



TESTEX®

GARNRUNDTEST YARN ROUND ROBIN TEST

No. 89

AUSWERTUNG / EVALUATION *REVISED*

TYPE OF YARN

Type of fibre	:	100% CO
Spinning system	:	Ring spun, combed
Fineness	:	Ne 30/1 (Nm 50/1)
Twist	:	800 T/m, Z

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ANMERKUNG

Ganz zu Beginn soll vorweggenommen werden, dass für alle untersuchten Proben kein wirklich wahrer Wert (true value) bekannt ist. Die erhaltenen Werte können also nicht mit einem Referenzwert verglichen werden.

Verschiedentlich zeigen einzelne Resultate eines Labors eine unerwartet hohe Abweichung zu den Resultaten anderer Labors. Werte mit einer Abweichung von $> \pm 1.5\sigma$ zum Mittelwert werden in der Auswertung mit einem "o" gekennzeichnet.

Resultate, die sich statistisch nicht sinnvoll auswerten lassen, da sie ausserhalb der Grenze von $\pm 2\sigma$ zum Mittelwert liegen (Cochran-Test auf Ausreisser, resp. 95% Wahrscheinlichkeitstest), werden in der Auswertung mit einem "x" gekennzeichnet. Diese Werte werden nicht in den definitiven Mittelwert miteinbezogen und in den Grafiken nicht mehr dargestellt.

In der Auswertung sind sowohl der Mittelwert und die Standardabweichung und der CV% angegeben.

Es werden diverse Graphiken dargestellt, welche sich den Werten entsprechend im Typ unterscheiden können. Grundsätzlich ist aber die Gegenüberstellung der ermittelten Werte des einzelnen (Labor) angestrebt, als Vergleich zum Mittelwert aller Labors und der jeweiligen Abweichung & Streuung.

Kursiv dargestellte Werte in der Tabelle wurden von der TESTEX kalkulatorisch ermittelt, ausgehend von den vorhandenen Daten des Teilnehmers. Diese Ergänzung wird aus Gründen der Vollständigkeit für die Statistik und für die Abbildung in der Grafik notwendig.

REMARKS

At first is to be mentioned that for all analysed samples the true value is not known. The determined values and results can therefore not be compared with a reference value.

Sometimes single results of a lab show an unusual high deviation compared to the results of other laboratories. Values with a deviation $> \pm 1.5\sigma$ of the mean value are being marked with an "o" in the evaluation.

Results that cannot be used for statistical calculations since they are out of the range of $\pm 2\sigma$ to the mean value (Cochran-Test for outlier, 95% statistical probability for proficiency assessment) will be marked in the evaluation with an "x". Those values are not integrated into the final mean value either and are not shown in any of the graphs.

Generally, besides the mean value and standard deviation, also the CV% is indicated.

Different types of graphics are shown sometimes, which depend on the type of the single values given. In general the main goal of the graphs shall be to compare the single values of each Lab with the mean value of all labs, as well as it's variation & deviation.

Values in the table that are printed in cursive characters are calculated by TESTEX, based on the related values of the participant. This addition is necessary for the sake of completeness, to gain the statistics and the graphs.



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Yarn count							
Lab Code	Instrument	No. of tests	Length (m/sample)	Pre-tension cN (g)	ø tex	ø Ne	CV (%)
1	Autosorter	10	100		20.00	29.50	0.62
2	Autosorter IV	10	100		o 20.40	o 29.00	0.90
4	UT 5	10	1000		19.95	29.63	0.70
10	Autosorter	10	110		20.02	29.50	1.18
19	Autosorter IV	10	100		o 20.30	o 29.10	0.50
25	Uster Autosorter IV	10	100	10.00	19.91	29.63	0.99
27	Zweigle	10	100	10.00	19.92	29.62	0.95
29	UT 4-1	5	100		20.08	29.41	0.80
29	UT 5-1	5	100		20.05	29.45	0.90
33	Zweigle L 232	10	100	10.10	20.20	29.23	1.10
35	Uster Autosorter III	10	100	10.00	20.15	29.28	0.78
39	Sartorius	10	100		20.11	29.37	0.93
39	UT4	10	100		19.92	29.65	0.90
44	Zweigle L232	10	100	10.00	20.00	29.50	0.90
45	Zweigle	10	110		20.17	29.25	0.94
48	Compusorter 700	10	100	9.80	o 19.56	o 30.19	1.30
49	Zweigle 231/1B	10	100	10.00	20.02	29.47	1.60
53	Zweigle R232	10	100	5.00	o 20.29	o 29.10	1.80
56	UT3	10	100	25.00	o 19.71	o 29.96	2.08
69	Statex		10	10.00	20.01	29.51	1.79
71	Weife Textest	10	100	10.00	20.12	29.32	0.66
73	Cascade -S	10	110		19.94	29.62	0.81
73	Cascade -T	10	110		20.01	29.51	0.72
76	Zweigle A	10	110	0.30	20.20	29.21	0.79
76	Zweigle B	10	110	0.30	19.93	29.60	1.07
79	James H. Heal	10	100		20.01	29.48	1.60
84	Autosorter	10	100	5.00	20.00	29.50	1.10
86	Wrap reel	10	100	10.00	20.00	29.50	1.30
96	Autosorter	10	100		20.10	29.40	1.18
99	Zweigle L 232	5	110		19.90	29.67	1.20
101	Sartorius	10	100	0.50	20.07	29.40	1.23
106	Defraime	10	100		x 4.00	x 147.59	0.53
107	Zweigle Weife	15	100	10.00	20.13	29.34	0.80
108	Mettler PN 460	10	100		20.12	29.32	1.10
108	Statimat ME	5	100	5.00	19.92	29.62	0.78
122	M. Defraime& Sartorius	10	110		19.90	29.67	0.47
126	Uster Autosorter 3	5	120		20.03	29.48	1.18
130	Autosorter IV	10	100		20.20	29.20	0.80
131	Autosorter III	10	100		20.10	29.40	0.90
134	Branca Idealair	10	110		19.82	29.80	1.07
169	Count Analyzer	10	100	10.00	20.09	29.37	0.82
170	ASPO / Bilancia	10	100	10.00	20.20	29.20	0.80
171	Statex Lab Data	10	110		o 20.38	o 28.98	0.80
175	Autosorter V	5	109		19.80	29.80	0.70
178	Statex CSP System	10	110		20.12	29.35	0.96
185	Zweigle N265	10	100		19.81	29.78	0.76
186	UT5	10	100		20.15	29.30	0.60
187	Olson Yarn Counter	10	100	10.00	20.05	29.41	1.14

(x) unexpected value
(o) beyond control limit



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Yarn count							
Lab Code	Instrument	No. of tests	Length (m/sample)	Pre-tension cN (g)	ø tex	ø Ne	CV (%)
202	Wrapreel&Mettler balance	10	110	0.50	20.00	29.52	1.09
206	Statex	10	110		19.93	29.63	1.04
222	Statex	10	110		20.02	29.47	1.08
238	Gimptester & Scale	10	100	8.00	20.22	29.18	1.12
279	YG 086	10	100	9.00	20.20	29.30	1.60
289	Textechno Statimat	10	200	5.00	20.06	29.43	1.39
290	Uster Tester 5	10	200		19.82	29.78	0.90
302	Mau	10	110		19.99	29.53	0.95
308	Autosorter Cone 6-10	5	100		o 19.76	o 29.88	1.70
309	Autosorter Cone 56-60	10	100		19.81	29.81	1.10
310	MAG Wrapreel	5	110		o 19.77	o 29.85	0.34
312	Zweigle 231/1SE	10	100	10.00	20.01	29.48	0.97
n					59	59	
Ø					20.02	29.48	
s					0.16	0.24	
CV %					0.81	0.80	
s_r²						0.10	
s_L²						0.05	
s_R²						0.14	
r						0.87	
R						1.06	



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Yarn twist										
Lab Code	Instrument	Standard applied	No. of tests	Pre-tension cN (g)	Speed (rpm)	ø T / m	ø max. / Cop	ø min. / Cop	CV (%)	
1	Zweigle D315	197452	50	10.00		803	869	736	3.37	
2	Zweigle D304		100	10.00		829	891	764	2.93	
4	Uster Zweigle Twist Tester		10	10.00		819	874	762	3.09	
6	Zweigle D301	Schutz	50	10.00		799	843	760	2.70	
10	Zweigle D312		50	10.00		816	841	791	2.43	
27	Zweigle D302		50	10.00		829	899	761	3.11	
29	Zweigle D-06	1422	50	10.00		796	861	771	3.37	
33	Zweigle D 314	ISO 17202	50	10.00	1000	o 784	838	723	3.28	
35	Mesdan	ISO 17202	50	10.00	1000		817	874	775	2.58
35	Calderara E Bossi	ISO 17202	50	10.00	1000		815	878	776	2.75
39	Zweigle D302	MT1	100	5.00		o 844	905	774	o 4.24	
44	Zweigle D314	ISO 17202	50	10.00	1000		805	871	730	3.20
45	Zweigle		50				835	845	823	o 0.99
48	Zweigle D304	ASTM	50	9.80			815	866	762	2.90
48	Marte	D1422	50			o 846	889	802	2.88	
49	Zweigle D 311	ISO 2061	100	10.00	40	x 772	866	674	x 9.73	
53	Zweigle D302	837	50	10.00			807	869	754	2.96
56	Torsiometro Mesdan		50	0.50	800		807	825	789	2.93
69	Statex		50	9.80	1600	o 852	904	795	2.40	
71	Zweigle D314	ISO 17202	50	10.00			821	888	773	2.94
73	Statex Z-S1	STATEX	50	10.00	1500		804	824	770	o 1.48
73	Twist Tester T1	MANUFACTURE	50	10.00	1500		793	845	750	2.87
76	Zweigle D312	ISO 2061	500	5.00	60		808	828	787	o 0.57
76	Zweigle D311	ISO 2061	500	5.00	60		841	871	822	o 0.75
79	Zweigle D312		100				815	879	751	2.59
84	Twist Tester	ISO 17202	50	5.00			804	842	764	3.10
86	Twist Tester	ISO 17202	50	10.00			826	892	757	3.60
96	Zweigle D314	ISO 2061	50	10.00			816	849	776	2.71
99	Zweigle D302	5	25	8.00			827	857	781	o 4.40
101	Brustio	ISO 17202	50	0.50	800		840	938	776	o 4.90
107	Zweigle	PV 133	150	10.00			809	862	764	3.00
108	Zweigle D34		50	5.00	58		796	839	745	2.87
122	Twistronic		50	3.00	1500		812	850	764	2.76
126	Zweigle D302 Mill BC	ASTM	50				820	773	866	2.76
130	Zweigle D314		100	10.00		x 896	988	788	o 4.30	
131	Zweigle D301		5	10.00			823	862	758	3.20
134	Henry Baer		100	10.00		o 777	800	754	2.06	
169	Twistlab	ISO 1702	50	10.00	1000		828	869	780	2.74
170	Zweigle D314	UNI 9069	50	10.00	1800		804	872	754	3.10
171	Statex Twist Tester	UNTWIST	50	9.40	1200		836	887	795	2.69
175	Textest YT 2100	ASTM 1422	50	10.20	1200		831	858	802	2.60
175	Mesdan 2531 C	ASTM 1422	50	10.20	1400		835	868	796	2.95
178	Statex MPTT	IS832 1964	5	8.50	1252		795	839	751	2.71
185	Zweigle D314	ISO 2061	100	10.00			817	826	779	2.89
186	Zweigle D302		10	10.00			819	834	806	o 1.38
187	Brustio	ASTM 1422	100	10.00			834	860	824	o 0.97

