

Appendices

Coding of Fabric samples and Process Parameters

Table 3.1: Characteristics of yarns used in the production of knitted fabrics

Yarn Characteristics	Combed Ring		Viscose		Modal		Excel	
	20Tex	15Tex	20Tex	15Tex	20Tex	15Tex	20Tex	15Tex
Lea Count CV%	1.8	3.6	1.2	1.1	3.2	3.4	1.6	1.1
Yarn Diameter	0.26	0.22	0.197	0.164	0.22	0.17	0.22	0.20
Lea Strength CV%	8.4	7.9	3.5	3.5	4.9	3.9	4.3	3.8
Twist, turns/inch	21.1	22.8	19.19	22.6	20	21.8	18.10	21.32
CV% of TPI	3.1	2.5	3.95	1.1	1.6	3.2	3.57	2.69
CSP	2668	2455	2099	2087	3629	3628	4410	3979
Tenacity, Rkm, Kgf * Nm	15.70	15.75	14.36	13.18	22.77	22.30	26.44	23.58
Breaking elongation, %	5.49	5.56	12.95	12.44	11.98	10.82	9.57	9.0
Modulus gm /den	39.987	37.025	63.261	30.161	42.565	33.556	67.675	37.033
Hairiness (Uster), H	7.48	6.98	5.48	4.93	5.96	5.33	6.23	6.49
sh	1.72	1.72	1.34	1.20	1.28	1.25	1.36	1.53
Unevenness (Uster), U%	11.17	12.74	9.98	10.97	9.36	9.91	9.37	10.59
Irregularity, CVm, %	14.15	16.52	12.60	13.81	11.92	12.52	11.84	13.32
Thin places (-50%), Km	9.8	25.3	2.3	9.0	1.0	1.30	1.0	7.3
Thick places (+ 50%), Km	86.0	297.3	11.0	25.0	9.80	12.50	7.5	14.8
Neps (+ 200%), km	150.0	409.5	32.0	75.8	19.30	32.50	22.8	82.0
Objectionable Faults	93	46	9.0	19	28	0.00	8.0	18.0
Spinning Faults	2.0	0.0	0.0	2.0	0.00	0.00	1.0	1.0
Long thick	22	28.0	12.0	30	35.0	0.00	21.0	20.0
Objectionable thin	0.0	0.0	0.0	1.0	0.00	0.00	0.0	0.0
Total objectionable	127.9	73.9	21	52.0	63.0	0.00	30.0	39.0
Total tolerable faults	5856	5852	638	1619	712.0	0.00	702.0	1402
Total faults	5984	5926	659	1671	775.0	0.00	732.0	1441

Table 3.2: Blowroom process parameters of yarn spun

Spinning process	Combed Ring		Viscose, Modal & Excel	
	20Tex	15Tex	20Tex	15Tex
Blow room				
Lap Hank (gms/mt)	350	350	400	400
Beater Speed (rpm) K1 & K2			750/850	750/850

Table 3.3: Carding process parameters of yarn spun

Spinning process	Combed Ring		Viscose, Modal & Excel	
	20Tex	15Tex	20Tex	15Tex
Carding				
Sliver Hank	0.14	0.14	0.12	0.12
Licker-in speed (rpm)	880	880	1034	834
Cylinder speed (rpm)	420	420	450	360
Flat speed (mm/min.)	220	220	322	222
Doffer speed (m/min)	100	100	120	120
Licker-in cylinder gauge (thou)	10	10	8	8
Flat-cylinder gauge (thou)	8/8/9/9/9	8/8/9/9/9	12/12/12//10/10/10	12/12/12//10/10/10

Table 3.4: Comber process parameters of yarn spun

Spinning process	Combed Ring		Viscose, Modal & Excel	
	20Tex	15Tex	20Tex	15Tex
Comber				
Feed / min (mm) Backward	4.3	4.3		
Nips	170	170		
Noil %	17	17		

Table 3.5: Draw Frame process parameters of yarn spun

Spinning process	Combed Ring		Viscose, Modal & Excel	
	20Tex	15Tex	20Tex	15Tex
Draw Frame (I)				
Sliver Hank			0.12	0.12
Break Draft			1.7	1.7
Back-Middle Roller Gauge			46	46
Middle-Front Roller Gauge			46	46
Delivery Speed (mpm)			350	350
Draw Frame (II)				
Sliver Hank	0.15	0.15	0.12	0.14
Break Draft	1.28	1.28	1.28	1.28
Back-Middle Roller Gauge	38-42	38-42	46	49
Middle-Front Roller Gauge			43	43
Delivery Speed (mpm)	350	350	400	400

Table 3.6: Simplex process parameters of yarn spun

Spinning process	Combed Ring		Viscose, Modal & Excel	
	20Tex	15Tex	20Tex	15Tex
Simplex				
Short Cradle / Medium Cradle			Short	Short
Roving Hank	1.6	1.6	0.9	1.4
Break Draft	1.15	1.15	1.21	1.21
TPI	1.65	1.65	0.76	1.01
Back-Middle Roller Gauge	44	44	55	55
Middle-Front Roller Gauge	50	50	47	47
Delivery Speed (mpm)	13	13	1000	1000

Table 3.7: Ring Frame and Autoconer process parameters of yarn spun

Spinning process	Combed Ring		Viscose, Modal & Excel	
	20Tex	15Tex	20Tex	15Tex
Ring Frame				
Count	30	40	30	40
Spindle Speed (rpm)	11400	11400	16000	16000
TM	3.53	3.53	3.3	3.3
Spacer type (mm)	3.5	3.5	3.5	3.5
Traveller used			3/0	6/0
Back-Middle Roller Gauge	60	60	65	65
Middle-Front Roller Gauge	44	44	42.5	42.5
Autoconer				
Delivery speed (mpm)	850	850	1200	1200

