6
213	aQura	Premier			5
251	aQura	Premier			4
277	aQura	Premier			4
300	aQura	Premier			4

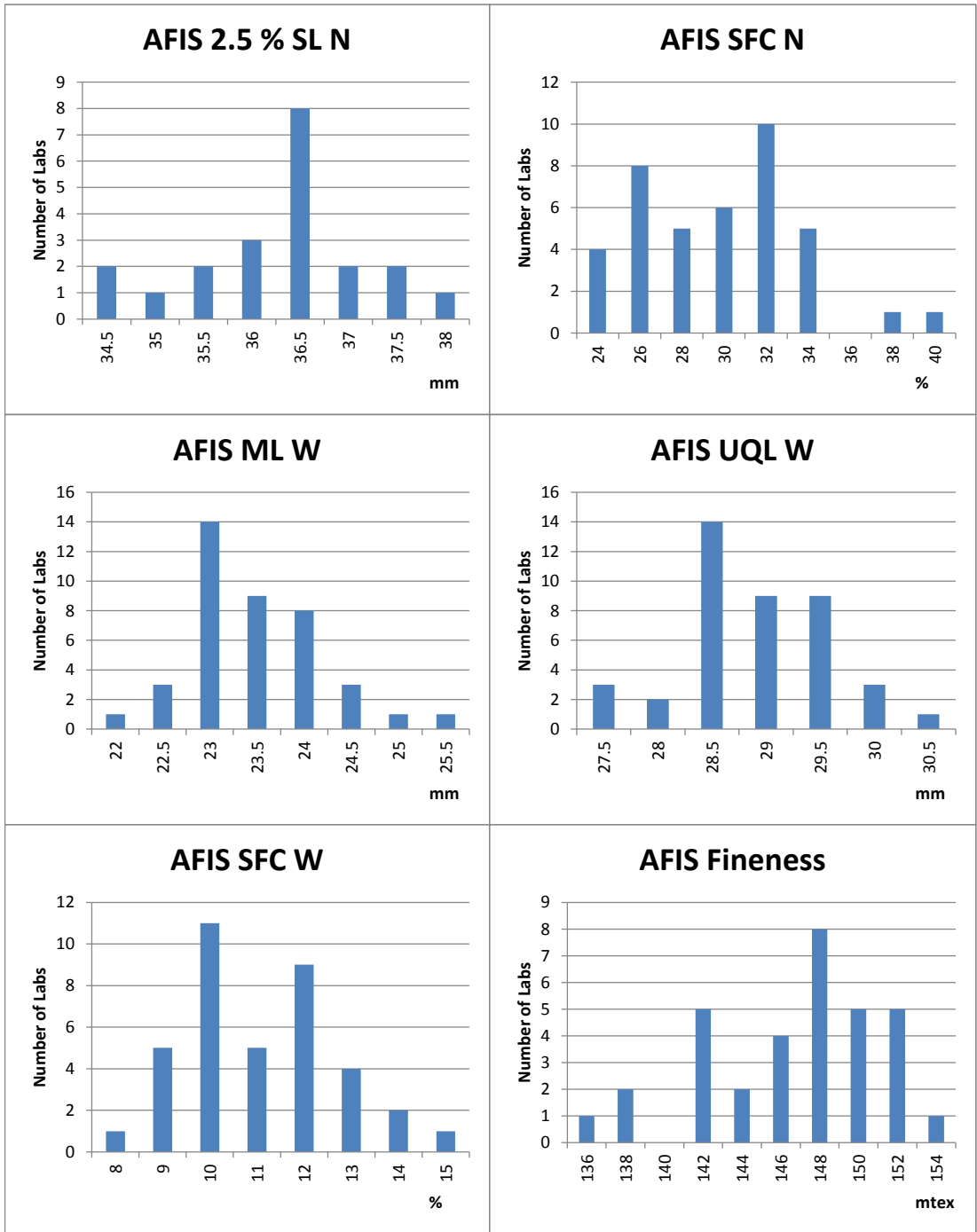