(x) unexpected value
(o) beyond control limit

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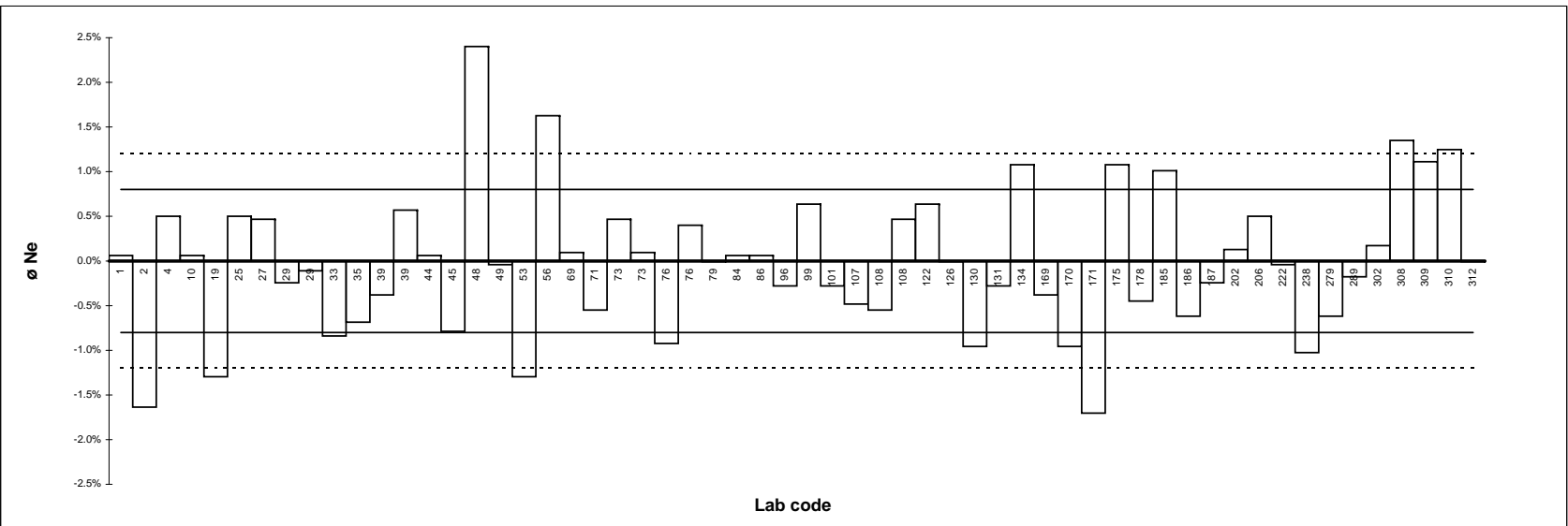
Yarn twist									
Lab Code	Instrument	Standard applied	No. of tests	Pre-tension cN (g)	Speed (rpm)	Ø T / m	Ø max. / Cop	Ø min. / Cop	CV (%)
202	Statex	ASTM-D 1422	50	0.50	1500	829	887	752	3.47
206	MAG-Twist Tester	ASTM-D 1422	50	10.00		839			o 4.75
222	Statex	50	50	5.00	1300	807	887	760	3.28
279	Y331LN		50	10.00	1000	808	885	735	o 4.63
290	Zweigle D304	ASTM 1422	50	0.50	215	808	858	748	3.17
302	Magtpi Tester		50	5.00	1000	826	854	754	2.78
312	Brancaidealair	ISO 1702	50	10.00	1000	800	834	769	2.41
n						51			52
Ø						816.96			2.87
s						16.38			0.91
CV %						2.01			31.59
s_r²						448.90			
s_L²						299.94			
s_R²						748.83			
r						59.32			
R						76.62			



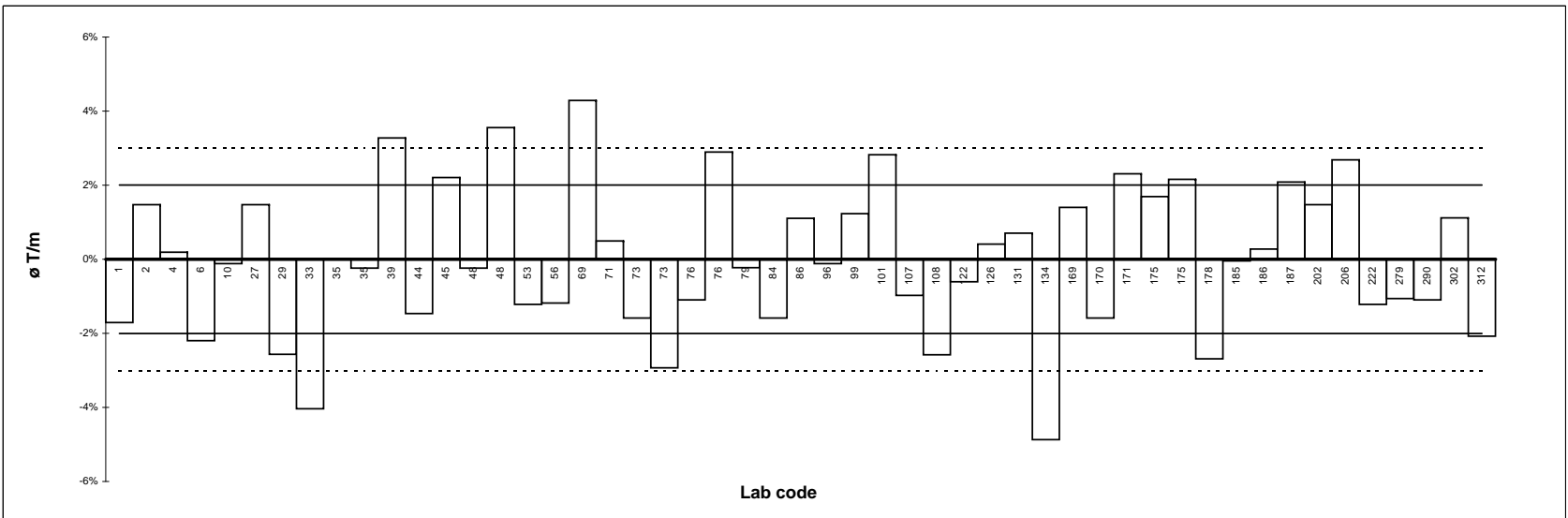
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Yarn count



Yarn twist

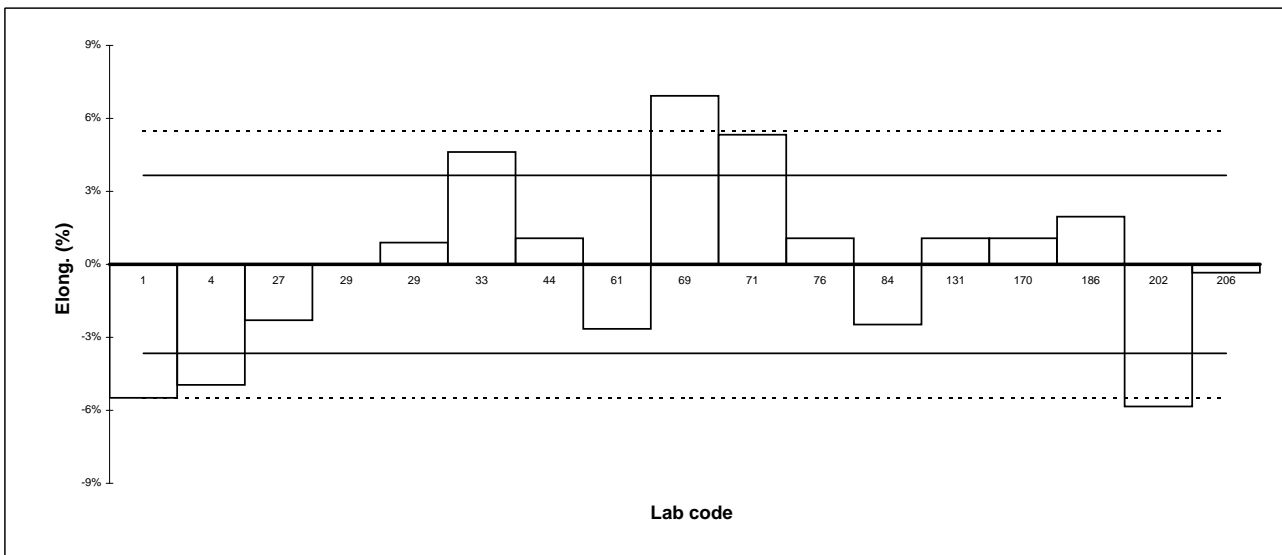
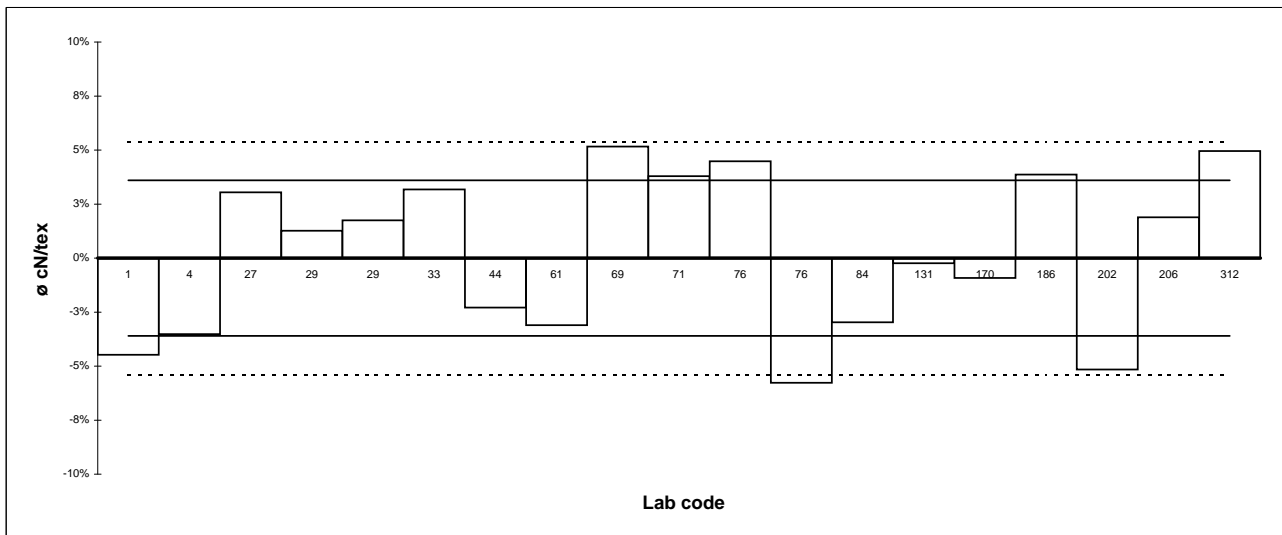
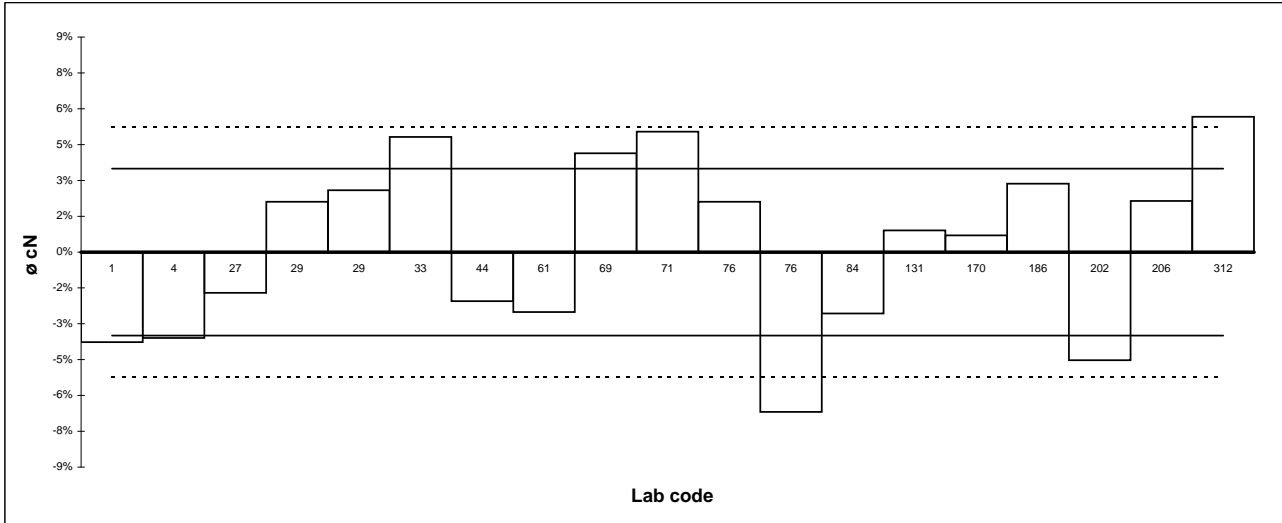