Table 3.8: Coding of Cotton knitted Samples

Sample No.	Categorical variable Fabric Code	Fibre Composition	Yarn Count (Tex)	Structure	Loop Length (mm)
1.	SC1	Cotton	20	Single Jersey	2.7
2.	SC2	Cotton	20	Single Jersey	2.9
3.	SC3	Cotton	20	Single Jersey	3.1
4.	SC4	Cotton	20	Single Jersey	3.3
5.	SC5	Cotton	15	Single Jersey	2.7
6.	SC6	Cotton	15	Single Jersey	2.9
7.	SC7	Cotton	15	Single Jersey	3.1
8.	SC8	Cotton	15	Single Jersey	3.3
9.	SC9	Cotton	20	Pique	2.7
10.	SC10	Cotton	20	Pique	2.9
11.	SC11	Cotton	20	Pique	3.1
12.	SC12	Cotton	20	Pique	3.3
13.	SC13	Cotton	15	Pique	2.7
14.	SC14	Cotton	15	Pique	2.9
15.	SC15	Cotton	15	Pique	3.1
16.	SC16	Cotton	15	Pique	3.3

Table 3.9: Coding of Viscose knitted Samples

Sample No.	Categorical variable Fabric Code	Fibre Composition	Yarn Count (Tex)	Structure	Loop Length (mm)
1.	SV1	Viscose Rayon	20	Single Jersey	2.7
2.	SV2	Viscose Rayon	20	Single Jersey	2.9
3.	SV3	Viscose Rayon	20	Single Jersey	3.1
4.	SV4	Viscose Rayon	20	Single Jersey	3.3
5.	SV5	Viscose Rayon	15	Single Jersey	2.7
6.	SV6	Viscose Rayon	15	Single Jersey	2.9
7.	SV7	Viscose Rayon	15	Single Jersey	3.1
8.	SV8	Viscose Rayon	15	Single Jersey	3.3
9.	SV9	Viscose Rayon	20	Pique	2.7
10.	SV10	Viscose Rayon	20	Pique	2.9
11.	SV11	Viscose Rayon	20	Pique	3.1
12.	SV12	Viscose Rayon	20	Pique	3.3
13.	SV13	Viscose Rayon	15	Pique	2.7
14.	SV14	Viscose Rayon	15	Pique	2.9
15.	SV15	Viscose Rayon	15	Pique	3.1
16.	SV16	Viscose Rayon	15	Pique	3.3

Table 3.10.: Coding of Modal knitted Samples

Sample No.	Categorical variable Fabric Code	Fibre Composition	Yarn Count (Tex)	Structure	Loop Length (mm)
1.	SM1	Modal	20	Single Jersey	2.7
2.	SM2	Modal	20	Single Jersey	2.9
3.	SM3	Modal	20	Single Jersey	3.1
4.	SM4	Modal	20	Single Jersey	3.3
5.	SM5	Modal	15	Single Jersey	2.7
6.	SM6	Modal	15	Single Jersey	2.9
7.	SM7	Modal	15	Single Jersey	3.1
8.	SM8	Modal	15	Single Jersey	3.3
9.	SM9	Modal	20	Pique	2.7
10.	SM10	Modal	20	Pique	2.9
11.	SM11	Modal	20	Pique	3.1
12.	SM12	Modal	20	Pique	3.3
13.	SM13	Modal	15	Pique	2.7
14.	SM14	Modal	15	Pique	2.9
15.	SM15	Modal	15	Pique	3.1
16.	SM16	Modal	15	Pique	3.3

Table 3.11: Coding of Excel knitted Samples

Sample No.	Categorical variable Fabric Code	Fibre Composition	Yarn Count (Tex)	Structure	Loop Length (mm)
1.	SE1	Excel	20	Single Jersey	2.7
2.	SE2	Excel	20	Single Jersey	2.9
3.	SE3	Excel	20	Single Jersey	3.1
4.	SE4	Excel	20	Single Jersey	3.3
5.	SE5	Excel	15	Single Jersey	2.7
6.	SE6	Excel	15	Single Jersey	2.9
7.	SE7	Excel	15	Single Jersey	3.1
8.	SE8	Excel	15	Single Jersey	3.3
9.	SE9	Excel	20	Pique	2.7
10.	SE10	Excel	20	Pique	2.9
11.	SE11	Excel	20	Pique	3.1
12.	SE12	Excel	20	Pique	3.3
13.	SE13	Excel	15	Pique	2.7
14.	SE14	Excel	15	Pique	2.9
15.	SE15	Excel	15	Pique	3.1
16.	SE16	Excel	15	Pique	3.3

Table 3.12: Knitting parameter for the single jersey cotton fabric

Sample Code	GSM	Yarn Length (m/min)	Machine Speed (rpm)	Loop Length (mm)	Yarn Tension (CN)	Take Down tension scale	Yarn feeding pulley position	Dial gauge (mm)
SC1	130.18	87.6	14	2.7	3/5	11	160	4.9
SC2	121.35	138	20	2.9	3/5	16	169	00
SC3	122.53	145	20	3.1	3/5	23	175	0.1
SC4	117	156.8	20	3.3	3/5	5*	185	0.3
SC5	85.15	88	20	2.7	3/5	11#	160	4.9
SC6	79.83	94.5	20	2.9	3/5	26#	168	00
SC7	82.93	100.2	20	3.1	3/5	5*	175	0.1
SC8	84.98	107	20	3.3	3/5	8*	185	0.3

