

gr
DS

1980-81
TEXAS COTTON QUALITY REPORT

Conducted at the
TEXTILE RESEARCH CENTER
Texas Tech University

Sponsored by
THE NATURAL FIBERS and FOOD PROTEIN COMMISSION of TEXAS

1980 - 81 TEXAS COTTON QUALITY REPORT

In December 1979, the Natural Fibers and Food Protein Commission of Texas requested the Textile Research Center to evaluate the 1979-80 Texas cotton crop by conducting spinning tests. This was undertaken immediately, and a report was issued in the January issue of *Textile Topics* (Vol. VIII, No. 5), the Textile Research Center's monthly bulletin. Although the study was begun late in the season and included only ten cottons, the report furnished information to the cotton producing and spinning industries.

The Natural Fibers Commission requested that a similar study be made on the 1980-81 Texas crop which would include a broader representation than the previous program. The Plains Cotton Cooperative Association agreed to supply the cotton. This was most helpful as PCCA has access to a great amount of cotton from most areas of the state. We are grateful to both the NFFPC and PCCA for their assistance in conducting this evaluation.

It was decided that this year's study should be more comprehensive than the previous one, and the program included fiber testing on individual instruments and the high volume instrument testing line operated at the Textile Research Center. The following tables give results from both procedures.

It will be seen that the spinning was conducted on ring frames as well as two different open-end machines. In order to be as meaningful as possible, yarn numbers were selected to conform with a range of industrial production, although it should be understood that it was not practical to spin numbers corresponding with all yarns produced by industry.

Because this year's evaluation was considerably more extensive than the one done on the 1979-80 crop, the volume of data collected is too much to report in our regular monthly bulletin. Therefore, we are issuing this information in a separate report to selected recipients of *Textile Topics*, as many of them purchase and process Texas cotton. Also, a notice of this publication will be carried in the next issue of *Topics* so that others may request this report if they care to do so.

We trust this information will be of interest to those receiving it. Again, we would like to express appreciation for the support given by the Natural Fibers and Food Protein Commission of Texas and the Plains Cotton Cooperative Association.

THE TEXTILE RESEARCH CENTER

1980 – 81 TEXAS COTTON QUALITY REPORT

**Conducted at the
TEXTILE RESEARCH CENTER
Texas Tech University**

**Sponsored by
THE NATURAL FIBERS and FOOD PROTEIN COMMISSION of TEXAS**

TABLE I - LOT NUMBER 25
FIBER ANALYSIS - INDIVIDUAL INSTRUMENT TESTING

2.5% Span Length (in.)	.92	Length Uniformity (%)	45	Short Fiber Content (%)	8.93	Micronaire Fineness	4.8	Pressley Strength (Mpsi)	105.8	Stelometer Strength (g/tex)	24.0	Elongation (%)	4.7
------------------------	-----	-----------------------	----	-------------------------	------	---------------------	-----	--------------------------	-------	-----------------------------	------	----------------	-----

FIBER ANALYSIS - HIGH VOLUME INSTRUMENT TESTING

2.5% Span Length (in)	.95	Length Uniformity (%)	79	Micronaire Fineness	4.7	1/8" Gauge Strength (g/tex)	26	Grade	22
-----------------------	-----	-----------------------	----	---------------------	-----	-----------------------------	----	-------	----

YARN TESTING DATA

Spinning Machine Used	Rieter M1/1			Elitex BD 200S			Ring Spun		
	10/1	16/1	22/1	10/1	16/1	22/1	16/1	22/1	30/1
Nominal Yarn Number (N _e)	9.94	15.92	22.40	9.98	15.92	22.05	16.26	21.37	29.83
Actual Yarn Number (tex)	59.46	37.12	26.38	59.22	37.12	26.80	36.35	27.56	19.81
Yarn Number Variability (CV%)	0.89	0.77	0.70	0.48	0.65	1.60	1.62	0.96	1.52
Twist Multiplier	4.84	4.79	4.80	4.80	4.80	4.80	4.00	4.00	4.00
Skein Strength (lbs)	221	126	81	197	108	69	123	89	54
Skein Strength Variability (CV%)	4.67	1.56	3.34	2.45	3.74	3.11	4.82	3.25	6.00
Count Strength Product	2197	2006	1831	1966	1720	1527	2008	1895	1611
CSP Variability (CV%)	4.70	1.53	2.73	2.39	3.73	3.00	4.55	2.54	4.99
Uster Nonuniformity (CV%)	16.20	17.06	17.94	16.79	17.04	18.10	22.30	24.34	26.42
IPI Thin Count/1,000 yards	26	52	111	38	80	172	705	896	1451
IPI Thick Count/1,000 yards	164	234	344	216	196	253	1079	1499	2142
IPI Nep Count/1,000 yards	210	362	541	108	169	286	321	459	806
Elongation (%)	6.7	6.0	5.8	7.7	6.8	6.3	6.4	6.3	6.1
Single Yarn Strength (g)	765	438	283	717	390	282	464	327	232
Single Yarn Str. Variability (CV%)	9.6	8.9	10.2	9.4	13.3	10.9	11.9	13.8	17.3
Tenacity (g/tex)	13.7	13.4	11.2	12.7	11.3	10.8	13.4	12.4	11.9
Hair Count/100 yards	302	185	148	536	262	148	1996	2266	2436
Hair Count Variability (CV%)	11.27	29.44	12.15	29.69	10.09	9.92	10.58	10.87	13.77
ASTM Yarn Grade	B	B	B	B+	A	A	D	D	C

TABLE II - LOT NUMBER 26
FIBER ANALYSIS - INDIVIDUAL INSTRUMENT TESTING

2.5% Span Length (in.)	Length Uniformity (%)	Short Fiber Content (%)	Micronaire Fineness	Pressley Strength (Mpsi)	Stelometer Strength (g/tex)	Elongation (%)
.92	40	11.45	4.3	99.2	20.9	5.5

FIBER ANALYSIS - HIGH VOLUME INSTRUMENT TESTING

2.5% Span Length (in.)	Length Uniformity (%)	Micronaire Fineness	1/8" Gauge Strength (g/tex)	Grade
.91	78	4.3	22	22

YARN TESTING DATA

Spinning Machine Used	Rieter M1/1			Elitex BD 2005			Ring Spun		
	10/1	16/1	22/1	10/1	16/1	22/1	16/1	22/1	30/1
Nominal Yarn Number (Ng)	10/1	16/1	22/1	10/1	16/1	22/1	16/1	22/1	30/1
Actual Yarn Number (Ne)	9.78	16.19	22.24	9.86	15.81	21.86	16.08	21.20	29.48
Actual Yarn Number (tex)	60.43	36.50	26.57	69.94	37.38	27.04	36.75	27.88	20.05
Yarn Number Variability (CV%)	1.11	0.68	0.85	0.86	1.01	1.04	1.01	1.76	1.55
Twist Multiplier	4.84	4.79	4.80	4.80	4.80	4.80	4.00	4.00	4.00
Skein Strength (lbs)	218	119	81	192	107	71	111	83	51
Skein Strength Variability (CV%)	1.72	3.39	2.64	1.85	4.34	2.78	2.61	5.42	3.32
Count Strength Product	2131	1927	1795	1895	1690	1539	1841	1737	1488
CSP Variability (CV%)	1.52	3.60	2.84	1.53	4.04	2.65	2.68	4.90	2.72
Uster Nonuniformity (CV%)	15.65	16.70	17.52	16.75	16.61	17.52	24.26	25.90	28.37
IPI Thin Count/1,000 yards	14	40	78	31	44	96	842	1226	2118
IPI Thick Count/1,000 yards	124	194	250	188	140	185	1471	1895	2705
IPI Nep Count/1,000 yards	153	325	439	86	126	195	275	380	676
Elongation (%)	7.2	6.5	5.4	8.0	7.4	6.2	6.5	6.9	5.6
Single Yarn Strength (g)	683	416	275	645	373	252	434	313	211
Single Yarn Str. Variability (CV%)	7.3	10.3	10.9	7.0	12.1	14.3	13.8	14.4	15.2
Tenacity (g/tex)	12.3	13.0	10.9	11.5	10.3	9.7	12.3	12.0	10.9
Hair Count/100 yards	248	157	141	319	260	132	1788	2049	2219
Hair Count Variability (CV%)	13.89	22.42	28.30	9.16	5.36	8.70	11.20	9.21	13.18
ASTM Yarn Grade	A	B+	B	A	A	B	D	D	D