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Tenacity / Elongation CRE 20 sec												
Lab Code	Instrument	No. of tests	Pre-tension cN (g)	Testing time (sec)	ø cN.cm	ø cN	ø g	ø cN/tex	Rkm	CV (%)	Elong. (%)	CV (%)
1	UTR 3	200	10.00	20.00	396.00	280.00	285.40	13.98	14.25	8.18	5.33	8.07
4	UTR 4	200	9.80	20.18	o 394.10	280.50	285.93	14.12	14.39	7.79	5.36	6.63
27	UTR 4	200	9.50	18.05	413.00	286.00	291.54	15.08	15.37	7.10	5.51	6.00
29	Statimat ME1	200	0.50	18.03	451.30	297.10	302.80	14.82	15.11	7.41	5.64	5.95
29	Statimat ME3	200	0.50	18.81	446.80	298.50	304.28	14.89	15.18	6.78	5.69	6.77
33	UTR 3	200	10.10	22.10		305.00	310.91	15.10	15.39	7.00	5.90	6.10
44	Statimat M	200	10.00	20.00	422.00	285.00	291.00	14.30	14.60	7.50	5.70	6.20
61	Statimat ME	200	0.50	19.41	420.44	283.67	289.16	14.18	14.45	6.51	5.49	5.57
69	UTR3	200	10.00	20.60		303.00	309.00	15.39	x 15.69	7.31	o 6.03	5.70
71	Zwick ZMART.PRO	200	10.00	20.28		305.64	311.60	15.19	15.48	7.64		6.17
76	Statimat ME	200	0.50	20.61	443.63	297.10	302.85	15.29	15.00	6.36		5.73
76	UsterTenso bo4	200	0.50	20.62	x 355.00	o 271.50	o 276.76	o 13.79	o 13.53		x 4.79	6.40
84	Uster Tensomat	200	5.00	20.20	414.00	283.50	289.00	14.20	14.40	8.00	5.50	7.90
131	Statimat M	200	20.00	21.60	438.80	293.60	299.30	14.60	14.90	9.60	5.70	6.70
170	ADF Brustio	200	10.00	20.50		293.00	299.00	14.50	14.80	8.20	5.70	6.60
186	UTR 4	200	9.80	19.21	443.30	299.30	305.41	15.20	15.49	7.10	5.75	5.90
202	UTR 3	200	10.20	19.50	410.50	277.80	283.20	13.88	14.15	8.02	o 5.31	8.50
206	UTR 3	200	10.00	19.90		297.19	299.40	14.91	15.20	7.47	5.62	6.13
279	HD021N+	200	10.00	40.00	x 320.20	x 326.40	x 326.40	x 16.26	x 16.57	7.74	x 4.84	6.40
312	Branca 3181	200	10.00	19.90	o 307.45	o 313.40		15.36	o 15.66	5.96	x 6.60	5.14
n					12	18	18	18	17		17	
ø					424.49	290.97	296.47	14.63	14.81		5.64	
s					19.86	10.17	10.29	0.53	0.55		0.21	
CV %					4.68	3.50	3.47	3.60	3.73		3.66	
s_r²						460.12		1.16			0.14	
s_L²						101.21		0.27			0.04	
s_R²						561.33		1.43			0.18	
r						60.06		3.02			1.03	
R						66.34		3.35			1.18	

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Tenacity / Elongation CRE 20 sec



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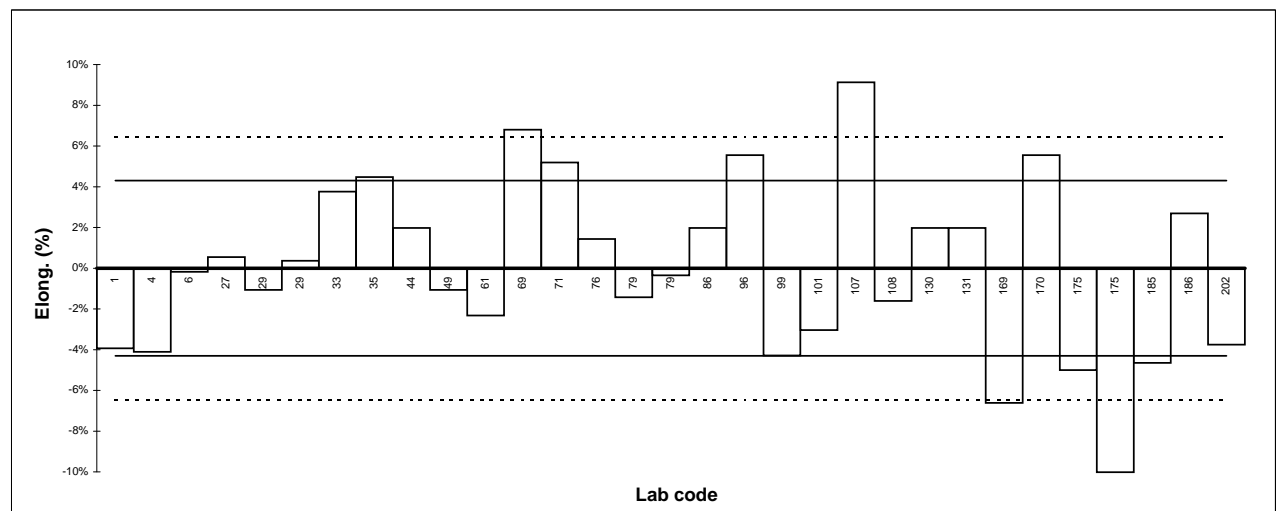
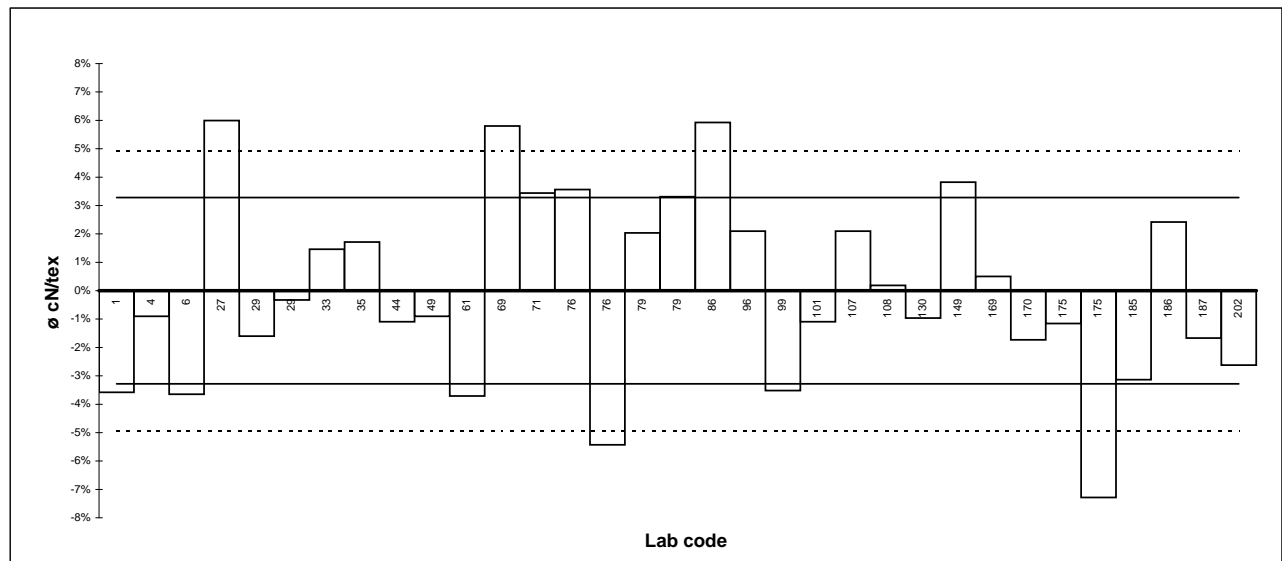
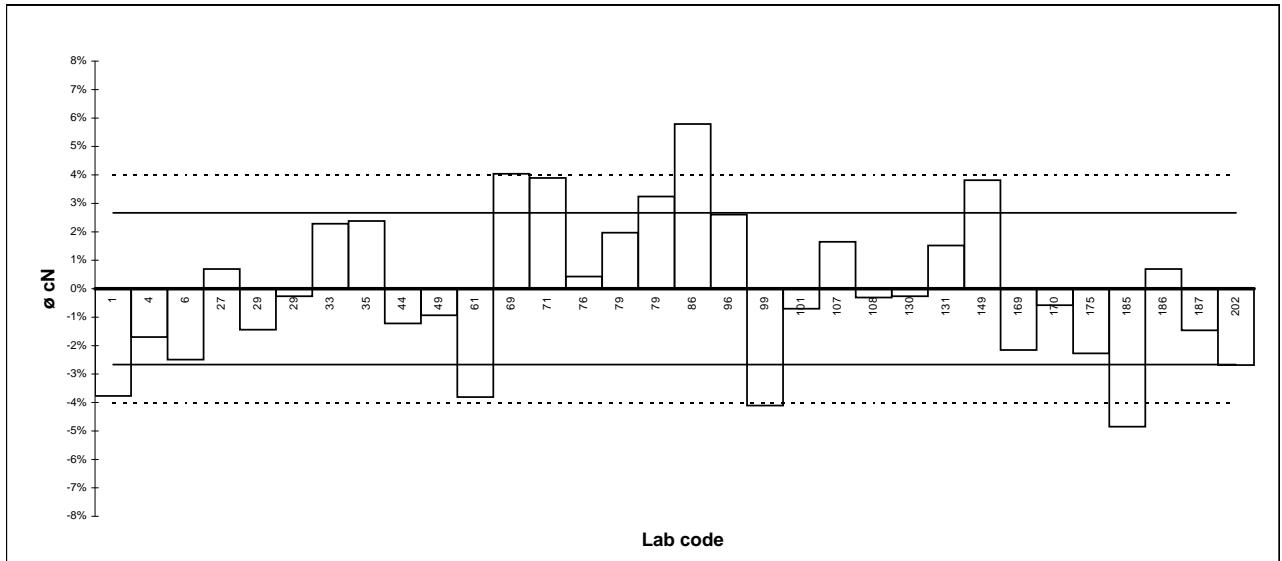
Tenacity / Elongation CRE 500 mm/min													
Lab Code	Instrument	No. of tests	Pre-tension cN (g)	Testing time (sec)		cN.cm	ø cN	ø g	ø cN/tex	Rkm	CV (%)	Elong. (%)	CV (%)
1	UTR3	200	10.00	3.20	o	430.00	302.00	307.80	15.11	15.40	8.25	5.37	9.26
4	UTR4	200	9.80	3.23		432.80	308.50		15.53		7.62	5.36	5.93
6	UTR3	200	10.00	3.40		437.50	306.00	312.00	15.10	15.40	6.16	5.58	5.00
27	UTR 4	200	9.50	3.39		462.00	316.00		o 16.61		7.40	5.62	6.10
29	Statimat ME1	200	0.50	3.32		459.30	309.30		15.42		7.56	5.53	7.23
29	Statimat ME3	200	0.50	3.81		464.70	313.00		15.62		8.66	5.61	8.70
33	UTR3	200	10.10	3.50			321.00		15.90		7.90	5.80	6.40
35	UTR3	200	10.10	3.52		483.00	321.30		15.94	16.25	6.64	5.84	7.00
44	Statimat M	200	10.00	3.40		458.00	310.00	317.00	15.50	15.80	6.50	5.70	5.20
49	Statimat 4U	100	10.00	3.30		455.21	310.90	317.12	15.53	15.24	6.74	5.53	5.21
61	Statimat ME	200	0.50	3.28		446.29	301.87		15.09		7.68	5.46	6.89
69	UTR3	200	10.00	3.60			o 326.50	332.80	o 16.58	o 16.90	8.14	o 5.97	6.38
71	Zwick ZMART.PRO	200	10.00	3.86			326.05	332.40	16.21	16.52	7.21	5.88	6.09
76	Statimat ME	200	5.00	3.70		468.64	315.16	321.26	16.23	15.92	6.63	5.67	6.13
76	UTR4	200	5.00	2.92	x	385.00	x 291.60	o 297.25	o 14.82	x 14.54		x 4.86	6.60
79	Instron 6025	201	0.50	3.32			320.00	326.20	15.99	16.30	7.63	5.51	5.78
79	Instron 5567	202	0.50	3.34			324.00	330.30	16.19	16.50	7.92	5.57	5.88
86	UTR	200	10.00	3.41	o	488.00	o 332.00	o 338.00	o 16.60	o 16.90	6.90	5.70	5.70
96	UTR3	200	10.10	3.55	o	487.00	322.00	328.00	16.00	16.30	7.00	5.90	5.40
99	UTR3	100					o 300.94	o 301.00	15.12	o 14.83	6.90	5.35	6.60
101	Tenso Tester 2 Tomsic	200	0.50	3.26		457.25	311.62	317.25	15.50	15.81	7.20	5.42	6.30
107	Zwick Roell	150	10.00				319.00	326.00	16.00	16.30	7.17	o 6.10	6.10
108	Statimat ME	100	5.00	3.86		461.37	312.86	318.92	15.70	16.01	2.16	5.50	3.16
130	UTR 4	400	10.10	3.40		466.00	313.00	319.10	15.52	15.80	8.70	5.70	9.20
131	Statimat M	200	20.00	3.50		473.50	318.60	324.80	x 18.90	16.20	7.10	5.70	6.20
149	Premier Tensomaxx	100	0.50	3.70			325.80	332.10	16.27	16.58	8.07	x 6.44	7.28
169	Autodyn 300	200	10.00	3.30			307.06	313.01	15.75	15.65	7.79	o 5.22	6.85
170	ADF Brustio	200	10.00	3.60			312.00	318.00	15.40	15.70	7.20	5.90	5.60
175	UTR-4	200	10.10	3.20		432.70	306.70	312.80	15.49	15.79	7.40	5.31	5.80
175	UTR-4	50	9.90	3.00	x	388.90	x 286.10	x 291.60	o 14.53	o 14.82	5.60	o 5.03	6.20
185	Zweigle F247	200				441.24	o 298.60	304.40	15.18	15.47	6.50	5.33	6.04
186	UTR4	200	9.80	3.45		467.30	316.00	322.45	16.05	16.36	8.10	5.74	6.70
187	SDL-M500-25W	200	10.00				309.23	315.33	15.41		4.40	x 4.80	7.80
202	UTR 3	200	10.20	3.20		453.11	305.40	311.30	15.26	15.56	8.12	5.38	6.74
n						21	32	26	33	26		31	
Ø						458.33	313.82	319.10	15.67	15.94		5.59	
s						17.13	8.37	10.21	0.51	0.56		0.24	
CV %						3.74	2.67	3.20	3.28	3.50		4.30	
s_r²							536.70		1.30			0.14	
s_L²							64.76		0.31			0.05	
s_R²							601.47		1.61			0.19	
r							64.87		3.20			1.04	
R							68.67		3.56			1.21	