*Gear change #Normal gear

Table 3.13: Knitting parameter for the single jersey viscose fabric

Sample Code	GSM	Yarn Length (m/min)	Machine Speed (rpm)	Loop Length (mm)	Yarn Tension (CN)	Take down tension scale	Yarn feeding pulley position	Dial gauge (mm)
SV1	121	86.8	14	2.7	3/5	11	160	4.9
SV2	118	94.3	14	2.9	3/5	16	169	00
SV3	117	99.5	14	3.1	3/5	23	175	.1
SV4	107	108	14	3.3	3/5	35	185	0.3
SV5	85	88.8	14	2.7	3/5	12	160	4.9
SV6	74	95	14	2.9	3/5	21	169	00
SV7	75	100.8	14	3.1	3/5	35	175	0.15
SV8	74	86.5	14	3.3	3/5	35	185	0.3

Table 3.14: Knitting parameter for the single jersey modal fabric

Sample Code	GSM	Yarn Length (m/min)	Machine Speed (rpm)	Loop Length (mm)	Yarn Tension (CN)	Take down tension scale	Yarn feeding pulley position	Dial gauge (mm)
SM1	117.35	125	20	2.7	3/5	10	160	00
SM2	118.12	132	20	2.9	3/5	12	167	0.1
SM3	102.18	141	20	3.1	3/5	24*	175	0.2
SM4	98.79	152	20	3.3	3/5	5*	185	0.4
SM5	77.98	124	20	2.7	3/5	15	160	00
SM6	87.52	132	20	2.9	3/5	22	167	0.1
SM7	75.35	142	20	3.1	3/5	2	175	0.2
SM8	66.37	152	20	3.3	3/5	5*	185	0.4

*Gear change

Table 3.15: Knitting parameter for the single jersey excel fabric

Sample Code	GSM	Yarn Length (m/min)	Machine Speed (rpm)	Loop Length (mm)	Yarn Tension (CN)	Take down tension scale	Yarn feeding pulley position	Dial gauge (mm)
SE1	117	88.6	14	2.7	3/5	11	160	4.9
SE2	112	95.2	14	2.9	3/5	16	169	00
SE3	112	100	14	3.1	3/5	23	175	0.1
SE4	106	108	14	3.3	3/5	35	185	0.3
SE5	80	90.5	14	2.7	3/5	15	160	4.9
SE6	78	100.1	14	2.9	3/5	34	169	00
SE7	69	100	14	3.1	3/5	0*	175	0.1
SE8	65	185	14	3.3	3/5	5*	185	0.3

*After replacing 26/66 teeth gear with the pair of 40/52 teeth gears

Table 3.16: Knitting parameter for the pique cotton fabric

Sample Code	GSM	Yarn Length (m/min)	Machine Speed (rpm)	Loop Length (mm)	Yarn Tension (CN)	Take down tension scale	Yarn feeding pulley position	Dial gauge (mm)
SC9	122.03	89	14	2.7	3/5	12	160	00
SC10	115.83	95	14	2.9	3/5	15	168	0.1
SC11	103.73	100	14	3.1	3/5	17	175	0.3
SC12	106.18	108	14	3.3	3/5	30	185	0.4
SC13	90.43	88.9	14	2.7	3/5	10	160	00
SC14	90.63	94.7	14	2.9	3/5	16	168	0.1
SC15	85.25	100	14	3.1	3/5	18	175	0.3
SC16	85.4	108	14	3.3	3/5	30	185	0.4

Table 3.17: Knitting parameter for the pique viscose fabric

Sample Code	GSM	Yarn Length (m/min)	Machine Speed (rpm)	Loop Length (mm)	Yarn Tension (CN)	Take down tension scale	Yarn feeding pulley position	Dial gauge (mm)
SV9	130.8	80	20	2.7	3/5	10	160	00
SV10	105.33	95	14	2.9	3/5	16	168	0.1
SV11	107.23	99.7	14	3.1	3/5	22	175	0.2
SV12	110.8	108	14	3.3	3/5	28	185	0.4
SV13	96.8	89	14	2.7	3/5	12	160	00
SV14	86.9	138	14	2.9	3/5	17	168	0.1
SV15	82.3	100	14	3.1	3/5	23	175	0.3
SV16	79.13	108	14	3.3	3/5	30	185	0.4

Table 3.18: Knitting parameter for the pique modal fabric

Sample Code	GSM	Yarn Length (m/min)	Machine Speed (rpm)	Loop Length (mm)	Yarn Tension (CN)	Take down tension scale	Yarn feeding pulley position	Dial gauge (mm)
SM9	124.56	125	20	2.7	3/5	10	160	00
SM10	122.04	133	20	2.9	3/5	15	167	0.1
SM11	97.07	141	20	3.1	3/5	25	175	0.2
SM12	97.76	152	20	3.3	3/5	35	185	0.4
SM13	93.06	124	20	2.7	3/5	10	160	00
SM14	82.8	132	20	2.9	3/5	15	167	0.1
SM15	74.03	141	20	3.1	3/5	25	175	0.2
SM16	71.38	152	20	3.3	3/5	35	185	0.4

Table 3.19: Knitting parameter for the pique excel fabric

Sample Code	GSM	Yarn Length (m/min)	Machine Speed (rpm)	Loop Length (mm)	Yarn Tension (CN)	Take down tension scale	Yarn feeding pulley position	Dial gauge (mm)
SE9	121.53	88	14	2.7	3/5	10	160	00
SE10	125.3	94	14	2.9	3/5	12	167	0.1
SE11	122.0	100.8	14	3.1	3/5	24	175	0.2
SE12	109.1	108	14	3.3	3/5	29	185	0.4
SE13	96.9	88	14	2.7	3/5	12	160	00
SE14	72.7	95.9	14	2.9	3/5	15	168	0.1
SE15	71.43	102	14	3.1	3/5	23	175	0.2
SE16	76.15	108	14	3.3	3/5	32	185	0.4