TABLE IV - LOT NUMBER 41
FIBER ANALYSIS - INDIVIDUAL INSTRUMENT TESTING

2.5% Span Length (in.)	Length Uniformity (%)	Short Fiber Content (%)	Micronaire Fineness	Pressley Strength (Mpsi)	Stelometer Strength (g/tex)	Elongation (%)
1.05	47	7.58	4.1	104.0	27.9	5.0

FIBER ANALYSIS - HIGH VOLUME INSTRUMENT TESTING

2.5% Span Length (in)	Length Uniformity (%)	Micronaire Fineness	1/8" Gauge Strength (g/tex)	Grade
1.07	82	4.1	31	32

YARN TESTING DATA

Spinning Machine Used	Rieter M1/1			Elitex BD 200S			Ring Spun		
	10/1	16/1	22/1	10/1	16/1	22/1	16/1	22/1	30/1
Nominal Yarn Number (Ne)	10/1	16/1	22/1	10/1	16/1	22/1	16/1	22/1	30/1
Actual Yarn Number (Ne)	10.10	16.11	21.89	10.13	15.80	21.75	15.72	22.36	30.47
Actual Yarn Number (tex)	58.51	36.69	27.00	58.34	37.41	27.17	37.60	26.43	19.40
Yarn Number Variability (CV%)	1.15	0.99	1.09	1.32	1.12	0.85	2.14	1.32	0.93
Twist Multiplier	4.84	4.79	4.80	4.80	4.80	4.80	4.00	4.00	4.00
Skein Strength (lbs)	270	155	110	248	148	96	160	116	82
Skein Strength Variability (CV%)	1.60	2.90	2.72	3.59	3.38	3.91	8.84	2.81	2.79
Count Strength Product	2739	2499	2408	2517	2340	2086	2516	2607	2516
CSP Variability (CV%)	1.75	2.55	2.91	3.80	2.88	3.43	9.74	2.64	2.37
Uster Nonuniformity (CV%)	14.85	14.86	15.92	15.39	15.53	16.17	18.45	19.91	22.22
IPI Thin Count/1,000 yards	5	7	25	13	18	42	102	218	460
IPI Thick Count/1,000 yards	126	143	222	164	136	170	505	889	1352
IPI Nep Count/1,000 yards	191	262	375	106	160	230	328	427	752
Elongation (%)	7.9	7.8	7.1	8.8	7.3	7.4	8.6	7.9	7.8
Single Yarn Strength (g)	899	555	373	873	501	327	617	437	299
Single Yarn Str. Variability (CV%)	5.7	6.5	8.0	7.6	8.2	9.0	8.4	9.6	8.8
Tenacity (g/tex)	15.8	16.2	15.1	15.2	14.2	12.6	17.0	16.6	16.7
Hair Count/100 yards	267	281	144	232	137	104	1258	1053	956
Hair Count Variability (CV%)	10.31	25.67	17.64	9.43	10.36	7.26	9.17	10.00	7.53
ASTM Yarn Grade	A	A	B+	A	A	A	B	C	B

TABLE VI - LOT NUMBER 85
FIBER ANALYSIS - INDIVIDUAL INSTRUMENT TESTING

2.5% Span Length (in.)	Length Uniformity (%)	Short Fiber Content (%)	Micronaire Fineness	Pressley Strength (Mpsi)	Stelometer Strength (g/tex)	Elongation (%)
.89	40	8.38	4.7	92.7	23.4	6.3

FIBER ANALYSIS - HIGH VOLUME INSTRUMENT TESTING

2.5% Span Length (in)	Length Uniformity (%)	Micronaire Fineness	1/8" Gauge Strength (g/tex)	Grade
.92	81	4.6	26	33

YARN TESTING DATA

Spinning Machine Used	Rieter M1/1			Elitex BD 200S			Ring Spun		
	10/1	16/1	22/1	10/1	16/1	22/1	16/1	22/1	30/1
Nominal Yarn Number (N _e)	9.86	15.76	21.30	9.93	15.81	21.99	15.86	21.59	30.06
Actual Yarn Number (N _e)	59.94	37.50	27.75	59.52	37.38	26.88	37.26	27.37	19.66
Yarn Number Variability (CV%)	1.13	0.91	1.08	1.07	1.33	1.12	2.65	2.74	2.17
Twist Multiplier	4.84	4.79	4.80	4.80	4.80	4.80	4.00	4.00	4.00
Skein Strength (lbs)	222	127	87	206	116	73	119	83	53
Skein Strength Variability (CV%)	4.05	2.67	2.76	3.16	4.79	2.69	4.57	5.66	6.20
Count Strength Product	2185	2002	1836	2039	1833	1596	1882	1791	1585
CSP Variability (CV%)	3.59	2.32	2.13	2.75	3.89	2.17	3.13	3.88	4.56
Uster Nonuniformity (CV%)	15.85	16.71	17.82	16.51	16.60	17.91	22.56	24.55	26.94
IPI Thin Count/1,000 yards	26	58	112	38	56	148	629	1065	1763
IPI Thick Count/1,000 yards	115	172	279	172	138	215	950	1572	2262
IPI Nep Count/1,000 yards	130	299	526	76	109	210	144	241	477
Elongation (%)	7.4	7.2	6.6	8.7	7.9	7.1	8.1	7.8	6.6
Single Yarn Strength (g)	747	473	305	699	422	266	470	318	217
Single Yarn Str. Variability (CV%)	8.6	8.9	9.6	8.6	10.0	10.4	12.3	16.8	15.1
Tenacity (g/tex)	12.9	13.7	12.3	12.3	12.0	10.2	14.0	11.9	10.4
Hair Count/100 yards	243	133	75	366	183	120	1836	1991	1653
Hair Count Variability (CV%)	4.96	4.89	5.06	10.59	36.08	17.27	7.30	9.65	8.11
ASTM Yarn Grade	A	B+	B+	A	B	B	B	C	D

TABLE VII - LOT NUMBER 93
FIBER ANALYSIS - INDIVIDUAL INSTRUMENT TESTING

2.5% Span Length (in.)	.97	Length Uniformity (%)	42	Short Fiber Content (%)	9.95	Micronaire Fineness	3.5	Pressley Strength (Mpsi)	88.2	Stelometer Strength (g/tex)	22.5	Elongation (%)	5.9
------------------------	-----	-----------------------	----	-------------------------	------	---------------------	-----	--------------------------	------	-----------------------------	------	----------------	-----

FIBER ANALYSIS - HIGH VOLUME INSTRUMENT TESTING

2.5% Span Length (in)	.99	Length Uniformity (%)	78	Micronaire Fineness	3.3	1/8" Gauge Strength (g/tex)	25	Grade	32
-----------------------	-----	-----------------------	----	---------------------	-----	-----------------------------	----	-------	----