TESTEX®

GARNRUNDTEST / Yarn Round Robin Test No. 89

Tenacity / Elongation CRE 500 mm/min



GARNRUNDTEST / Yarn Round Robin Test No. 89

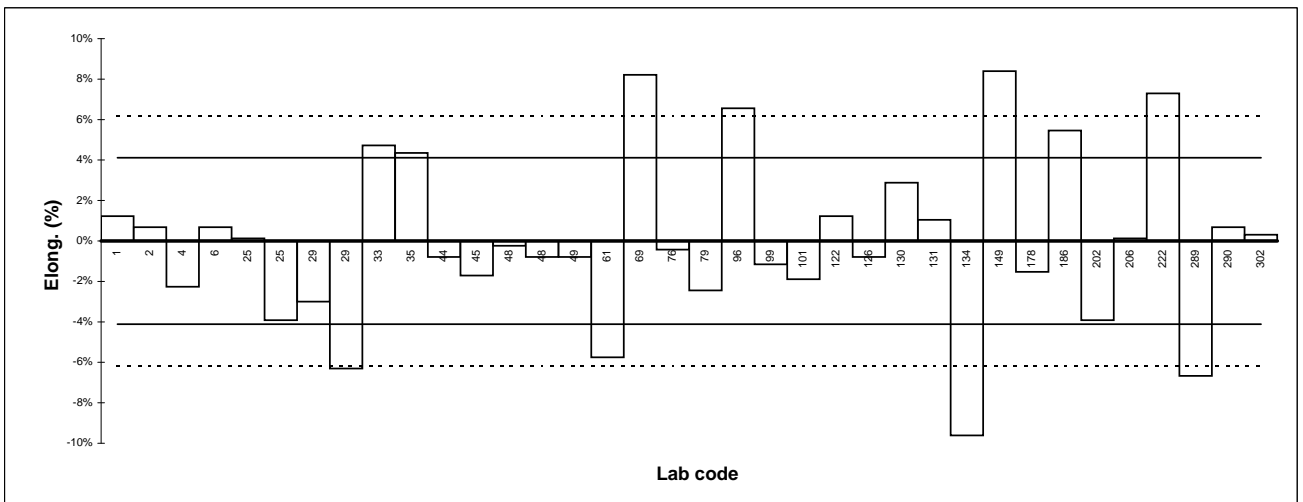
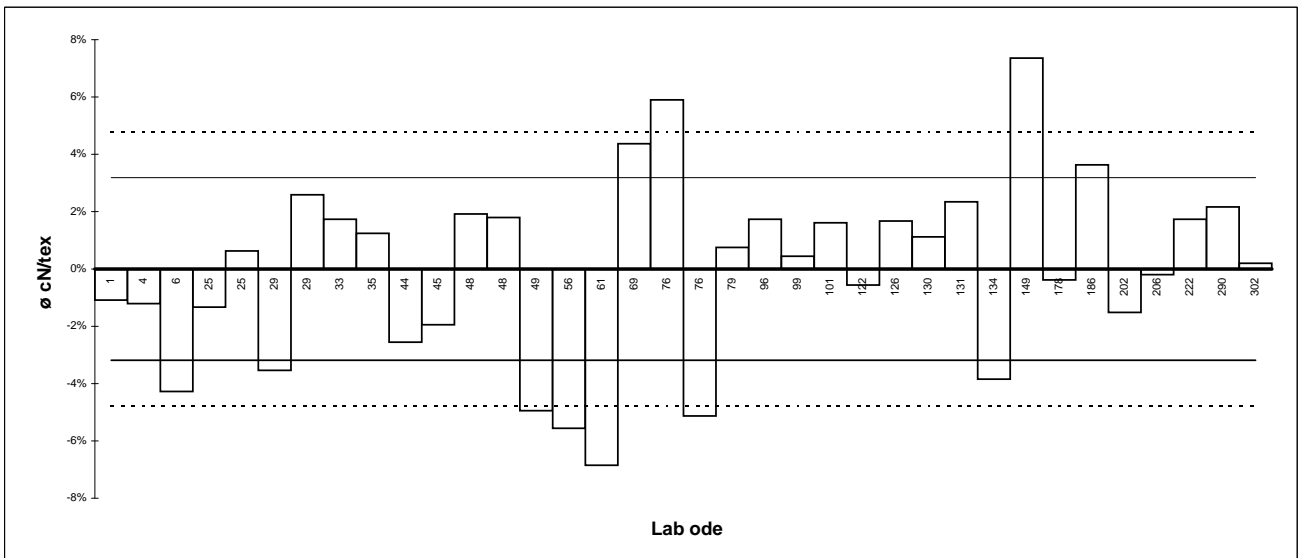
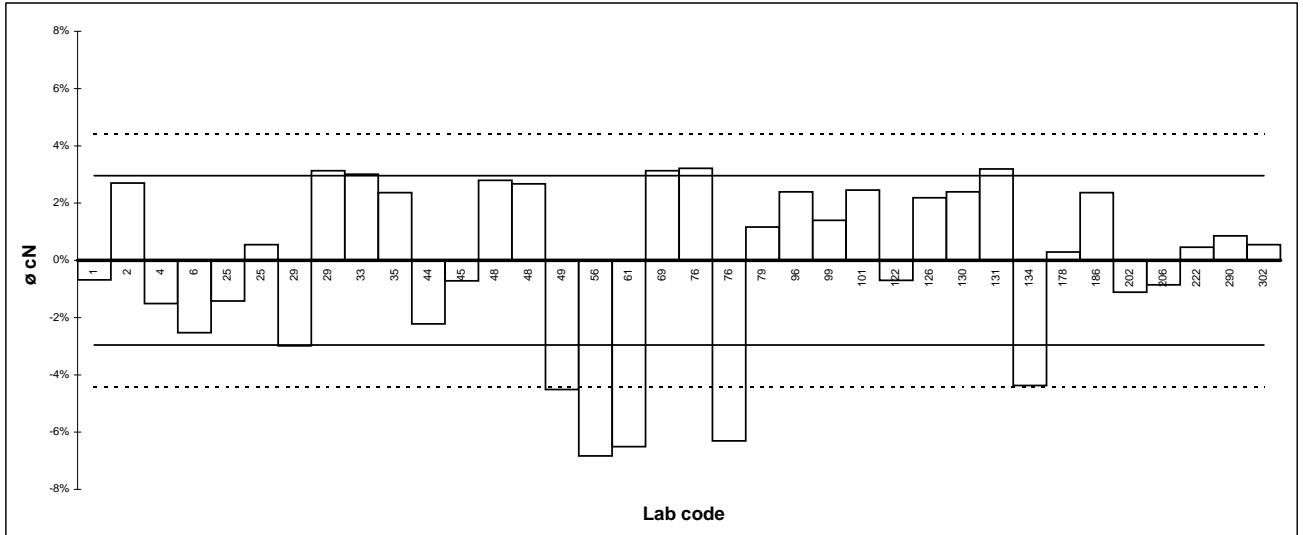
Tenacity / Elongation CRE 5000 mm/min												
Lab Code	Instrument	No. of tests	Pre-tension cN (g)	Testing time (sec)	cN.cm	ø cN	ø g	ø cN/tex	Rkm	CV (%)	Elong. (%)	CV (%)
1	UTR 3	200	10.00	0.30	455.00	323.00	329.30	16.14	x 16.45	8.14	5.51	6.22
2	UTR 3	500	15.00	0.30	475.00	334.00		x 11.14	x 11.36	7.30	5.48	5.87
4	UTR 4	200	9.80	0.32	435.50	320.30		16.12		7.37	5.32	5.96
6	UTR 3	200	10.00	0.30	434.80	317.00	323.10	15.62	15.92	7.84	5.48	5.85
25	UTR 4	250	10.00	0.33	449.90	320.60	326.80	16.10	16.41	7.13	5.45	5.81
25	UTR 1	300	10.00	0.37	450.90	327.00	333.30	16.42	16.74	7.56	5.23	6.14
29	Statimat ME1	200	0.50	0.32	458.10	315.50		15.74		7.82	5.28	7.18
29	Statimat ME3	200	0.50	0.42	478.30	335.40		16.74		7.42	o 5.10	8.55
33	UTR 3	200	10.10	0.30		335.00		16.60		7.80		6.40
35	UTR 3	200	10.10	0.34	479.00	332.90		16.52	16.84	7.17	5.68	6.39
44	Statimat M	200	10.00	0.30	445.00	318.00	324.00	15.90	16.20	7.60	5.40	6.50
45	Statimat ME	200		0.41	451.95	322.88	329.13	16.00	16.31	6.91	5.35	6.52
48	UTR	200	10.00	0.37	438.70	334.30		16.63		7.32	5.43	6.64
48	Tensomax	200	10.00	0.35		333.90		16.61		7.49	5.40	6.90
49	Statimat 4U	100	10.00	0.32	429.87	o 310.54	316.75	o 15.51	o 15.22	7.29	5.40	5.82
56	UTR	200	25.40	0.30	o 387.00	o 303.00	o 309.00	o 15.41	15.71	7.70	x 4.50	7.16
61	Statimat ME	200	0.50	0.31	421.25	o 304.05		o 15.20		7.14	5.13	6.32
69	UTR 3	200	10.00	0.40		335.40	341.90	17.03	17.36	7.23	o 5.89	5.57
76	Statimat ME	200	0.50	0.41	480.72	335.67	342.17	o 17.28	16.95	7.11	5.42	6.06
76	UTR 4	200	0.50	0.28	x 375.00	o 304.70	o 310.60	o 15.48	o 15.19		x 4.66	6.40
79	Statimat-M	200	0.50	0.34		329.00	335.40	16.44	16.76	7.43	5.31	6.08
96	UTR 3	200	10.10	0.35	482.00	333.00	339.00	16.60	16.90	7.40	o 5.80	6.30
99	UTR 3	100				329.77	326.00	16.39	16.07	5.97	5.38	5.50
101	Tenso Tester 2 Tomsic	200	0.50	0.32	489.86	333.19	339.90	16.58	16.91	7.97	5.34	6.38
122	UTR 4	200	0.50	0.33		322.95		16.23	16.54	7.10	5.51	5.30
126	UTR	100	9.80			332.33		16.59	16.92	9.37	5.40	7.56
130	UTR 3	400	10.00	0.30	480.00	333.00	339.40	16.50	16.80	7.40	5.60	5.80
131	Statimat M	200	20.00	0.34	486.60	335.60	342.10	16.70	17.00	7.40	5.50	6.10
134	UTR V52	200	10.00	0.30	o 400.00	311.00	317.02	15.69	16.00	7.21	o 4.92	6.70
149	Premier Tensomaxx	100	0.50	0.30	x 344.10	x 350.80	x 357.59	o 17.52	o 17.86	8.37	o 5.90	7.17
178	Tensomaxx 7000	200	0.50	0.30		326.16		16.26	16.57	7.12	5.36	7.63
186	UTR 4	200	9.80	0.35	482.80	332.90	339.69	16.91	17.24	7.80	5.74	6.50
202	UTR 3	200	10.20	0.30	446.99	321.60	327.80	16.07	16.38	7.60	5.23	6.91
206	UTR 3	200	10.00	0.30		322.44	326.80	16.28	16.60	7.40	5.45	6.61
222	Premier Tensomaxx	100	0.50	0.40		326.70	333.00	16.60	16.93	8.54	o 5.84	6.73
289	Premier Tensomaxx	200	50.00	0.31	431.59	x 296.99	o 310.85	x 12.56	o 15.40	8.52	o 5.08	7.15
290	UTR 4	200	0.50	0.30	463.00	328.00		16.67	17.00	7.00	5.48	6.40
302	UTR 3	200	5.00	0.30	457.30	327.00	333.47	16.35	16.67	7.00	5.46	5.60
n					26	36	24	36	29		36	
Ø					453.51	325.22	329.02	16.32	16.53		5.44	
s					26.67	9.62	10.40	0.52	0.63		0.22	
CV %					5.88	2.96	3.16	3.19	3.79		4.11	
s _r ²						574.68		1.45			0.12	
s _L ²						87.62		0.24			0.04	
s _R ²						662.30		1.68			0.17	
r						67.12		3.37			0.97	
R						72.06		3.63			1.14	