Appearance of Knitted Fabrics

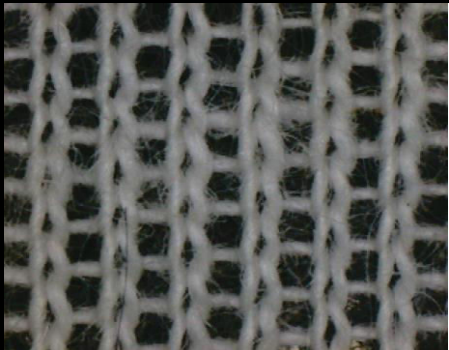
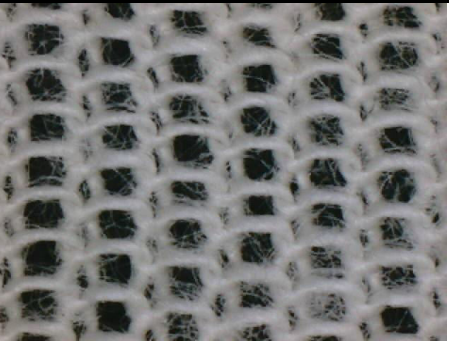
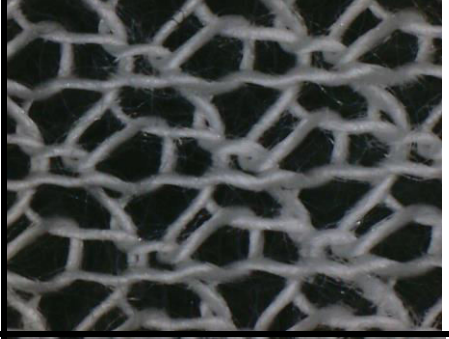
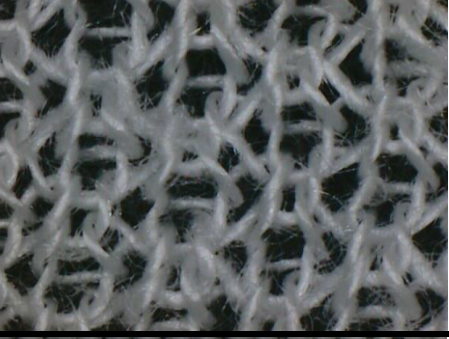
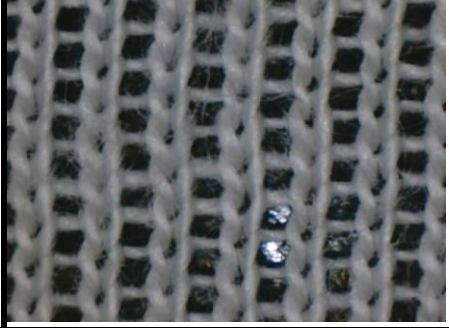
SAMPLE CODE	BEFORE WASH	AFTER WASH
SC5		
SM16		
SE1		
SE2		

Figure 3.1: Appearance of selective knitted fabrics

Fabric properties and experimental air permeability values

Table 4.1: Fabric properties and experimental air permeability values for single jersey cotton fabric

Fabric Code	Stitch length, mm	Tightness factor, K	Course count per cm	Wale count per cm	Stitch density, (loops/cm ²)	Thickness, (mm)	Weight, g/m ²	Porosity (%)	Air permeability, (cm ³ /cm ² /s)	Loop shape factor
SC1	2.7	1.64	16	19	304	0.633	162.60	87	83.3	0.84
SC2	2.9	1.53	14	20	280	0.626	155.50	86	94.3	0.70
SC3	3.1	1.43	16	19	304	0.6694	149.63	85	123.8	0.84
SC4	3.3	1.34	14	19	266	0.673	138.38	86	164.8	0.74
SC5	2.7	1.42	16	20	320	0.609	127.38	89	171.2	0.80
SC6	2.9	1.33	15	19	285	0.622	116.82	90	191.3	0.79
SC7	3.1	1.24	15	17	255	0.590	115.53	90	218.1	0.88
SC8	3.3	1.16	15	16	240	0.587	104.93	89	283.1	0.94

Table 4.2: Fabric properties and experimental air permeability values for pique fabric knitted with cotton yarn

Fabric Code	Stitch length, mm	Tightness factor, K	Course count per cm	Wale count per cm	Stitch density, (loops/cm ²)	Thickness, mm	Weight, g/m ²	Porosity	Air permeability, cm ³ /cm ² /s	Loop shape factor
SC9	2.7	1.64	10	17	170	0.833	176.98	94	147.5	0.59
SC10	2.9	1.53	10	15	150	0.814	164.21	94	190.8	0.67
SC11	3.1	1.43	9	14	126	0.827	156.12	98	209.2	0.64
SC12	3.3	1.34	9	13	117	0.821	139.27	98	291.3	0.69
SC13	2.7	1.42	10	16	160	0.666	128.40	95	273.4	0.63
SC14	2.9	1.33	10	14	140	0.654	117.04	95	303.0	0.71
SC15	3.1	1.24	10	13	130	0.648	114.94	95	328.0	0.77
SC16	3.3	1.16	10	9	90	0.628	105.99	96	412.5	1.11

Table 4.3: Fabric properties and experimental air permeability values for single jersey viscose fabric