YARN TESTING DATA

Spinning Machine Used	Rieter M1/1			Elitex BD 200S			Ring Spun		
	10/1	16/1	22/1	10/1	16/1	22/1	16/1	22/1	30/1
Nominal Yarn Number (N _e)	9.98	15.83	21.44	10.39	15.98	21.82	16.07	23.33	30.33
Actual Yarn Number (N _e)	59.22	37.33	27.57	56.88	36.98	27.08	36.78	25.33	19.49
Yarn Number Variability (CV%)	1.36	1.12	1.60	1.32	1.81	1.22	1.90	1.49	1.36
Twist Multiplier	4.84	4.79	4.80	4.80	4.80	4.80	4.00	4.00	4.00
Skein Strength (lbs)	224	133	92	195	123	81	131	84	61
Skein Strength Variability (CV%)	2.06	1.92	2.48	1.97	2.25	2.54	2.94	4.14	3.84
Count Strength Product	2236	2101	1954	1920	1959	1773	2113	1977	1841
CSP Variability (CV%)	1.86	2.06	2.10	2.16	1.66	2.04	2.37	4.28	3.51
Uster Nonuniformity (CV%)	15.00	15.74	16.36	15.72	15.48	16.00	18.92	21.53	24.00
IPI Thin Count/1,000 yards	8	18	37	14	16	43	179	431	937
IPI Thick Count/1,000 yards	136	185	253	182	130	165	528	1199	1840
IPI Nep Count/1,000 yards	193	291	611	118	188	282	255	362	676
Elongation (%)	9.1	8.4	7.5	9.2	8.6	7.6	9.2	9.0	8.1
Single Yarn Strength (g)	798	467	326	728	425	283	497	319	233
Single Yarn Str. Variability (CV%)	7.1	6.9	7.7	9.1	9.6	9.3	8.7	9.6	11.8
Tenacity (g/tex)	14.2	13.9	13.1	12.8	12.1	10.8	14.7	12.6	12.8
Hair Count/100 yards	277	177	155	332	186	149	1147	1150	1183
Hair Count Variability (CV%)	6.74	6.62	14.23	6.38	9.37	15.59	4.26	6.87	11.58
ASTM Yarn Grade	A	A	B	A	A	A	B	C	C

TABLE VIII - LOT NUMBER 74 - 1
FIBER ANALYSIS - INDIVIDUAL INSTRUMENT TESTING

2.5% Span Length (in.)	.81	Length Uniformity (%)	37	Short Fiber Content (%)	9.35	Micronaire Fineness	4.9	Pressley Strength (Mpsi)	90.2	Stelometer Strength (g/tex)	17.7	Elongation (%)	5.6
------------------------	-----	-----------------------	----	-------------------------	------	---------------------	-----	--------------------------	------	-----------------------------	------	----------------	-----

FIBER ANALYSIS - HIGH VOLUME INSTRUMENT TESTING

2.5% Span Length (in.)	.83	Length Uniformity (%)	79	Micronaire Fineness	5.0	1/8" Gauge Strength (g/tex)	22	Grade	33
------------------------	-----	-----------------------	----	---------------------	-----	-----------------------------	----	-------	----

YARN TESTING DATA

Spinning Machine Used	Rieter M1/1			Elitex BD 200S			Ring Spun		
	10/1	16/1	22/1	10/1	16/1	22/1	16/1	22/1	30/1
Nominal Yarn Number (Ne)	10.16	15.98	22.00	10.08	15.82	21.77	16.37	22.56	No
Actual Yarn Number (tex)	58.17	36.98	26.86	58.63	37.36	27.15	36.10	26.20	Data
Yarn Number Variability (CV%)	0.43	0.88	0.86	0.63	0.83	1.21	1.78	1.48	
Twist Multiplier	4.84	4.79	4.80	4.80	4.80	4.80	4.00	4.00	4.00
Skein Strength (lbs)	167	96	63	160	87	55	75	44	Would Not Spin
Skein Strength Variability (CV%)	2.50	1.47	3.53	2.59	4.11	2.90	4.45	5.76	
Count Strength Product	1700	1539	1379	1611	1390	1182	1231	991	
CSP Variability (CV%)	2.33	1.07	3.26	2.35	3.42	2.24	4.32	5.28	
Uster Nonuniformity (CV%)	17.56	18.45	19.19	17.66	18.10	19.33	28.75	30.79	
IPI Thin Count/1,000 yards	81	140	243	82	132	241	2116	2892	
IPI Thick Count/1,000 yards	179	225	358	213	209	247	2030	2785	
IPI Nep Count/1,000 yards	184	276	536	86	164	287	270	482	
Elongation (%)	6.6	6.5	5.9	7.6	6.8	6.6	6.8	6.6	
Single Yarn Strength (g)	588	454	237	578	316	205	317	221	
Single Yarn Str. Variability (CV%)	13.5	12.8	12.4	13.2	13.3	16.1	16.7	20.1	
Tenacity (g/tex)	10.3	13.4	9.6	10.0	8.9	7.7	9.4	8.2	
Hair Count/100 yards	289	135	89	533	176	124	2047	2404	
Hair Count Variability (CV%)	8.60	10.38	23.27	29.27	19.00	11.85	5.21	10.15	
ASTM Yarn Grade	A	B	B	B	C	B	BG	BG	BG

TABLE IX - LOT NUMBER 17
FIBER ANALYSIS - INDIVIDUAL INSTRUMENT TESTING

2.5% Span Length (in.)	.91	Length Uniformity (%)	44	Short Fiber Content (%)	13.05	Micronaire Fineness	3.9	Pressley Strength (Mpsi)	91.4	Stelometer Strength (g/tex)	21.4	Elongation (%)	5.7
------------------------	-----	-----------------------	----	-------------------------	-------	---------------------	-----	--------------------------	------	-----------------------------	------	----------------	-----

FIBER ANALYSIS - HIGH VOLUME INSTRUMENT TESTING

2.5% Span Length (in)	.94	Length Uniformity (%)	78	Micronaire Fineness	4.0	1/8" Gauge Strength (g/tex)	27	Grade	32
-----------------------	-----	-----------------------	----	---------------------	-----	-----------------------------	----	-------	----

YARN TESTING DATA

Spinning Machine Used	Rieter M1/1			Elitex BD 200S			Ring Spun		
	10/1	16/1	22/1	10/1	16/1	22/1	16/1	22/1	30/1
Nominal Yarn Number (N _e)	10.13	16.14	22.04	10.17	15.70	22.00	16.28	21.38	30.13
Actual Yarn Number (N _e)	58.34	36.62	26.81	58.11	37.64	26.86	36.30	27.64	19.62
Actual Yarn Number (tex)	0.48	0.73	0.81	0.47	1.08	1.35	1.38	1.49	1.58
Yarn Number Variability (CV%)	4.84	4.79	4.80	4.80	4.80	4.80	4.00	4.00	4.00
Twist Multiplier	215	123	84	198	118	73	120	88	56
Skein Strength (lbs)	1.85	2.52	2.73	3.33	4.39	3.36	3.03	5.57	4.67
Skein Strength Variability (CV%)	2178	1989	1856	2020	1846	1607	1960	1866	1702
Count Strength Product	1.70	2.02	2.35	3.21	3.67	3.77	2.82	5.11	4.02
CSP Variability (CV%)	15.79	16.31	18.34	16.36	16.31	17.07	21.78	23.74	25.96
Uster Nonuniformity (CV%)	26	30	229	26	41	70	554	804	1443
IPI Thin Count/1,000 yards	142	181	368	174	130	158	920	1391	2087
IPI Thick Count/1,000 yards	162	377	727	74	122	218	182	254	675
IPI Nep Count/1,000 yards	7.8	7.0	6.8	8.5	7.8	7.1	8.2	8.2	7.0
Elongation (%)	729	457	314	704	424	269	467	335	220
Single Yarn Str. Variability (CV%)	6.2	9.2	8.4	6.0	9.4	10.0	12.0	12.9	13.1
Tenacity (g/tex)	12.6	13.7	12.6	12.3	12.0	10.3	13.3	13.2	12.5
Hair Count/100 yards	311	175	122	347	204	149	1123	1238	1415
Hair Count Variability (CV%)	5.23	7.47	19.09	9.78	23.94	16.25	8.60	2.49	8.09
ASTM Yarn Grade	A	A	B+	B+	B	B	C	C	D