TESTEX®

GARNRUNDTEST / Yarn Round Robin Test No. 89

Tenacity / Elongation CRE 5000 mm/min

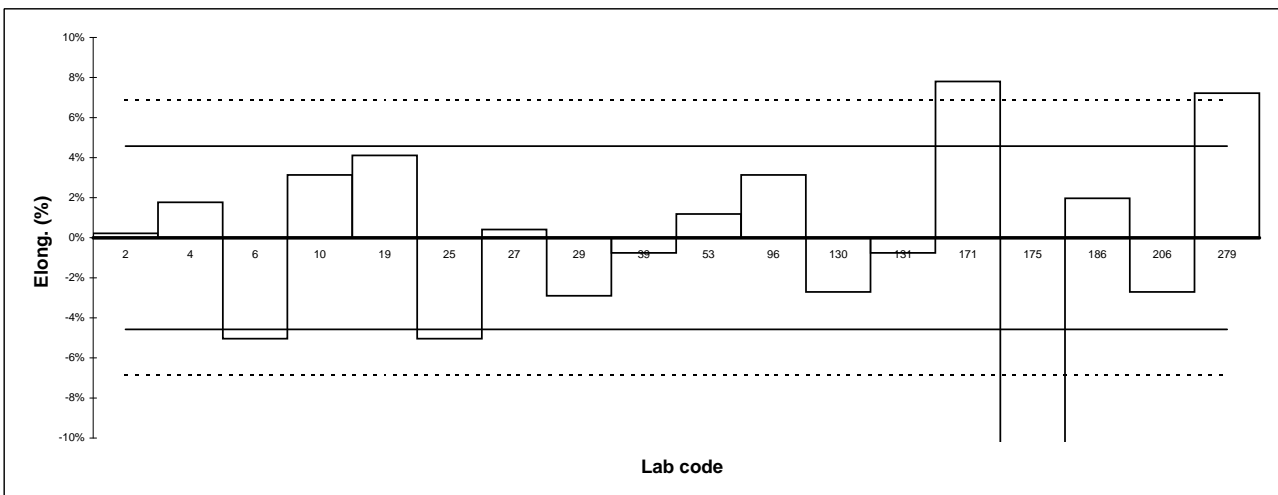
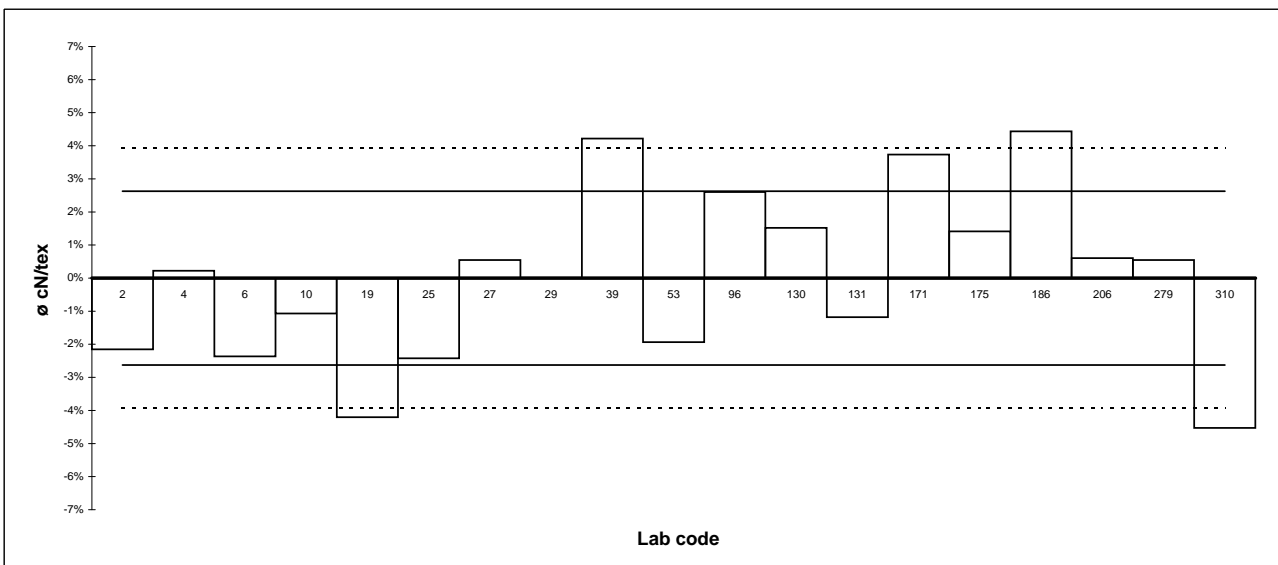
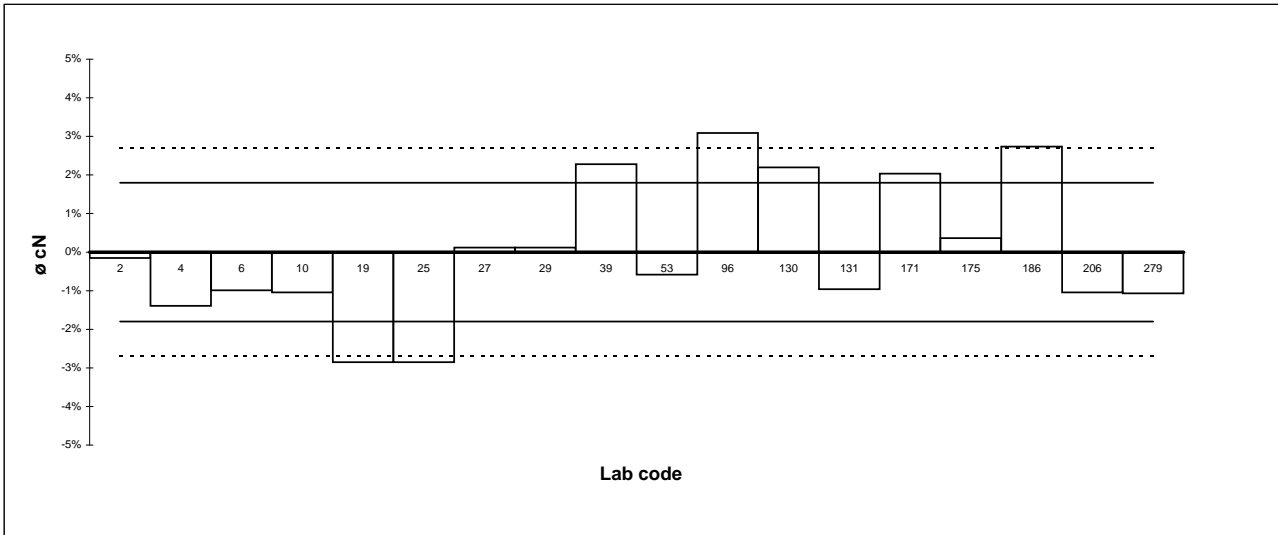