Fabric Code	Stitch length, mm	Tightness factor, K	Course count per cm	Wale count per cm	Stitch density, (loops/cm ²)	Thickness, mm	Weight, g/m ²	Porosity	Air permeability, cm ³ /cm ² /s	Loop shape factor
SV1	2.7	1.64	13	21	273	0.574	145.85	92.2	287	0.62
SV2	2.9	1.53	13	20	260	0.564	133.02	91.9	368	0.65
SV3	3.1	1.43	13	16	208	0.54	124.5	92.7	435	0.81
SV4	3.3	1.34	13	16	208	0.526	103.73	92	530	0.81
SV5	2.7	1.42	16	17	272	0.482	101.80	93.6	430	0.94
SV6	2.9	1.33	13	17	221	0.494	93.71	94.5	587	0.76
SV7	3.1	1.24	13	16	208	0.506	91.57	94.6	663	0.81
SV8	3.3	1.16	13	13	169	0.448	75.84	94.7	690	1.0

Table 4.4: Fabric properties and experimental air permeability values for pique fabric knitted with viscose yarn

Fabric Code	Stitch length, mm	Tightness factor, K	Course count per cm	Wale Count per cm	Stitch density, (loops/cm ²)	Thickness, mm	Weight, g/m ²	Porosity	Air permeability, cm ³ /cm ² /s	Loop shape factor
SV9	2.7	1.64	12	15	180	0.740	160.6	96	396.1	0.80
SV10	2.9	1.53	12	13	156	0.712	145.74	96	469.9	0.92
SV11	3.1	1.43	11	12	132	0.716	128.76	96.5	487.8	0.92
SV12	3.3	1.34	10	10	100	0.669	115.47	97	553.5	1.0
SV13	2.7	1.42	13	13	169	0.628	107.98	96.9	596.5	1.0
SV14	2.9	1.33	12	11	132	0.592	108.57	97.3	609.3	1.09
SV15	3.1	1.24	13	9	117	0.580	88.35	97.4	615.4	1.44
SV16	3.3	1.16	10	10	100	0.575	85.40	97.6	729.2	1.0

Table 4.5: Fabric properties and experimental air permeability values for single jersey modal fabric

Fabric Code	Stitch length, mm	Tightness factor, K	Course count per cm	Wale count per cm	Stitch density, (loops/cm ²)	Thickness, mm	Weight, g/m ²	Porosity	Air permeability, cm ³ /cm ² /s	Loop shape factor
SM1	2.7	1.64	12	20	240	0.47	141.95	89.5	408.8	0.60
SM2	2.9	1.53	12	18	216	0.45	129.87	89.4	458	0.67
SM3	3.1	1.43	12	16	192	0.436	118.34	89.6	524.6	0.75
SM4	3.3	1.34	12	15	180	0.432	103.54	89.6	653.2	0.80
SM5	2.7	1.42	12	20	240	0.424	104.71	93.1	529.2	0.60
SM6	2.9	1.33	12	18	216	0.412	95.09	93.1	606	0.67
SM7	3.1	1.24	12	15	180	0.414	85.9	93.9	704.3	0.80
SM8	3.3	1.16	12	14	168	0.389	78.74	93.5	805.3	0.86

Table 4.6: Fabric properties and experimental air permeability values for pique fabric knitted with modal yarn

Fabric Code	Stitch length, mm	Tightness factor, K	Course Count per cm	Wale count per cm	Stitch density, (loops/cm ²)	Thickness, mm	Weight, g/m ²	Porosity	Air permeability, cm ³ /cm ² /s	Loop shape factor
SM9	2.7	1.64	10	14	140	0.641	151.16	99.40	412.1	0.71
SM10	2.9	1.53	9	12	108	0.64	145.75	98.5	482.3	0.75
SM11	3.1	1.43	9	12	108	0.658	129.66	98.5	556.5	0.75
SM12	3.3	1.34	8	10	80	0.644	124.63	98.8	613.2	0.80
SM13	2.7	1.42	6	11	66	0.575	114.64	99.50	585.4	0.55
SM14	2.9	1.33	6	9	54	0.598	105.64	99.6	649.5	0.67
SM15	3.1	1.24	6	8	48	0.557	97	99.6	681.2	0.75
SM16	3.3	1.16	6	7	42	0.595	88.31	99.6	801.8	0.86

Table 4.7: Fabric properties and experimental air permeability values for single jersey excel fabric

Fabric Code	Stitch length, mm	Tightness factor, K	Course count per cm	Wale count per cm	Stitch density, (loops/cm ²)	Thickness, mm	Weight, g/m ²	Porosity	Air permeability, cm ³ /cm ² /s	Loop shape factor
SE1	2.7	1.64	13	20	260	0.54	136.78	90.1	331	0.65
SE2	2.9	1.53	12	18	216	0.544	130.0	91.2	427	0.67
SE3	3.1	1.43	12	17	204	0.5729	124.35	91.6	437	0.71
SE4	3.3	1.34	11	16	176	0.554	108.96	92.0	449	0.69
SE5	2.7	1.42	13	20	260	0.522	102.82	91.6	447	0.65
SE6	2.9	1.33	12	18	216	0.494	86.06	92	599	0.67
SE7	3.1	1.24	11	17	187	0.484	81.29	92.5	608	0.65
SE8	3.3	1.16	11	16	176	0.5278	76.45	93.1	723	0.69

Table 4.8: Fabric properties and experimental air permeability values for pique fabric knitted with excel yarn