TABLE X - LOT NUMBER 66
FIBER ANALYSIS - INDIVIDUAL INSTRUMENT TESTING

2.5% Span Length (in.)	.86	Length Uniformity (%)	43	Short Fiber Content (%)	10.80	Micronaire Fineness	4.6	Pressley Strength (Mpsi)	92.3	Stelometer Strength (g/tex)	21.2	Elongation (%)	5.3
------------------------	-----	-----------------------	----	-------------------------	-------	---------------------	-----	--------------------------	------	-----------------------------	------	----------------	-----

FIBER ANALYSIS - HIGH VOLUME INSTRUMENT TESTING

2.5% Span Length (in)	.88	Length Uniformity (%)	80	Micronaire Fineness	4.5	1/8" Gauge Strength (g/tex)	25	Grade	33
-----------------------	-----	-----------------------	----	---------------------	-----	-----------------------------	----	-------	----

YARN TESTING DATA

Spinning Machine Used	Rieter M1/1			Elitex BD 200S			Ring Spun		
	10/1	16/1	22/1	10/1	16/1	22/1	16/1	22/1	30/1
Nominal Yarn Number (N _e)	9.88	15.89	21.49	10.07	15.71	22.40	16.44	22.34	30.38
Actual Yarn Number (N _e)	59.82	37.19	27.50	58.69	37.62	26.38	35.95	26.45	19.45
Yarn Number Variability (CV%)	0.93	1.05	1.08	1.41	0.97	1.19	1.15	1.48	1.62
Twist Multiplier	4.84	4.79	4.80	4.80	4.80	4.80	4.00	4.00	4.00
Skein Strength (lbs)	208	118	79	194	107	66	102	65	43
Skein Strength Variability (CV%)	3.16	2.41	2.63	3.87	3.14	3.47	4.02	4.55	7.33
Count Strength Product	2048	1867	1686	1953	1682	1490	1690	1460	1304
CSP Variability (CV%)	2.52	1.74	2.07	3.01	2.72	2.76	3.29	4.35	6.24
Uster Nonuniformity (CV%)	16.31	17.31	17.41	17.04	17.34	18.08	25.11	26.97	29.05
IPI Thin Count/1,000 yards	45	62	78	56	72	150	1206	1654	2410
IPI Thick Count/1,000 yards	141	192	242	197	156	211	1420	2026	2651
IPI Nep Count/1,000 yards	149	350	404	96	145	236	242	366	806
Elongation (%)	7.6	6.9	6.3	8.2	7.4	6.4	7.4	7.4	6.5
Single Yarn Strength (g)	713	436	299	654	389	245	408	277	191
Single Yarn Str. Variability (CV%)	8.6	10.6	10.8	11.5	11.6	13.0	12.7	17.3	15.5
Tenacity (g/tex)	12.5	12.6	11.8	11.4	10.9	9.4	11.4	11.9	9.7
Hair Count/100 yards	271	146	121	378	182	109	1813	2092	1678
Hair Count Variability (CV%)	5.41	14.63	12.71	9.28	10.77	8.22	4.84	7.46	6.78
ASTM Yarn Grade	A	B	B	C+	B+	B	C	D	D

TABLE XI -- LOT NUMBER 00
FIBER ANALYSIS -- INDIVIDUAL INSTRUMENT TESTING

2.5% Span Length (in.)	.94	Length Uniformity (%)	46	Short Fiber Content (%)	6.78	Micronaire Fineness	4.9	Pressley Strength (Mpsi)	99.3	Stelometer Strength (g/tex)	24.2	Elongation (%)	5.3
------------------------	-----	-----------------------	----	-------------------------	------	---------------------	-----	--------------------------	------	-----------------------------	------	----------------	-----

FIBER ANALYSIS -- HIGH VOLUME INSTRUMENT TESTING

2.5% Span Length (in)	.97	Length Uniformity (%)	81	Micronaire Fineness	4.9	1/8" Gauge Strength (g/tex)	28	Grade	22
-----------------------	-----	-----------------------	----	---------------------	-----	-----------------------------	----	-------	----

YARN TESTING DATA

Spinning Machine Used	Rieter M1/1			Elitex BD 200S			Ring Spun		
	10/1	16/1	22/1	10/1	16/1	22/1	16/1	22/1	30/1
Nominal Yarn Number (Ne)	9.90	16.06	21.89	9.98	15.79	22.10	16.43	21.72	30.35
Actual Yarn Number (Ne)	59.70	36.80	27.00	59.22	37.43	26.74	35.97	27.21	19.47
Yarn Number Variability (CV%)	1.10	1.07	1.15	0.72	1.45	1.52	1.65	1.50	1.37
Twist Multiplier	4.84	4.79	4.80	4.80	4.80	4.80	4.00	4.00	4.00
Skein Strength (lbs)	237	139	93	222	109	78	143	106	69
Skein Strength Variability (CV%)	3.00	2.21	1.71	2.59	2.75	4.11	3.54	2.66	3.92
Count Strength Product	2347	2235	2023	2213	1716	1728	2361	2304	2094
CSP Variability (CV%)	2.52	1.72	2.13	2.11	2.81	3.43	3.05	2.08	3.29
Uster Nonuniformity (CV%)	14.97	15.95	16.85	16.14	16.55	17.18	19.19	20.37	23.03
IPI Thin Count/1,000 yards	9	38	65	20	38	87	138	220	609
IPI Thick Count/1,000 yards	80	144	203	162	130	187	443	737	1242
IPI Nep Count/1,000 yards	72	205	294	69	103	170	126	169	388
Elongation (%)	7.4	6.7	5.6	8.0	7.8	6.9	7.9	6.4	5.6
Single Yarn Strength (g)	783	472	316	734	459	282	522	397	265
Single Yarn Str. Variability (CV%)	8.4	7.6	9.5	7.8	9.6	11.1	8.0	8.6	13.3
Tenacity (g/tex)	13.4	14.3	12.7	12.3	12.6	11.1	14.3	16.6	14.5
Hair Count/100 yards	258	179	122	264	170	95	1480	1804	1571
Hair Count Variability (CV%)	8.29	13.22	30.41	13.19	12.07	9.83	14.23	16.09	12.27
ASTM Yarn Grade	A	B+	A	B	A	B+	B	C+	C

TABLE XII - LOT NUMBER 96
FIBER ANALYSIS - INDIVIDUAL INSTRUMENT TESTING

2.5% Span Length (in.)	Length Uniformity (%)	Short Fiber Content (%)	Micronaire Fineness	Pressley Strength (Mpsi)	Stelometer Strength (g/tex)	Elongation (%)
.94	45	7.87	5.0	94.4	25.2	5.3

FIBER ANALYSIS - HIGH VOLUME INSTRUMENT TESTING

2.5% Span Length (in.)	Length Uniformity (%)	Micronaire Fineness	1/8" Gauge Strength (g/tex)	Grade
.98	82	5.0	25	22