GARRRUNDTEST / Yarn Round Robin Test No. 89

Tenacity / Elongation USTER-TENSOJET										
Lab Code	Instrument	No. of tests	Pre-tension cN (g)	Speed (m/min)	Work break cN.cm	cN	cN/tex	CV% load	Elong. (%)	CV % elong.
2	Tensojet	5'000	10.20	400.00	495.00	370.00	18.12	7.71	5.15	6.09
4	UTJ4	5'000	9.80	400.00	513.50	365.40	18.56	8.09	5.23	5.98
6	UTJ4	2'500	10.10	400.00	493.00	366.90	18.08	o 8.50	4.88	6.70
10	UTJ4	5'000	5.00	400.00	520.90	366.70	18.32	o 7.10	5.30	5.90
19	UTJ	5'000	10.15	400.00	495.00	o 360.00	o 17.74	7.65	5.35	7.73
25	UTJ	5'000	9.96	400.00	468.00	o 360.00	18.07	7.48	4.88	7.09
27	UTJ	3'000	10.00	400.00	505.80	371.00	18.62	7.42	5.16	6.55
29	UTJ	5'000	10.00	400.00	486.20	371.00	18.52	7.54	4.99	8.32
39	?	2'000	9.80	400.00	530.00	379.00	o 19.30	7.70	5.10	6.20
53	UTJ	5'000	10.15	400.00	504.90	368.40	18.16	8.34	5.20	7.97
96	R 4.11	5'000	10.10	400.00	532.00	o 382.00	19.00	7.60	5.30	6.10
106	JBA	200	0.50	500.00			x 131.15	x 14.01	x 6.34	11.46
130	UTJ4	3'000	10.10	400.00	514.70	378.70	18.80	8.20	5.00	6.50
131	R4.11	2'000	9.80	400.00	511.00	367.00	18.30	7.30	5.10	6.60
171	UTJ 4	5'000	9.81	400.00	549.20	378.10	19.21	7.50	o 5.54	5.60
175	UTJ	1'000	15.50	400.00	466.00	371.90	18.78	8.24	o 4.57	7.54
186	UTJ 4	5'000	9.80	400.00	539.00	o 380.70	o 19.34	7.60	5.24	6.30
206	UTJ	2'500	10.00	400.00		366.70	18.63	o 8.70	5.00	6.30
279	UTJ4	5'000	0.50	400.00	513.10	366.60	18.62	8.10	o 5.51	5.90
310	UTJ	2'000	9.90	400.00	3.95	x 350.00	o 17.68	x 12.80	x 3.41	12.50
n						18	19	18	18	18
Ø						370.56	18.52	7.82	5.14	6.63
s						6.67	0.49	0.45	0.24	0.78
CV %						1.80	2.63	5.70	4.57	11.83
s_r²						829.96	2.16		0.12	
s_L²						49.58	0.24		0.04	
s_R²						879.54	2.40		0.16	
r						80.67	4.12		0.97	
R						83.04	4.34		1.13	

GARNRUNDTEST / Yarn Round Robin Test No. 89

Tenacity / Elongation USTER-TENSOJET



GARNRUNDTEST / Yarn Round Robin Test No. 89

Lea - Test									
Lab Code	Instrument	No. of tests	Testing length [mm]	Length / sample [yd]	Speed [mm/min]	Breaking force [N]	Breaking force CV %	Skein breaking tenacity [cN/tex]	Skein breaking tenacity [CSP]
69	Statex	10	686	120	305	412.00	3.84	2059	2730
73	Stretex 500-SI	10	686	120	300	386.70	3.01		2574
73	Stretex 500-T	10	686	120	300	407.50	2.30		2703
171	Statex Lab Data	10	670	120	300	o 428.19	2.60	2101	o 2788
175	UTR 4	5	686	120	300	400.60	o 1.90		2682
178	Statex CSP System	10	658	120	300	394.85	3.51		2581
202	Statex	10	686	120	300	384.60	o 4.17	1922	2551
206	Statex CSP	10	677	120	300	390.20	2.45		2598
302	Mag Lea Tester	10	610	120	300	389.62	3.24	1954	2593
310	Asano	5		120	x	83.28	3.48		o 2486
n						9	10	10	10
∅						399.36	3.05	803.60	2628.62
s						14.30	0.73	1038.60	93.02
CV %						3.58	23.84	129.24	3.54

GARRRUNDTEST / Yarn Round Robin Test No. 89

Evenness / Imperfections												
Lab Code	Instrument	No. of tests	Speed (m/min)	Testing time (min)	Um (%)	CVm(%)	Thin places / 1000 m	CV (%)	Thick places / 1000 m	CV (%)	Neps / 1000 m	CV (%)
1	UT 3	10	400	2.50	10.82	13.68	4	59.83	62	21.87	67	17.16
2	UT 5	10	400	2.50	10.83	13.68	2	63.60	63	18.30	57	14.60
4	UT 5	10	400	2.50	o 10.96	13.85	3	75.30	66	23.10	60	15.40
6	UT 3	5	400	2.50	10.66	13.58	2		52	5.50	57	19.70
6	UT 4	5	400	2.50	o 10.46	o 13.21	2		48	25.60	o 33	11.70
10	UT 4	10	400	5.00		13.73	3	45.79	66	27.51	66	29.00
19	UT 4	10	400	2.50	10.82	13.68	4	35.30	63	17.40	61	17.80
25	UT 5	10	400	2.50	10.72	13.55	2	94.60	61	19.20	61	12.50
27	UT 4	10	400	2.50	10.79	x 1.60	3	40.50	64	13.8	o 72	33.90
29	UT 4-1	5	400	2.50	10.70	13.50	3	23.60	53	15.80	54	26.20
29	UT5-1	5	400	2.50	10.90	13.80	4	21.00	o 75	29.50	60	15.30
33	UT 3	5	400	5.00	10.90	13.80	3	73.80	48	16.80	52	14.30
35	UT 3	10	400	2.50	o 11.02	o 13.93	o 5	73.37	67	20.78	65	14.40
39	UT 4	5	400	1.00	10.73	13.57	o 5	50.00	68	11.50	58	21.60
44	UT 3	10	400	2.50	10.70	13.60	3	61.90	54	14.20	59	17.80
45	UT 4	10	400	2.50	o 10.48	o 13.25	o 1	94.61	52	21.31	o 31	29.53
48	UT 3	5	400	2.50	10.92	13.79	o 5	61.60	55	16.20	54	46.80
48	Premier Tester 7000	5	400	2.50	10.84	13.69	4	43.30	65	26.80	48	38.10
49	UT 5	10	200	5.00	10.94	13.85	x 9	147.97	x 89	79.90	52	31.13
53	UT 3		400	2.50	10.77	13.61	2	81.20	60	14.80	51	17.70
56	UT 3	10	400	2.50	10.94	13.84	o 5	101.30	x 82	76.40	46	27.90
61	Covatest	10	400	2.50	10.94	13.83	o 6	37.00	54	14.00	o 72	16.00
69	UT5	10	400	2.50	10.82	13.68	4	54.30	70	16.20	59	22.00
71	UT 4	10	400	2.50	10.72	13.55	4	63.10	58	23.50	57	24.50
73	UT 4	10	400	1.00	10.62	13.42	2	96.40	46	36.30	41	35.50
73	UT 4	10	400	1.00	o 10.54	13.40	2	179.20	o 45	32.80	47	29.50
76	UT 4	10	200	1.00	10.65	13.46	4	136.90	60	20.40	58	25.60
76	UT 4 e	10	200	1.00	x 10.43	o 13.17	o 1	225.00	o 42	22.00	o 33	30.50
86	UTI	10	50	5.00	10.80	13.50	x 8		68		64	
96	UT 4	10	400	2.50	10.90	13.80	3	51.90	71	26.20	65	20.40
99	UT 4	5	400	2.50	10.78	13.63	2	74.00	57	15.00	57	20.00
101	UT 3	10	400	2.50	10.83	13.68	3	76.80	58	18.40	57	19.80
108	UT 4	5	400	2.50	10.68	13.49	4	45.69	54	24.41	53	35.91
122	UT 3	5	400	5.00	10.68	13.49	3	33.60	52	14.90	46	16.30
126	UT 3	5	400	1.00	10.65	13.46	2	104.60	56	18.70	57	36.00
130	UT 5	10	400	2.50	10.76	13.59	2	112.40	58	20.00	53	29.40
131	UT 5	10	400	2.50	10.70	13.60	3	65.40	63	20.50	59	28.10
134	UT 3	10	400	1.00	x 10.36	o 13.08	2	149.10	x 38	41.20	39	33.40
149	Premier iQ2DX	10	400	1.00	10.68	13.49	4	661.00	o 40	30.50	60	24.60
149	Premier PT 3	10	400	1.00	10.73	13.56	2	661.00	58	18.90	56	21.40
170	UT 3	10	400	2.50	10.72	13.56	3	79.40	52	21.80	49	26.60
171	UT 4- SX	10	400	1.00	10.72	13.57	2	98.60	x 81	37.50	54	25.80
175	UT 4- SX	5	400	1.00	10.70	13.54	4	81.40	61	26.20	x 83	52.30
175	UT 3	5	200	1.00	o 10.55	13.31	4		o 42	43.20	o 37	68.70
178	Premier PT 7000	5	400	1.00	o 10.48	o 13.22	2	158.70	o 45	16.50	49	15.57
186	UT 5	10	400	2.50	10.91	13.78	4	97.20	70	26.60	o 71	21.10
202	UT 5	10	400	2.50	10.84	13.70	3	87.90	66	23.30	50	22.40
206	UT 4	5	400	1.00	10.85	13.71	2	163.00	67	34.40	61	31.40
206	UT 5	5	400	1.00	10.68	13.56	3	70.70	o 76	54.00	x 81	80.00