Fabric Code	Stitch length, mm	Tightness factor, K	Course count per cm	Wale count per cm	Stitch density, (loops/cm ²)	Thickness, mm	Weight, g/m ²	Porosity	Air permeability, cm ³ /cm ² /s	Loop shape factor
SE9	2.7	1.64	10	15	150	0.676	148.16	95.45	405.9	0.67
SE10	2.9	1.53	10	14	140	0.715	129.44	95.69	466.8	0.71
SE11	3.1	1.43	10	12	120	0.688	128.14	95.89	552	0.83
SE12	3.3	1.34	10	10	100	0.706	122.38	96.45	576.4	1.0
SE13	2.7	1.42	12	13	156	0.622	104.07	95.75	587.1	0.92
SE14	2.9	1.33	10	12	120	0.624	97.98	96.5	618.1	0.83
SE15	3.1	1.24	10	10	100	0.61	88.58	96.81	680.2	1
SE16	3.3	1.16	9	10	90	0.602	82.06	96.90	719.4	0.90

Table 4.10: Regression analysis: porosity versus tightness factor, stitch density, yarn count and fabric thickness

Predictor	Coefficient	SE Coefficient	T	P	
Constant	102.168	3.688	27.70	0.000	
Tightness Factor	-0.9308	0.9618	-0.97	0.337	
Stitch density	-0.045461	0.003371	-13.49	0.000	
Yarn Count	0.7199	0.4589	1.57	0.122	
Thickness	2.534	2.33	1.09	0.281	
S = 1.72826	R ² = 79.2%	R ² (adjusted) = 77.7%			
Analysis of Variance					
Source	DF	SS	MS	F	P
Regression	4	669.26	167.31	56.02	0.000
Residual Error	59	176.23	2.99		
Total	63	845.49			

Table 4.11: ANOVA Test for Fibre type and Fabric Structure

Source	Dependent variable	Sum of Squares	Df	Mean Square	F	Sig.
Fibre Type	Air permeability	827490	3	275830	28.82	0.000
Fabric structure	Air permeability	535451	1	535451	55.95	0.000
Error		535927	56	9570		
Total		3029127	63			

Experimental Thermal Comfort Properties And Regression Analysis

Table 4.12: Thermal comfort properties of single jersey fabric knitted with cotton yarn

Fabric Code	Thermal Conductivity (W/Mk)	Thermal Resistance (m ² k/W)
SC1	0.6140	0.0129
SC2	0.6026	0.0160
SC3	0.5954	0.0180
SC4	0.5901	0.0195
SC5	0.6046	0.0154
SC6	0.5878	0.0202
SC7	0.5990	0.0170
SC8	0.6090	0.0142

Table 4.13: Thermal comfort properties of pique fabric knitted with cotton yarn

Fabric Code	Thermal Conductivity (W/Mk)	Thermal Resistance (m ² k/W)
SC9	0.5586	0.029
SC10	0.548	0.032
SC11	0.5350	0.037
SC12	0.5366	0.036
SC13	0.5200	0.042
SC14	0.5540	0.031
SC15	0.5380	0.036
SC16	0.5298	0.039

Table 4.15: Regression analysis: thermal resistance versus porosity, fabric thickness

Predictor	Coefficient	SE Coefficient	T	P	
Constant	-0.16970	0.07836	-2.17	0.083	
Porosity	0.0013760	0.0006455	2.13	0.086	
Fabric thickness	0.10478	0.03972	2.64	0.046	
S = 0.00193344	R ² = 58.2%	R ² (adjusted) = 41.5%			
Analysis of Variance					
Source	DF	SS	MS	F	P
Regression	2	0.000026029	0.000013015	3.48	0.113
Residual Error	5	0.000018691	0.000003738		
Total	7	0.000044720			

Table 4.16: Regression analysis: thermal conductivity versus porosity, fabric thickness

Predictor	Coefficient	SE Coefficient	T	P	
Constant	1.2621	0.2835	4.45	0.007	
Porosity	-0.004885	0.002335	-2.09	0.091	
Fabric thickness	-0.3723	0.1437	-2.59	0.049	
S = 0.00699421	R ² = 57.3%	R ² (adjusted) = 40.3%			
Analysis of Variance					
Source	DF	SS	MS	F	P
Regression	2	0.00032855	0.00016428	3.36	0.119
Residual Error	5	0.00024460	0.00004892		
Total	7	0.00057315			

Table 4.17: Regression analysis: air permeability versus porosity, fabric thickness, tightness factor

Predictor	Coefficient	SE Coefficient	T	P	
Constant	622.2	760.4	0.82	0.007	
Tightness factor	-359.24	51.28			
Porosity	2.969	6.267	-7.01	0.002	
Fabric thickness	-349.0	358.1	0.47	0.660	
S = 17.4245	R ² = 96.1%	R ² (adjusted) = 93.1%			
Analysis of Variance					
Source	DF	SS	MS	F	P
Regression	3	29641.5	9880.5	32.54	0.003
Residual Error	4	1214.5	303.6		
Total	7	30856.0			

Table 4.19: Regression analysis: thermal resistance versus porosity, fabric thickness

Predictor	Coefficient	SE Coefficient	T	P	
Constant	-0.09030	0.08409	-1.07	0.332	
Porosity	0.0015115	0.0008990	1.68	0.154	
Fabric thickness	-0.02578	0.01526	-1.69	0.152	
S = 0.00369810 R ² = 48.0% R ² (adjusted) = 27.2%					
Analysis of Variance					
Source	DF	SS	MS	F	P
Regression	2	0.00006312	0.00003156	2.31	0.195
Residual Error	5	0.00006838	0.00001368		
Total	7	0.00013150			

Table 4.20: Regression analysis : thermal conductivity versus porosity, fabric thickness

Predictor	Coefficient	SE Coefficient	T	P
Constant	0.9107	0.2603	3.50	0.017
Porosity	-0.004408	0.002783	-1.58	0.174
Fabric thickness	0.06909	0.04724	1.46	0.203
S = 0.0114474	R ² = 43.1%	R ² (adjusted) = 20.3%		
Analysis of Variance				
Source	DF	SS	MS	P
Regression	2	0.0004953	0.0002477	0.245
Residual Error	5	0.0006552	0.0001310	
Total	7	0.0011506		