YARN TESTING DATA

Spinning Machine Used	Rieter M1/1			Elitex BD 200S				Ring Spun		
	10/1	16/1	22/1	10/1	16/1	22/1	16/1	22/1	30/1	
Nominal Yarn Number (N _e)	10.06	16.41	22.28	10.15	16.03	22.31	16.45	21.79	30.67	
Actual Yarn Number (N _e)	58.75	36.01	26.53	58.23	36.87	26.49	35.93	27.12	19.27	
Yarn Number Variability (CV%)	1.15	0.93	1.21	1.09	1.56	0.60	1.65	3.17	2.68	
Twist Multiplier	4.84	4.79	4.80	4.80	4.80	4.80	4.00	4.00	4.00	
Skein Strength (lbs)	228	131	87	212	104	76	144	103	68	
Skein Strength Variability (CV%)	2.34	2.53	2.12	3.71	4.72	3.97	2.75	5.86	4.43	
Count Strength Product	2291	2152	1934	2157	1664	1704	2375	2245	2082	
CSP Variability (CV%)	1.73	2.13	1.78	3.10	3.71	3.68	2.42	3.15	3.64	
Uster Nonuniformity (CV%)	15.19	16.23	17.19	16.33	16.86	17.38	19.22	20.59	23.40	
IPI Thin Count/1,000 yards	11	35	90	27	46	120	158	246	657	
IPI Thick Count/1,000 yards	88	146	228	158	153	189	446	728	1308	
IPI Nep Count/1,000 yards	79	205	341	67	128	189	120	182	392	
Elongation (%)	7.2	6.9	6.3	8.0	7.3	6.8	7.9	7.2	5.6	
Single Yarn Strength (g)	776	436	328	750	413	274	523	365	251	
Single Yarn Str. Variability (CV%)	8.1	8.7	9.1	8.8	8.2	9.6	13.4	10.5	15.3	
Tenacity (g/tex)	12.5	12.6	13.0	13.0	12.8	10.8	14.0	15.2	13.7	
Hair Count/100 yards	265	148	104	279	147	103	1459	1644	1579	
Hair Count Variability (CV%)	6.65	20.66	8.74	10.82	12.03	18.48	12.27	13.44	18.49	
ASTM Yarn Grade	A	A	B	B	A	B+	B	B	C+	

TABLE XIII - LOT NUMBER 55
FIBER ANALYSIS - INDIVIDUAL INSTRUMENT TESTING

2.5% Span Length (in.)	Length Uniformity (%)	Short Fiber Content (%)	Micronaire Fineness	Pressley Strength (Mpsi)	Stelometer Strength (g/tex)	Elongation (%)
.98	44	6.53	4.5	92.5	25.6	6.2

FIBER ANALYSIS - HIGH VOLUME INSTRUMENT TESTING

2.5% Span Length (in)	Length Uniformity (%)	Micronaire Fineness	1/8" Gauge Strength (g/tex)	Grade
1.01	82	4.3	28	32

YARN TESTING DATA

Spinning Machine Used	Rieter M1/1			Elitex BD 200S			Ring Spun		
	10/1	16/1	22/1	10/1	16/1	22/1	16/1	22/1	30/1
Nominal Yarn Number (N _e)	10.09	16.36	22.28	10.10	15.99	21.78	16.31	21.55	30.37
Actual Yarn Number (N _e)	58.57	36.12	26.53	58.51	36.96	27.13	36.24	27.42	19.46
Yarn Number Variability (CV%)	0.80	0.92	0.92	1.00	1.92	1.14	2.25	1.97	2.12
Twist Multiplier	4.84	4.79	4.80	4.80	4.80	4.80	4.00	4.00	4.00
Skein Strength (lbs)	230	134	90	220	109	83	146	109	72
Skein Strength Variability (CV%)	1.61	2.76	3.01	2.74	3.34	2.98	2.33	2.13	4.46
Count Strength Product	2321	2191	2010	2223	1746	1793	2384	2334	2184
CSP Variability (CV%)	1.04	2.68	2.82	2.07	3.95	2.86	1.37	2.49	3.12
Uster Nonuniformity (CV%)	15.03	15.98	16.95	16.09	16.16	17.19	17.95	19.28	21.18
IPI Thin Count/1,000 yards	15	27	63	26	44	82	81	138	355
IPI Thick Count/1,000 yards	118	168	245	174	140	216	323	610	929
IPI Nep Count/1,000 yards	148	301	445	99	154	236	238	334	560
Elongation (%)	7.6	7.3	6.1	8.6	8.3	7.5	8.1	6.9	6.3
Single Yarn Strength (g)	762	466	325	770	449	292	519	389	274
Single Yarn Str. Variability (CV%)	6.5	9.0	9.2	8.8	8.0	11.1	8.9	11.1	10.5
Tenacity (g/tex)	12.9	13.5	12.5	13.2	12.5	11.4	14.2	17.8	13.9
Hair Count/100 yards	289	153	106	245	157	97	1247	962	1335
Hair Count Variability (CV%)	6.09	6.24	6.25	9.60	13.98	17.25	10.28	13.04	10.70
ASTM Yarn Grade	A	A	B+	B	A	B+	B	C	C

TABLE XIV -- LOT NUMBER 30
FIBER ANALYSIS -- INDIVIDUAL INSTRUMENT TESTING

2.5% Span Length (in.)	Length Uniformity (%)	Short Fiber Content (%)	Micronaire Fineness	Pressley Strength (Mpsi)	Stelometer Strength (g/tex)	Elongation (%)
.95	41	11.02	3.5	86.5	22.0	6.3

FIBER ANALYSIS -- HIGH VOLUME INSTRUMENT TESTING

2.5% Span Length (in)	Length Uniformity (%)	Micronaire Fineness	1/8" Gauge Strength (g/tex)	Grade
.98	80	3.3	24	22

YARN TESTING DATA

Spinning Machine Used	Rieter M1/1			Elitex BD 200S			Ring Spun		
	10/1	16/1	22/1	10/1	16/1	22/1	16/1	22/1	30/1
Nominal Yarn Number (N _g)	9.89	16.28	22.04	10.14	15.64	21.89	16.40	21.56	30.38
Actual Yarn Number (N _e)	59.76	36.30	26.81	58.28	37.79	27.00	36.04	27.41	19.45
Yarn Number Variability (CV%)	0.92	1.11	1.54	0.76	0.75	1.17	0.86	2.07	1.68
Twist Multiplier	4.84	4.79	4.80	4.80	4.80	4.80	4.00	4.00	4.00
Skein Strength (lbs)	210	122	82	202	118	76	124	92	60
Skein Strength Variability (CV%)	2.74	2.97	1.72	2.26	2.81	4.45	3.64	3.50	2.20
Count Strength Product	2074	1988	1807	2049	1841	1655	2039	1980	1824
CSP Variability (CV%)	2.07	2.84	2.25	1.93	2.36	4.04	3.32	2.61	1.77
Uster Nonuniformity (CV%)	14.92	15.86	16.80	15.94	15.81	16.50	19.83	21.27	24.43
IPI Thin Count/1,000 Yards	11	25	82	20	28	62	208	356	990
IPI Thick Count/1,000 Yards	82	154	227	151	117	149	552	946	1644
IPI Nep Count/1,000 Yards	90	254	428	73	97	155	91	163	555
Elongation (%)	8.0	6.9	6.1	9.0	8.8	7.8	7.5	7.1	7.4
Single Yarn Strength (g)	692	433	293	684	411	269	464	343	234
Single Yarn Str. Variability (CV%)	7.6	7.4	8.2	7.2	9.2	12.7	9.9	12.9	11.3
Tenacity (g/tex)	11.8	11.6	11.6	12.1	11.9	10.5	13.2	15.2	12.5
Hair Count/100 Yards	304	225	121	308	178	168	1249	956	1567
Hair Count Variability (CV%)	10.04	14.96	7.82	8.37	9.29	15.20	8.35	13.53	51.47
ASTM Yarn Grade	A	A	A	A	B+	B+	B	C	D

TABLE XV - LOT NUMBER 65
FIBER ANALYSIS - INDIVIDUAL INSTRUMENT TESTING

2.5% Span Length (in.)	Length Uniformity (%)	Short Fiber Content (%)	Micronaire Fineness	Pressley Strength (Mpsi)	Stelometer Strength (g/tex)	Elongation (%)
1.02	44	6.32	3.0	86.1	22.8	6.8

FIBER ANALYSIS - HIGH VOLUME INSTRUMENT TESTING

2.5% Span Length (in.)	Length Uniformity (%)	Micronaire Fineness	1/8" Gauge Strength (g/tex)	Grade
1.02	79	2.9	24	22