GARRRUNDTTEST / Yarn Round Robin Test No. 89

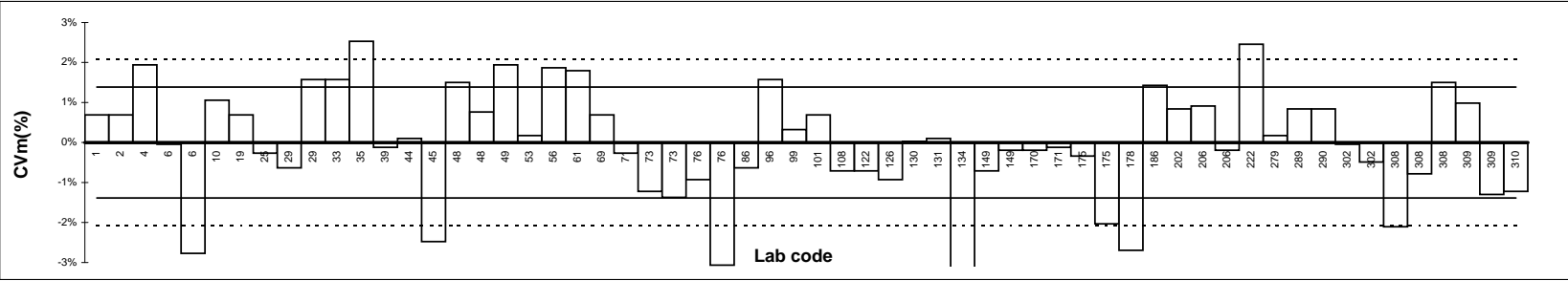
Evenness / Imperfections													
Lab Code	Instrument	No. of tests	Speed (m/min)	Testing time (min)	Um (%)	CVm(%)	Thin places / 1000 m	CV (%)	Thick places / 1000 m	CV (%)	Neps / 1000 m	CV (%)	
222	UT 3	10	400	1.00	o 11.01	o 13.92	4	73.40	69	28.30	66	23.40	
279	UT 5	10	400	2.50	10.78	13.61	2	52.85	61	23.00	49	17.30	
289	UT 3	10	400	2.50	10.84	13.70	x 7	87.90	60	35.00	51	22.00	
290	UT 5	10	400	2.50		13.70	3	68.60	58	10.20	63	21.60	
302	UT 5	10	850	1.25	10.68	13.58	4	105.10	57	33.20	50	17.70	
302	UT 3	10	400	1.00	10.70	13.52	4	79.10	54	34.90	o 35	36.90	
308	UT 3-2,Cone 306-310	5	400	2.50		o 13.30	o 1	91.30	48	20.70	48	14.60	
308	UT 3-3,Cone 306-310	5	400	2.50	10.68	13.48	2	121.80	52	9.20	o 37	20.90	
308	UT 4-3,Cone 6-10	5	400	2.50	10.91	13.79	o 5	47.90	65	24.60	x 90	63.30	
309	UT 4-4,Cone 56-60	10	400	2.50	10.85	13.72	3	74.20	60	18.60	59	10.60	
309	UT 3-1, Cone 391-395	5	400	2.50		13.41	3	51.35	o 44	31.69	46	29.49	
310	UT 4SX	10	400	2.50	10.63	13.42	3	92.90	53	62.70	o 33	14.50	
n					55	60	58		57		58		
Ø					10.76	13.59	3.05		58.11		53.52		
s					0.13	0.19	1.12		8.61		10.18		
CV %					1.22	1.39	36.56		14.81		19.01		
s_r²									224.75		176.84		
s_L²									41.00		89.07		
s_R²									265.75		265.91		
r									41.98		37.23		
R									45.65		45.66		



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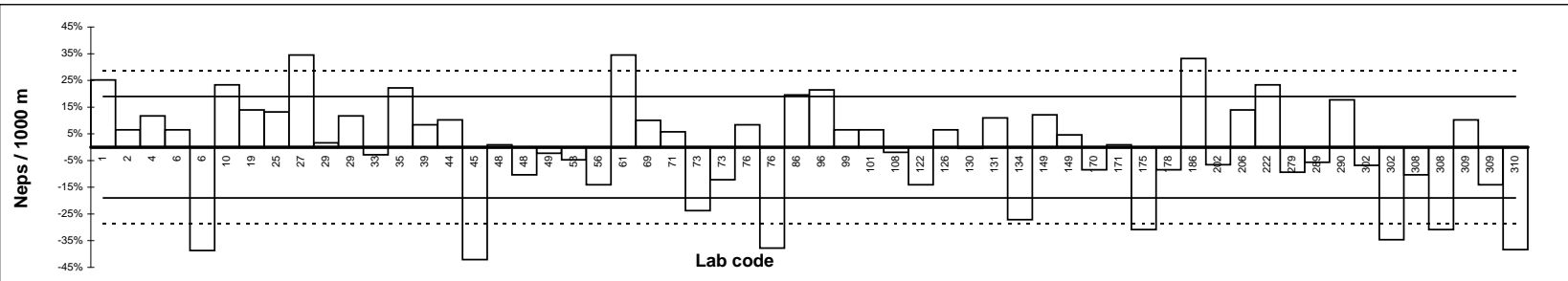
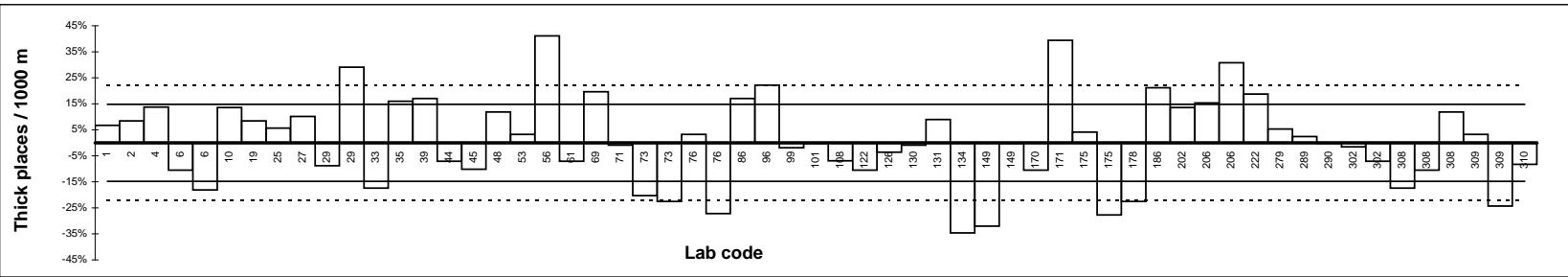
GARNRUNDTEST / Yarn Round Robin Test No. 89

Evenness / Imperfections



Die geringe Anzahl der Dünnstellen lassen sich nicht sinnvoll graphisch darstellen

Because of the small amount of thin places it is not ingenious to draw a graphic





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Optical evenness														
Lab Code	Instrument	No. of tests	Speed (m/min)	Length / sample (m)	2D Ø mm	CV 2D 0.3mm %	CV 2D 8mm %	CV FS %	Shape	Thin places (-30%)	Thick places (+30%)	Neps (+50%)	Reference yarn ø mm	OCV %
2	UT5	10	400	1000	0.230	14.52	11.25	9.19	0.83					
4	UT5	10	400	1000	0.228	14.51	11.23	9.19	0.82					
19	UT4	10	400	1000	x 0.245	o 15.08	11.22	10.08	0.82					
25	UT5	10	400	1000	0.225	14.51	11.26		0.82					
27	UT4	10	400	1000	0.231	14.60	11.07	9.52	0.81					
29	UT4-1	5	400	1000.0	0.235	14.48	o 10.99	9.43	0.81					
29	UT5-1	5	400	1000.0	0.229	14.58	11.22	9.31	0.80					
130	UT5	10	400	1000	0.227	14.46	11.14	9.21	0.81					
175	UT4 - SX	5	400	400	0.227	x 15.53	x 11.70	10.23	o 0.84	1673.00				
186	UT 5	10	400	1000	0.229	14.66	11.33	9.29	0.82					
202	UT 5	10	400	1000	0.226	14.68	11.30	9.37	0.80	1647.00				
290	UT 5	10	400	1000	0.230	14.69	11.29	9.40	0.82					
302	UT 5	10	850	1060	o 0.239		o 11.49		x 0.78	1673.00				
302	UT 3	10	400	400						1574.00				
310	UTJ4SX	10	400	1000	o 0.243	o 15.28	o 11.51		0.81	1524.00				
n					13	12	13		13	5				
Ø					0.23	14.67	11.25		0.82	0.00				
s					0.01	0.25	0.14		0.01	0.00				
CV %					2.29	1.73	1.28		1.37	0.00				



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Yarn hairiness - Count							
Lab Code	Instrument	No. of tests	Speed (m/min)	Length (m/sample)	Distance mm	ø H / m	CV (%)
2	Zweigle G566	10	50	300	3	18.01	11.46
6	Zweigle G566	5	50	300	3	15.29	14.75
10	Zweigle G567	5	50	300		9.14	15.02
19	Zweigle G566	10	50	300	3	19.26	8.97
25	Zweigle G566	5	50	300	3	10.90	9.63
27	Zweigle G567	5	50	150	3	18.00	19.10
29	Zweigle G566	5	50	300	3	o 1.69	11.19
39	Zweigle G566	5	49	100		14.00	7.27
69	Zweigle G566	5	50	300	3	o 23.00	13.79
71	Zweigle G565	5	50	300	3	15.86	11.16
76	Zweigle G565	5	50	300	3	19.69	5.46
79	Zweigle G565	10	50	300	3	16.84	18.16
130	Zweigle G566	5	50	400	3	5.70	15.90
130	HL 400	5	400	400	3	4.50	29.90
131	Zweigle G566	5	50	300	3	9.70	9.00
185	Zweigle G566	5	50	300	3	9.58	26.50
186	HL400	5	400	400	3	15.44	16.10
206	Zweigle	5	50	300	3	19.24	7.69
289	G 556	10	50	300	3	5.69	4.47
290	Zweigle G567	5	50	300	15	10.80	4.00
n						20	
ø						13.12	
s						5.90	
CV %						44.98	
s_r²						3.65	
s_L²						34.24	
s_R²						37.89	
r						5.35	
R						17.23	



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GARNRUNDTTEST / Yarn Round Robin Test No. 89

Yarn hairiness - Index							
Lab Code	Instrument	No. of tests	Speed (m/min)	Testing time (min)	ø H - Index	CV %	ø sh
1	UT3	10	400	2.50	5.89	x 6.26	1.49
2	UT5	10	400	2.50	6.17	3.10	1.57
4	UT5	10	400	2.50	6.25	3.10	1.62
6	UT3	5	400	2.50	o 5.42	o 5.33	1.42
6	UT4	5	400	2.50	5.89	o 5.50	1.54
10	UT4	10	400	5.00	5.95	2.42	1.47
19	UT4	10	400	2.50	6.15	4.30	1.58
25	UT5	10	400	2.50	6.14	3.60	1.53
27	UT4	10	400	2.50	6.25	1.60	1.57
29	UT4-1	5	400	2.50	5.81	1.90	1.48
29	UT5-1	5	400	2.50	5.95	2.70	1.56
33	UT3	5	400	5.00	5.77	2.50	1.52
35	UT3	10	400	2.50	x 5.28	2.12	o 1.32
39	UT4	5	400	1.00	6.36	2.70	1.64
44	UT3	10	400	2.50	o 5.50	2.30	o 1.40
45	UT4	10	400	2.50	6.09	3.30	1.61
48	UT3	5	400	2.50	6.08	2.28	1.49
48	PT 7000	5	400	2.50	6.04	o 5.16	o 1.73
49	UT5	10	200	5.00	5.81	1.79	1.62
61	Covatest	10	400	2.50	6.17	x 6.84	1.56
69	UT5	10	400	1.00	5.99	3.50	1.56
71	UT4	10	400	2.50	5.77	2.20	1.50
73	UT4	10	400	1.00	6.00	2.60	1.53
96	UT4	10	400	2.50	6.00	2.70	1.52
99	UT4	5	400	2.50	6.21	o 4.70	1.55
122	UT3	5	400	5.00	5.91	2.48	1.53
126	UT3 1	5	400	1.00	5.93	3.01	1.54
130	UT5	10	400	2.50	5.95	2.40	x 0.14
131	UT5	10	400	2.50	o 6.40	2.50	1.64
134	UT3	10	400	1.00	5.67	4.64	1.46
149	Premier iQ2DX	10	400	1.00	6.29	x 5.90	o 1.68
149	Premier PT 3	10	400	1.00	6.09	o 5.10	o 1.70
171	UT4 - SX	10	400	1.00	6.03	3.70	1.56
175	UT4 - SX	5	400	1.00	o 6.46	o 1.30	1.55
175	UT 3	5	200	1.00	5.68	2.87	1.51
178	Premier PT 7000	5	400	1.00	5.74	2.65	1.61
186	UT5	10	400	2.50	6.23	3.50	1.61
202	UT 5	10	400	2.50	6.22	3.10	1.65
206	UT 4	5	400	1.00	5.86	2.20	1.49
206	UT 5	5	400	1.00	5.78	1.60	1.46
222	UT 3	10	400	1.00	o 5.52	3.79	1.59
279	UT 5	10	400	2.50	6.14	o 5.65	1.59
289	UT 3	10	400	2.50	x 5.31	3.15	o 1.35
290	UT5	10	400	2.50	6.17	4.20	1.58