Table 4.21: Regression analysis: air permeability versus porosity, fabric thickness, tightness factor

Predictor	Coefficient	SE Coefficient	T	P	
Constant	1280.5	959.7	1.33	0.253	
Tightness factor	-484.2	146.1	-3.32	0.030	
Porosity	-2.552	9.676	-0.26	0.805	
Fabric thickness	-130.2	228.5	-0.57	0.599	
S = 22.3852	R ² = 96.0%	R ² (adjusted) = 93.0%			
Analysis of Variance					
Source	DF	SS	MS	F	P
Regression	3	48193	16064	32.06	0.003
Residual Error	4	2004	501		
Total	7	50198			

Table 4.22: Thermal comfort properties of single jersey fabric knitted with viscose yarn

Fabric Code	Thermal Conductivity (W/Mk)	Thermal Resistance (m ² k/W)
SV1	0.5657	0.027
SV2	0.5468	0.033
SV3	0.5621	0.028
SV4	0.5498	0.032
SV5	0.5440	0.033
SV6	0.5598	0.029
SV7	0.5546	0.030
SV8	0.5599	0.029

Table 4.23: Thermal comfort properties of pique fabric knitted with viscose yarn

Fabric Code	Thermal Conductivity (W/Mk)	Thermal Resistance (m ² k/W)
SV9	0.5816	0.022
SV10	0.5948	0.018
SV11	0.5869	0.020
SV12	0.5854	0.021
SV13	0.5792	0.023
SV14	0.5787	0.023
SV15	0.5854	0.021
SV16	0.5941	0.018

Table 4.25: Regression analysis: thermal resistance versus porosity, fabric thickness

Predictor	Coefficient	SE Coefficient	T	P	
Constant	0.2219	0.1367	1.62	0.165	
Porosity	-0.001789	0.001290	-1.39	0.224	
Fabric thickness	-0.04824	0.03691	-1.31	0.248	
S = 0.00229569	R ² = 28.5%	R ² (adjusted) = 0.0%			
Analysis of Variance					
Source	DF	SS	MS	F	P
Regression	2	0.000010524	0.000005262	1.00	0.432
Residual Error	5	0.000026351	0.000005270		
Total	7	0.000036875			

Table 4.26: Regression analysis: thermal conductivity versus porosity, fabric thickness

Predictor	Coefficient	SE Coefficient	T	P	
Constant	-0.0506	0.4762	-0.11	0.920	
Porosity	0.005629	0.004496	1.25	0.266	
Fabric thickness	0.1565	0.1286	1.22	0.278	
S = 0.00799869	R ² = 25%	R ² (adjusted) = 0.0%			
Analysis of Variance					
Source	DF	SS	MS	F	P
Regression	2	0.00010658	0.00005329	0.83	0.487
Residual Error	5	0.0006552	0.0001310		
Total	7	0.00042648			

Table 4.27: Regression analysis: air permeability versus porosity, fabric thickness, tightness factor

Predictor	Coefficient	SE Coefficient	T	P	
Constant	-1434	1222	-1.17	0.306	
Tightness factor	-974.48	96.65	-10.08	0.001	
Porosity	29.51	11.57	2.55	0.063	
Fabric thickness	1028.0	404.3	2.54	0.064	
S = 20.1599	R ² = 98.9%	R ² (adjusted) = 98.0%			
Analysis of Variance					
Source	DF	SS	MS	F	P
Regression	3	141418	47139	115.99	0.000
Residual Error	4	1626	406		
Total	7	143043			

Table 4.29: Regression analysis: thermal resistance versus porosity, fabric thickness

Predictor	Coefficient	SE Coefficient	T	P	
Constant	0.0396	0.4469	0.09	0.933	
Porosity	-0.000164	0.004358	-0.04	0.971	
Fabric thickness	-0.00447	0.04035	-0.11	0.916	
S = 0.00233270 R ² = 1.1% R ² (adjusted) = 0.0%					
Analysis of Variance					
Source	DF	SS	MS	F	P
Regression	2	0.000000293	0.000000146	0.03	0.974
Residual Error	5	0.000027207	0.000005441		
Total	7	0.000027500			

Table 4.30: Regression analysis: thermal conductivity versus porosity, fabric thickness

Predictor	Coefficient	SE Coefficient	T	P	
Constant	0.664	1.385	0.48	0.652	
Porosity	-0.00080	0.01351	-0.06	0.955	
Fabric thickness	-0.0003	0.1251	-0.00	0.998	
S = 0.00723104 R ² = 0.6% R ² (adjusted) = 0.0%					
Analysis of Variance					
Source	DF	SS	MS	F	P
Regression	2	0.00000158	0.00000079	0.02	0.985
Residual Error	5	0.00026144	0.00005229		
Total	7	0.00026302			

Table 4.31: Regression analysis: air permeability versus porosity, fabric thickness, tightness factor

Predictor	Coefficient	SE Coefficient	T	P	
Constant	4127	10502	0.39	0.714	
Tightness factor	-397.9	288.4	-1.38	0.240	
Porosity	-25.3	102.3	-0.25	0.817	
Fabric thickness	-871.4	608.3	-1.43	0.225	
S = 34.6670 R ² = 93.6% R ² (adjusted) = 88.9%					
Analysis of Variance					
Source	DF	SS	MS	F	P
Regression	3	70827	23609	19.64	0.007
Residual Error	4	4807	1202		
Total	7	75635			

Table 4.32: Thermal comfort properties of single jersey fabric knitted with modal yarn