YARN TESTING DATA

Spinning Machine Used	Rieter M1/1			Elitex BD 200S			Ring Spun		
	10/1	16/1	22/1	10/1	16/1	22/1	16/1	22/1	30/1
Nominal Yarn Number (N _g)	9.96	16.34	22.11	10.14	15.79	22.38	16.29	21.61	31.01
Actual Yarn Number (N _g)	59.34	36.17	26.73	58.28	37.43	26.41	36.28	27.35	19.06
Yarn Number Variability (CV%)	0.77	0.83	1.23	0.81	1.05	1.15	1.11	2.20	1.53
Twist Multiplier	4.84	4.79	4.80	4.80	4.80	4.80	4.00	4.00	4.00
Skein Strength (lbs)	222	131	88	210	109	80	133	98	62
Skein Strength Variability (CV%)	1.67	3.84	2.36	1.37	3.58	3.60	4.39	3.87	4.48
Count Strength Product	2206	2138	1950	2130	1722	1799	2172	2117	1950
CSP Variability (CV%)	1.74	3.45	2.42	1.36	3.27	2.90	3.88	3.18	3.18
Uster Nonuniformity (CV%)	15.07	15.74	16.60	15.92	15.64	16.23	19.79	21.01	23.86
IPI Thin Count/1,000 yards	6	18	35	15	13	30	169	256	678
IPI Thick Count/1,000 yards	127	187	256	200	151	200	620	976	1723
IPI Nep Count/1,000 yards	234	420	626	145	238	328	472	649	1104
Elongation (%)	9.2	7.7	7.5	9.2	9.2	8.4	8.4	8.3	8.8
Single Yarn Strength (g)	765	450	307	720	428	278	492	370	256
Single Yarn Str. Variability (CV%)	8.0	9.3	9.8	7.7	7.7	9.3	9.8	10.6	9.9
Tenacity (g/tex)	13.4	12.7	11.5	12.1	11.8	11.5	13.4	12.1	12.5
Hair Count/100 yards	287	172	125	271	168	130	779	961	930
Hair Count Variability (CV%)	9.74	6.54	8.16	9.01	8.42	11.04	11.10	23.42	3.70
ASTM Yarn Grade	A	A	B	B	B	B+	C	D	D

TABLE XVI - LOT NUMBER 21
FIBER ANALYSIS - INDIVIDUAL INSTRUMENT TESTING

2.5% Span Length (in.)	Length Uniformity (%)	Short Fiber Content (%)	Micronaire Fineness	Pressley Strength (Mpsi)	Stelometer Strength (g/tex)	Elongation (%)
.98	41	12.03	3.0	90.4	22.5	6.2

FIBER ANALYSIS - HIGH VOLUME INSTRUMENT TESTING

2.5% Span Length (in)	Length Uniformity (%)	Micronaire Fineness	1/8" Gauge Strength (g/tex)	Grade
.99	75	2.6	22	21

YARN TESTING DATA

Spinning Machine Used	Rieter M1/1			Elitex BD 200S			Ring Spun		
	10/1	16/1	22/1	10/1	16/1	22/1	16/1	22/1	30/1
Nominal Yarn Number (N _g)	10/1	16/1	22/1	10/1	16/1	22/1	16/1	22/1	30/1
Actual Yarn Number (N _e)	9.84	16.19	21.88	10.10	15.69	21.80	16.09	21.15	29.84
Actual Yarn Number (tex)	60.06	36.50	27.01	58.51	37.67	27.11	36.73	27.94	19.81
Yarn Number Variability (CV%)	0.92	0.99	1.09	0.86	0.92	1.40	2.16	2.34	2.44
Twist Multiplier	4.84	4.79	4.80	4.80	4.80	4.80	4.00	4.00	4.00
Skein Strength (lbs)	231	135	94	225	132	88	137	102	55
Skein Strength Variability (CV%)	3.01	4.07	2.50	1.49	3.53	2.97	3.29	2.01	5.28
Count Strength Product	2274	2187	2061	2275	2059	1919	2209	2138	1638
CSP Variability (CV%)	2.39	3.66	2.28	1.26	3.82	2.63	2.45	2.49	4.02
Uster Nonuniformity (CV%)	14.68	15.42	16.10	15.93	15.35	15.83	20.22	21.60	24.08
IPI Thin Count/1,000 yards	4	6	26	16	10	25	229	356	737
IPI Thick Count/1,000 yards	89	113	161	156	109	112	583	944	1764
IPI Nep Count/1,000 yards	98	247	363	74	112	145	204	292	707
Elongation (%)	7.5	7.4	6.9	8.5	8.5	7.7	8.7	6.8	7.8
Single Yarn Strength (g)	776	468	344	749	449	307	523	374	262
Single Yarn Str. Variability (CV%)	7.0	8.1	8.7	7.0	9.4	10.0	10.3	11.6	12.4
Tenacity (g/tex)	13.3	13.9	12.9	12.9	12.3	12.0	14.0	13.0	13.3
Hair Count/100 yards	318	212	172	306	197	205	732	934	972
Hair Count Variability (CV%)	7.44	10.31	16.86	7.37	9.42	9.88	13.23	21.15	14.30
ASTM Yarn Grade	A	A	B+	B+	A	B+	C	C	D

TABLE XVII - LOT NUMBER 48
FIBER ANALYSIS - INDIVIDUAL INSTRUMENT TESTING

2.5% Span Length (in.)	.88	Length Uniformity (%)	39	Short Fiber Content (%)	9.62	Micronaire Fineness	4.5	Pressley Strength (Mpsi)	94.9	Stelometer Strength (g/tex)	22.6	Elongation (%)	5.9
------------------------	-----	-----------------------	----	-------------------------	------	---------------------	-----	--------------------------	------	-----------------------------	------	----------------	-----

FIBER ANALYSIS - HIGH VOLUME INSTRUMENT TESTING

2.5% Span Length (in.)	.89	Length Uniformity (%)	78	Micronaire Fineness	4.5	1/8" Gauge Strength (g/tex)	25	Grade	33
------------------------	-----	-----------------------	----	---------------------	-----	-----------------------------	----	-------	----

YARN TESTING DATA

Spinning Machine Used	Rieter M1/1			Elitex BD 200S			Ring Spun		
	10/1	16/1	22/1	10/1	16/1	22/1	16/1	22/1	30/1
Nominal Yarn Number (N _a)	10.03	16.04	21.92	10.16	15.92	22.11	16.53	21.67	30.46
Actual Yarn Number (N _e)	58.92	36.85	26.96	58.17	37.12	26.73	35.75	27.27	19.40
Yarn Number Variability (CV%)	0.63	0.79	1.30	1.01	1.06	0.86	1.14	1.90	1.86
Twist Multiplier	4.84	4.79	4.80	4.80	4.80	4.80	4.00	4.00	4.00
Skein Strength (lbs)	218	124	83	199	113	71	112	81	52
Skein Strength Variability (CV%)	2.77	2.90	3.71	3.78	2.27	2.61	3.09	4.34	4.97
Count Strength Product	2189	1985	1825	2028	1790	1561	1861	1747	1592
CSP Variability (CV%)	2.36	2.55	3.08	4.00	1.93	2.58	3.15	3.51	3.86
Uster Nonuniformity (CV%)	15.98	16.73	17.39	16.59	16.69	17.28	23.69	25.06	27.74
IPI Thin Count/1,000 yards	26	48	84	38	50	93	860	1165	1944
IPI Thick Count/1,000 yards	140	198	257	184	152	172	1160	1654	2362
IPI Nep Count/1,000 yards	144	335	386	94	120	198	190	281	672
Elongation (%)	7.3	6.8	6.6	8.5	7.4	7.2	7.8	7.9	7.0
Single Yarn Strength (g)	766	444	309	698	387	273	440	308	219
Single Yarn Str. Variability (CV%)	7.0	8.8	9.5	8.8	13.4	12.5	11.6	13.6	16.8
Tenacity (g/tex)	13.1	13.1	12.4	12.4	11.0	10.2	12.8	12.1	12.0
Hair Count/100 yards	295	159	142	409	214	175	1739	1812	1561
Hair Count Variability (CV%)	8.36	17.33	23.99	9.48	10.31	36.91	5.10	9.38	7.29
ASTM Yarn Grade	A	B	B	B	A	B+	C	D	D