(x) unexpected value
(o) beyond control limit



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GARNRUNDTEST / Yarn Round Robin Test No. 89

Yarn hairiness - Index							
Lab Code	Instrument	No. of tests	Speed (m/min)	Testing time (min)	ø H - Index	CV %	ø sh
302	UT5	10	850	1.25	5.80	2.00	1.48
302	UT3	10	400	1.00	5.67	1.81	1.42
308	UT3-2	5	400	2.50	5.80	2.43	1.50
308	UT4-3	5	400	2.50	6.19	2.90	1.57
308	UT3-3	5	400	2.50	x 5.37	2.89	1.43
309	UT 4-4,Cone 56-60	10	400	2.50	6.12	2.40	1.53
310	UTJ4SX	10	400	2.50	o 6.42	3.10	1.62
n					48	48	50
ø					5.99	3.06	1.54
s					0.25	1.09	0.08
CV %					4.09	35.75	5.42
s_r^2					0.05		
s_L^2					0.05		
s_R^2					0.10		
r					0.61		
R					0.89		



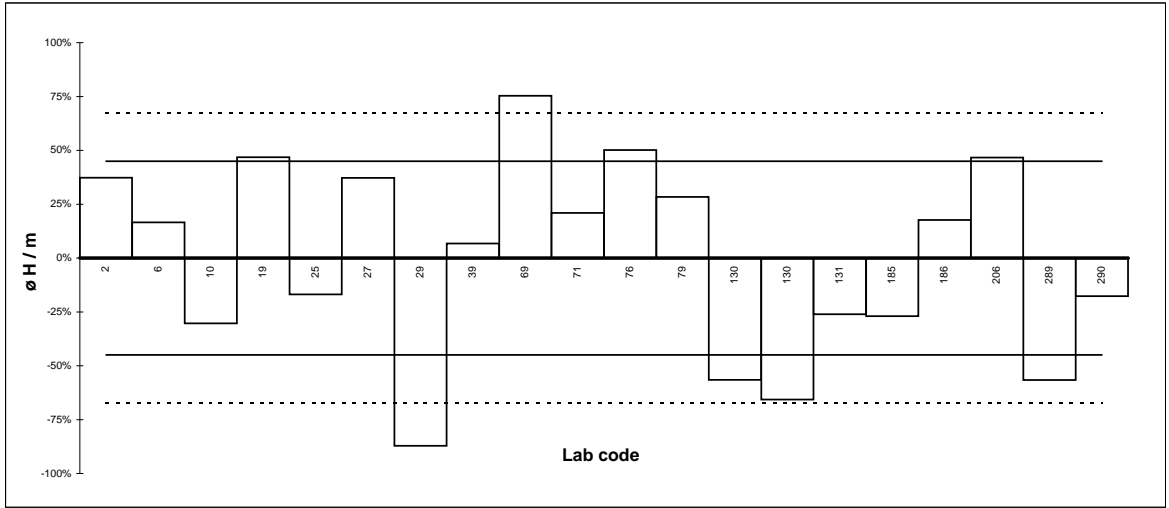
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GARNRUNDTEST / Yarn Round Robin Test No. 89

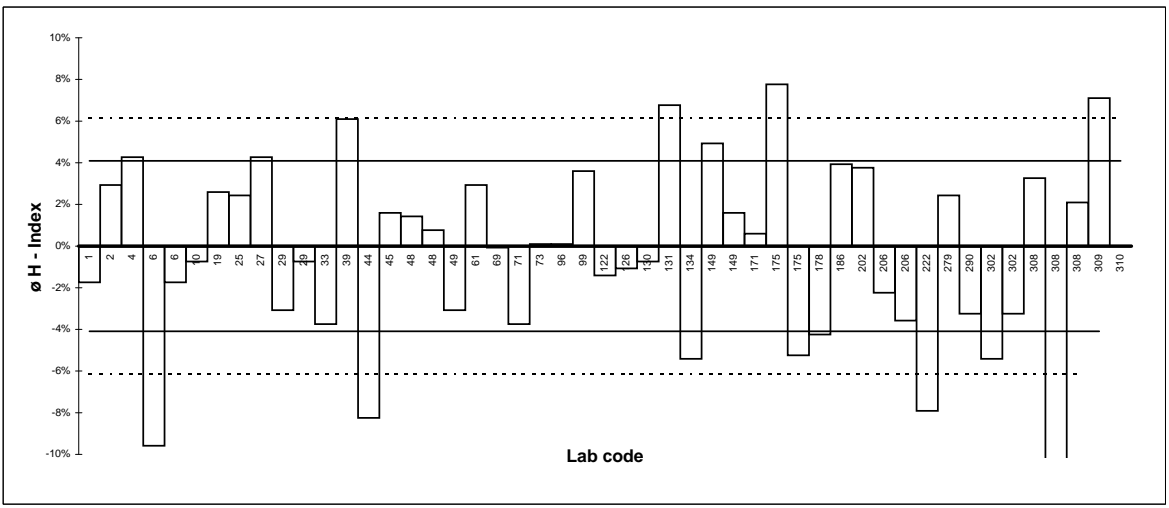
Yarn friction					
Lab Code	Instrument	No. of tests	Length (m/sample)	∅ μ / friction value	CV (%)
1	Zweigle G530	10	500	0.127	5.31
2	Zweigle G534	10	400	o 0.100	10.90
6	Rothschild	5	100	0.119	4.28
10	Schlafhorst	10		0.130	5.55
27	F-Meter Rothschild	4	300	0.147	
29	Schlafhorst	10	500	0.140	5.56
35	Schlafhorst	10		0.140	0.00
35	Attrifil	10	500	0.144	2.02
39	Schlafhorst	25		0.150	
44	Schlafhorst	10	500	0.140	7.00
45	Schlafhorst	10		0.147	1.73
48	Zweigle G 530	5	1000	0.140	
53	Attrifil	5	500	x 0.086	
76	Zweigle G532	10	500	0.120	3.67
96	Schlafhorst	10		0.147	1.86
131	Zweigle G530	10	500	0.110	8.70
134	Zweigle 532	10	1000	o 0.166	9.14
169	Mesdan Attrifil II	10	500	0.135	7.25
175	Attrifil	5	100	0.110	3.00
185	Zweigle G532	5	1000	0.118	
n				19	
∅				0.133	
s				0.017	
CV %				12.602	
s_r²				0.0000	
s_L²				0.0003	
s_R²				0.0003	
r				0.0193	
R				0.0507	

GARNRUNDTEST / Yarn Round Robin Test No. 89

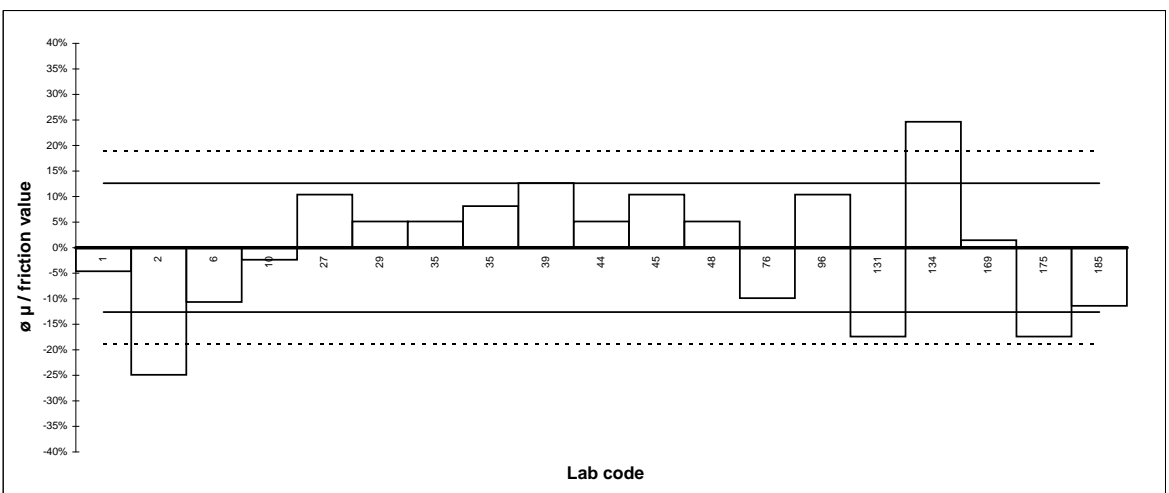
Yarn hairiness count



Yarn hairiness Index



Yarn friction





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GARNRUNDTEST / Yarn Round Robin Test No. 89

Climate conditions					
Lab Code	°C	% rel. humidity	Lab Code	°C	% rel. humidity
1	20	65	101	20	65
2	20	65	106	No information	information
4	20.3	64.5	107	20	65
6	22	55	108	21.6	52.6
10	20	65	122	21	65
19	20	65	126	22	61
25	22	63	130	22.1	68.7
27	21	66	131	22	63
29	22	64	134	No information	--
33	20	65	169	24	50
35	20	65	170	21	65
39	21	65	171	26	66
44	20	65	175	22	65
45	21	66	178	30	57
48	20	65	185	20	65
49	21	64	186	21	65
53	20	64	187	No information	--
56	24	67	202	21	65
61	21	66	206	21	65
63			222	27	65
69	25	65	238	20	65
71	20	65	279	21	65
73	25	67	289	21	65
76	No information	--	290	21	65
79	20	65	302	No information	--
84	20	65	308	No information	--
86	20	65	309	No information	--
96	22	65	310	24	60
99	23	63	312	19	67.5

Lexikon / Dictionary

Abkürzungen Abbreviations	English	Deutsch
n	Number of values	Anzahl Werte
$\bar{\emptyset}$	Mean value	Mittelwert
s	Standard deviation	Standardabweichung
CV%	Coefficient of variation (%)	Variationskoeffizient (%)
s_r^2	Repetition variance	Wiederholvarianz
s_L^2	Variance between laboratories	Varianz zwischen den Labors
s_R^2	Comparison variance	Vergleichsvarianz
r	Repetition limit	Wiederholgrenze
R	Comparison limit	Vergleichsgrenze
	Breaking force	Höchstkraft
	Confidence rate	Vertrauensbereich
	Cops	Kops
	Distance	Abstand
	Elongation	Dehnung
	Evenness	Gleichmässigkeit
	Friction value	Reibwert
	Humidity	Feuchtigkeit
	Imperfections	Imperfektionen
	Lab code	Laborkennzahl
	Length (m/sample)	Länge (m/Probe)
	Neps	Nissen
	Number of tests	Anzahl Tests
	Optical	Optisch
	Pre-tension	Vorspannung
	Shape	Rundheit
	Skein breaking tenacity	Strang Höchstzugfestigkeit
	Speed	Geschwindigkeit
	Tenacity	Festigkeit
	Testing time	Zeit / Test
	Thick places	Dickstellen
	Thin places	Dünnstellen
	Yarn count	Garnfeinheit
	Yarn friction	Garnreibung
	Yarn hairiness	Garnhaarigkeit
	Yarn twist	Gardrehung

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