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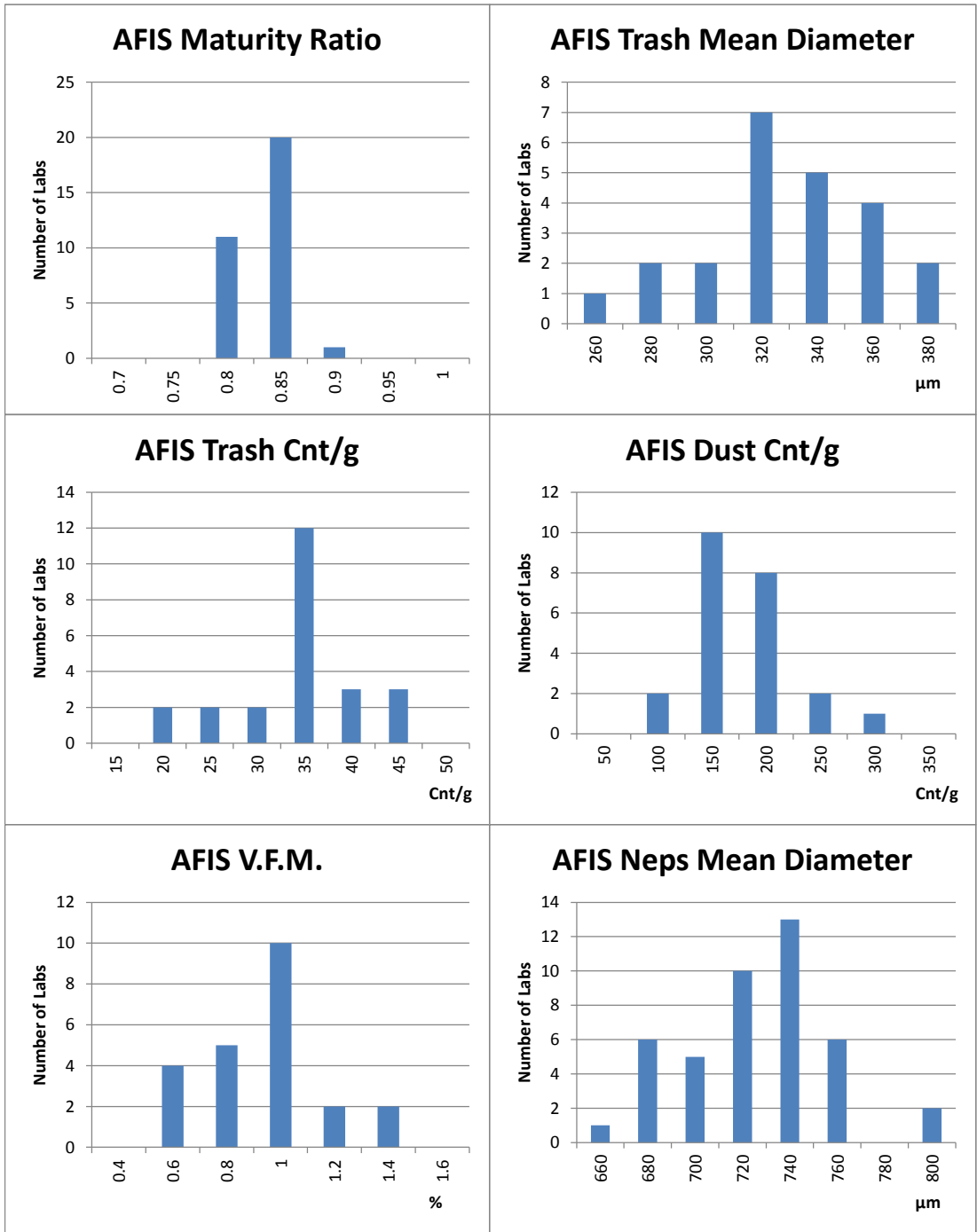
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