TABLE XVIII - LOT NUMBER 87 - 2
FIBER ANALYSIS - INDIVIDUAL INSTRUMENT TESTING

2.5% Span Length (in.)	Length Uniformity (%)	Short Fiber Content (%)	Micronaire Fineness	Pressley Strength (Mpsi)	Stelometer Strength (g/tex)	Elongation (%)
.92	45	7.85	3.9	92.6	22.4	5.8

FIBER ANALYSIS - HIGH VOLUME INSTRUMENT TESTING

2.5% Span Length (in.)	Length Uniformity (%)	Micronaire Fineness	1/8" Gauge Strength (g/tex)	Grade
.95	78	3.8	25	23

YARN TESTING DATA

Spinning Machine Used	Rieter M1/1			Elitex BD 200S			Ring Spun		
	10/1	16/1	22/1	10/1	16/1	22/1	16/1	22/1	30/1
Nominal Yarn Number (Ng)									
Actual Yarn Number (Ne)	10.12	15.96	21.84	10.10	15.83	21.74	16.26	21.25	29.92
Actual Yarn Number (tex)	58.40	37.05	27.06	58.51	37.33	27.53	36.35	27.81	19.75
Yarn Number Variability (CV%)	0.88	0.85	1.32	0.47	0.99	1.00	1.17	1.51	1.71
Twist Multiplier	4.84	4.79	4.80	4.80	4.80	4.80	4.00	4.00	4.00
Skein Strength (lbs)	220	131	90	211	120	79	124	92	63
Skein Strength Variability (CV%)	3.79	2.75	1.51	2.94	3.81	3.10	3.41	3.62	5.65
Count Strength Product	2227	2084	1952	2137	1898	1708	2023	1937	1872
CSP Variability (CV%)	3.77	2.63	0.98	2.65	3.99	2.44	2.53	3.06	4.19
Uster Nonuniformity (CV%)	15.74	16.06	16.50	15.83	15.76	16.58	21.29	22.70	24.96
IPI Thin Count/1,000 yards	22	19	51	14	23	55	436	650	1197
IPI Thick Count/1,000 yards	132	164	199	171	117	145	790	1195	1898
IPI Nep Count/1,000 yards	136	311	392	83	116	188	198	275	630
Elongation (%)	8.2	7.5	6.1	8.8	8.0	7.6	8.4	8.5	7.6
Single Yarn Strength (g)	785	452	320	720	409	290	460	350	243
Single Yarn Str. Variability (CV%)	7.3	9.7	10.5	7.3	8.8	9.7	11.7	12.7	13.8
Tenacity (g/tex)	13.6	13.7	12.8	12.7	11.6	11.1	14.2	13.7	13.3
Hair Count/100 yards	336	162	131	356	197	123	1284	1331	1248
Hair Count Variability (CV%)	15.56	10.24	6.14	6.94	7.51	5.89	5.93	7.18	8.05
ASTM Yarn Grade	A	A	A	B	B+	A	C+	B	D

TABLE XIX - LOT NUMBER 74 - 2
FIBER ANALYSIS - INDIVIDUAL INSTRUMENT TESTING

2.5% Span Length (in.)	Length Uniformity (%)	Short Fiber Content (%)	Micronaire Fineness	Pressley Strength (Mpsi)	Stelometer Strength (g/tex)	Elongation (%)
.93	44	9.47	4.4	91.0	22.7	6.0

FIBER ANALYSIS - HIGH VOLUME INSTRUMENT TESTING

2.5% Span Length (in.)	Length Uniformity (%)	Micronaire Fineness	1/8" Gauge Strength (g/tex)	Grade
.97	83	4.4	25	32

YARN TESTING DATA

Spinning Machine Used	Rieter M1/1			Elitex BD 200S			Ring Spun		
	10/1	16/1	22/1	10/1	16/1	22/1	16/1	22/1	30/1
Nominal Yarn Number (N _e)	9.88	15.76	21.27	10.16	15.68	21.74	15.76	21.47	29.18
Actual Yarn Number (tex)	59.82	37.50	27.79	58.17	37.69	27.18	37.50	27.53	20.25
Yarn Number Variability (CV%)	0.69	1.28	0.94	0.83	1.30	0.69	1.13	1.55	1.92
Twist Multiplier	4.84	4.79	4.80	4.80	4.80	4.80	4.00	4.00	4.00
Skein Strength (lbs)	227	130	90	202	119	77	132	90	62
Skein Strength Variability (CV%)	2.60	2.57	3.08	2.68	2.15	4.14	3.81	3.08	3.69
Count Strength Product	2240	2046	1891	2059	1852	1676	2081	1927	1783
CSP Variability (CV%)	2.26	1.83	2.60	2.38	2.14	3.72	3.16	2.36	2.48
Uster Nonuniformity (CV%)	15.40	16.19	16.80	16.00	16.52	17.39	19.80	21.50	23.57
IPI Thin Count/1,000 yards	13	32	79	23	57	124	281	496	852
IPI Thick Count/1,000 yards	109	150	234	174	147	212	517	907	1490
IPI Nep Count/1,000 yards	102	236	292	72	132	199	96	174	420
Elongation (%)	7.6	8.1	7.2	8.8	7.7	7.8	8.8	8.2	7.7
Single Yarn Strength (g)	789	474	334	729	407	295	519	344	256
Single Yarn Str. Variability (CV%)	7.8	8.0	8.3	7.0	8.8	11.0	9.4	9.1	11.7
Tenacity (g/tex)	13.5	13.9	13.6	12.4	11.5	10.7	15.0	13.6	12.1
Hair Count/100 yards	232	175	129	317	169	118	1509	1600	1510
Hair Count Variability (CV%)	4.43	39.34	12.81	10.32	9.18	8.97	4.50	3.90	8.73
ASTM Yarn Grade	A	A	A	B	A	B	B	B	C

TABLE XX - LOT NUMBER 62
FIBER ANALYSIS - INDIVIDUAL INSTRUMENT TESTING

2.5% Span Length (in.)	.95	Length Uniformity (%)	46	Short Fiber Content (%)	5.57	Micronaire Fineness	4.6	Pressley Strength (Mpsi)	93.4	Stelometer Strength (g/tex)	25.6	Elongation (%)	5.7
------------------------	-----	-----------------------	----	-------------------------	------	---------------------	-----	--------------------------	------	-----------------------------	------	----------------	-----

FIBER ANALYSIS - HIGH VOLUME INSTRUMENT TESTING

2.5% Span Length (in)	.99	Length Uniformity (%)	83	Micronaire Fineness	4.5	1/8" Gauge Strength (g/tex)	29	Grade	22
-----------------------	-----	-----------------------	----	---------------------	-----	-----------------------------	----	-------	----

YARN TESTING DATA

Spinning Machine Used	Rieter M1/1				Elitex BD 200S				Ring Spun			
	10/1	16/1	22/1	10/1	16/1	22/1	16/1	22/1	16/1	22/1	30/1	
Nominal Yarn Number (Ng)												
Actual Yarn Number (Ng)	10.06	16.48	22.29	10.24	16.16	22.56	16.25	22.56	16.25	21.45	30.33	
Actual Yarn Number (tex)	58.75	36.86	26.51	67.72	36.57	26.20	36.37	26.20	36.37	27.55	19.49	
Yarn Number Variability (CV%)	0.80	0.85	0.88	0.92	1.15	0.96	1.98	0.96	1.98	1.69	1.62	
Twist Multiplier	4.84	4.79	4.80	4.80	4.80	4.80	4.00	4.80	4.00	4.00	4.00	
Skein Strength (lbs)	231	134	91	218	113	79	150	79	150	112	74	
Skein Strength Variability (CV%)	2.44	2.66	3.30	3.35	3.40	3.55	3.41	3.55	3.41	3.54	2.97	
Count Strength Product	2327	2212	2022	2232	1827	1786	2449	1786	2449	2397	2256	
CSP Variability (CV%)	2.18	2.05	3.34	2.96	3.23	3.42	2.36	3.42	2.36	2.35	2.12	
Uster Nonuniformity (CV%)	15.06	16.08	17.06	16.31	16.66	17.38	17.96	17.38	17.96	19.24	21.09	
IPI Thin Count/1,000 yards	12	38	89	26	50	116	77	116	77	133	326	
IPI Thick Count/1,000 yards	100	163	239	196	158	246	327	246	327	561	889	
IPI Nep Count/1,000 yards	128	238	410	104	162	281	277	281	277	366	558	
Elongation (%)	8.0	7.5	6.3	8.5	8.3	7.9	7.6	7.9	7.6	7.0	6.4	
Single Yarn Strength (g)	773	460	313	741	459	284	546	284	546	340	274	
Single Yarn Str. Variability (CV%)	7.8	7.8	9.0	7.7	8.3	14.1	12.5	14.1	12.5	11.5	11.2	
Tenacity (g/tex)	13.2	12.9	12.5	13.2	12.6	10.4	14.9	10.4	14.9	13.8	14.9	
Hair Count/100 yards	281	144	93	256	134	93	1195	93	1195	1331	1756	
Hair Count Variability (CV%)	8.81	6.72	8.56	14.52	11.65	18.35	9.44	18.35	9.44	11.78	32.42	
ASTM Yarn Grade	A	A	B	B+	B	B+	A	B+	A	C+	C	

TABLE XXI - LOT NUMBER 33
FIBER ANALYSIS - INDIVIDUAL INSTRUMENT TESTING

2.5% Span Length (in.)	Length Uniformity (%)	Short Fiber Content (%)	Micronaire Fineness	Pressley Strength (Mpsi)	Stelometer Strength (g/tex)	Elongation (%)
.81	43	16.58	5.0	93.0	19.2	5.6

FIBER ANALYSIS - HIGH VOLUME INSTRUMENT TESTING

2.5% Span Length (in.)	Length Uniformity (%)	Micronaire Fineness	1/8" Gauge Strength (g/tex)	Grade
.83	79	4.9	24	32

YARN TESTING DATA

Spinning Machine Used	Rieter M1/1			Elitex BD 200S			Ring Spun		
	10/1	16/1	22/1	10/1	16/1	22/1	16/1	22/1	30/1
Nominal Yarn Number (N _e)	9.90	16.22	21.94	10.10	15.94	21.97	16.08	No Data	No Data
Actual Yarn Number (N _e)	59.70	36.44	26.94	58.51	37.08	26.90	36.75	Data	Data
Yarn Number Variability (CV%)	0.95	1.99	1.40	1.22	1.88	1.47	1.83		
Twist Multiplier	4.84	4.79	4.80	4.80	4.80	4.80	4.00	4.00	4.00
Skein Strength (lbs)	178	95	64	156	84	55	77	Would Not Spin	Would Not Spin
Skein Strength Variability (CV%)	2.79	3.40	3.90	4.10	3.65	4.84	5.69	Not Spin	Not Spin
Count Strength Product	1755	1542	1399	1582	1333	1197	1246		
CSP Variability (CV%)	2.77	2.10	3.11	3.16	2.42	4.58	5.49		
Uster Nonuniformity (CV%)	18.15	19.28	19.86	18.98	19.42	19.94	27.89		
IPI Thin Count/1,000 yards	90	105	240	103	168	252	1785		
IPI Thick Count/1,000 yards	183	270	348	251	215	273	1701		
IPI Nep Count/1,000 yards	166	385	657	114	139	252	203		
Elongation (%)	6.8	5.9	4.6	7.2	6.3	6.5	4.9		
Single Yarn Strength (g)	608	492	228	554	314	219	261		
Single Yarn Str. Variability (CV%)	13.8	16.5	18.4	14.6	15.3	16.4	29.4		
Tenacity (g/tex)	10.7	14.6	9.2	9.4	9.1	8.6	7.5		
Hair Count/100 yards	338	172	145	424	188	127	2245		
Hair Count Variability (CV%)	11.41	7.40	14.38	9.56	12.72	33.43	13.83		
ASTM Yarn Grade	A	B	B	C+	B+	B+	BG		

TABLE XXII - LOT NUMBER 10
FIBER ANALYSIS - INDIVIDUAL INSTRUMENT TESTING

2.5% Span Length (in.)	.95	Length Uniformity (%)	40	Short Fiber Content (%)	12.10	Micronaire Fineness	3.3	Pressley Strength (Mpsi)	88.9	Stelometer Strength (g/tex)	22.7	Elongation (%)	6.3
------------------------	-----	-----------------------	----	-------------------------	-------	---------------------	-----	--------------------------	------	-----------------------------	------	----------------	-----

FIBER ANALYSIS - HIGH VOLUME INSTRUMENT TESTING

2.5% Span Length (in.)	.99	Length Uniformity (%)	75	Micronaire Fineness	3.1	1/8" Gauge Strength (g/tex)	24	Grade	21
------------------------	-----	-----------------------	----	---------------------	-----	-----------------------------	----	-------	----

YARN TESTING DATA

Spinning Machine Used	Rieter M1/1			Elitex BD 200S			Ring Spun		
	10/1	16/1	22/1	10/1	16/1	22/1	16/1	22/1	30/1
Nominal Yarn Number (Ng)	10.07	16.42	22.01	10.11	16.04	21.89	16.38	21.59	30.20
Actual Yarn Number (Ne)	58.69	35.99	26.85	58.46	36.85	27.00	36.08	27.37	19.57
Yarn Number Variability (CV%)	0.85	1.18	1.57	1.11	1.42	1.40	1.37	2.33	2.10
Twist Multiplier	4.84	4.79	4.80	4.80	4.80	4.80	4.00	4.00	4.00
Skein Strength (lbs)	212	123	84	206	104	77	126	92	61
Skein Strength Variability (CV%)	1.74	2.27	3.58	3.61	4.57	2.60	2.42	3.23	3.30
Count Strength Product	2140	2034	1838	2082	1674	1692	2076	1985	1837
CSP Variability (CV%)	1.69	1.91	2.21	3.02	3.81	2.73	2.18	1.49	2.56
Uster Nonuniformity (CV%)	15.64	15.96	16.69	16.11	16.04	16.38	20.12	22.26	25.04
IPI Thin Count/1,000 yards	21	19	41	22	33	42	283	461	1155
IPI Thick Count/1,000 yards	138	169	200	173	126	141	702	1078	1835
IPI Nep Count/1,000 yards	135	274	407	79	121	185	157	223	680
Elongation (%)	7.8	7.3	6.6	9.0	8.4	7.9	8.1	7.0	6.6
Single Yarn Strength (g)	756	418	290	701	415	272	480	334	234
Single Yarn Str. Variability (CV%)	7.5	8.9	8.7	7.7	9.2	9.5	9.6	14.0	13.6
Tenacity (g/tex)	12.6	12.1	12.9	12.4	11.4	10.8	13.4	13.5	11.9
Hair Count/100 yards	398	229	163	329	187	137	1173	1511	1284
Hair Count Variability (CV%)	9.34	11.71	9.02	6.82	7.66	17.00	15.36	16.69	12.07
ASTM Yarn Grade	A	B	A	B	B+	B+	C	D	D