Fabric Code	Thermal Conductivity (W/Mk)	Thermal Resistance (m ² k/W)
SM1	0.6169	0.012
SM2	0.6128	0.013
SM3	0.6202	0.011
SM4	0.6204	0.011
SM5	0.6163	0.012
SM6	0.6061	0.015
SM7	0.613	0.013
SM8	0.6152	0.012

Table 4.33: Thermal comfort properties of pique fabric knitted with modal yarn

Fabric Code	Thermal Conductivity (W/Mk)	Thermal Resistance (m ² k/W)
SM9	0.5994	0.016
SM10	0.5979	0.017
SM11	0.5959	0.017
SM12	0.5969	0.017
SM13	0.6062	0.016
SM14	0.6006	0.015
SM15	0.6064	0.014
SM16	0.5904	0.019

Table 4.35: Regression analysis: thermal resistance versus porosity, fabric thickness

Predictor	Coefficient	SE Coefficient	T	P	
Constant	-0.04635	0.04990	-0.93	0.396	
Porosity	0.0005294	0.0004068	1.30	0.250	
Fabric thickness	0.02406	0.03420	0.70	0.513	
S = 0.00129477 R ² = 29.4% R ² (adjusted) = 1.2%					
Analysis of Variance					
Source	DF	SS	MS	F	P
Regression	2	0.000003493	0.000001746	1.04	0.419
Residual Error	5	0.000008382	0.000001676		
Total	7	0.000011875			

Table 4.36: Regression analysis: thermal conductivity versus porosity, fabric thickness

Predictor	Coefficient	SE Coefficient	T	P	
Constant	0.8092	0.1727	4.69	0.005	
Porosity	-0.001819	0.001408	-1.29	0.253	
Fabric thickness	-0.0648	0.1183	-0.55	0.608	
S = 0.00448050	R ² = 32.9%	R ² (adjusted) = 6.0%			
Analysis of Variance					
Source	DF	SS	MS	F	P
Regression	2	0.0004911	0.00002456	1.22	0.369
Residual Error	5	0.00010037	0.00002007		
Total	7	0.00014949			

Table 4.37: Regression analysis: air permeability versus porosity, fabric thickness, tightness factor

Predictor	Coefficient	SE Coefficient	T	P	
Constant	1629	1381	1.18	0.304	
Tightness factor	-1114.9	275.6	-4.04	0.016	
Porosity	-2.23	10.20	-0.22	0.838	
Fabric thickness	1650	2025	0.81	0.461	
S = 22.3852 R ² = 96.0% R ² (adjusted) = 93.0%					
Analysis of Variance					
Source	DF	SS	MS	F	P
Regression	3	117967	39322	41.21	0.002
Residual Error	4	3816	954		
Total	7	121783			

Table 4.39: Regression analysis: thermal resistance versus porosity, fabric thickness

Predictor	Coefficient	SE Coefficient	T	P	
Constant	-0.0161	0.2140	-0.08	0.943	
Porosity	0.000202	0.002020	0.10	0.924	
Fabric thickness	0.02031	0.02723	0.75	0.489	
S = 0.00159288 R ² = 20.1% R ² (adjusted) = 0.0%					
Analysis of Variance					
Source	DF	SS	MS	F	P
Regression	2	0.000003189	0.000001594	0.63	0.571
Residual Error	6	0.000012686	0.000002537		
Total	8	0.000015875			

Table 4.40: Regression analysis: thermal conductivity versus porosity, fabric thickness

Predictor	Coefficient	SE Coefficient	T	P	
Constant	1.0320	0.6760	1.53	0.187	
Porosity	-0.003619	0.006381	-0.57	0.595	
Fabric thickness	-0.12031	0.08601	-1.40	0.221	
S = 0.00503218	R ² = 36.1%	R ² (adjusted) = 10.5%			
Analysis of Variance					
Source	DF	SS	MS	F	P
Regression	2	0.00007153	0.00003577	1.41	0.326
Residual Error	6	0.00012661	0.00002532		
Total	8	0.00019815			

Table 4.41: Regression analysis: air permeability versus porosity, fabric thickness, tightness factor

Predictor	Coefficient	SE Coefficient	T	P	
Constant	-2131	2836	-0.75	0.494	
Tightness factor	-772.46	63.82	-12.10	0.000	
Porosity	36.09	26.76	1.35	0.249	
Fabric thickness	358.0	404.4	0.89	0.426	
S = 20.9725 R ² = 98.3% R ² (adjusted) = 97.0%					
Analysis of Variance					
Source	DF	SS	MS	F	P
Regression	3	99406	33135	75.33	0.001
Residual Error	5	1759	440		
Total	8	101166			

Table 4.43: Regression analysis: thermal resistance versus porosity, fabric thickness

Predictor	Coefficient	SE Coefficient	T	P	
Constant	-0.15625	0.08280	-1.89	0.108	
Porosity	0.0020718	0.0009169	2.26	0.065	
Fabric thickness	-0.03229	0.03014	-1.07	0.325	
S = 0.00287864 R ² = 48.3% R ² (adjusted) = 31.1%					
Analysis of Variance					
Source	DF	SS	MS	F	P
Regression	2	0.000046503	0.000023251	2.81	0.138
Residual Error	6	0.000049719	0.000008287		
Total	8	0.000096222			

Table 4.44: Regression analysis: thermal conductivity versus porosity, fabric thickness

Predictor	Coefficient	SE Coefficient	T	P	
Constant	1.2104	0.3087	3.92	0.008	
Porosity	-0.007321	0.003418	-2.14	0.076	
Fabric thickness	0.1170	0.1124	1.04	0.338	
S = 0.0107320 R ² = 45.8% R ² (adjusted) = 27.8%					
Analysis of Variance					
Source	DF	SS	MS	F	P
Regression	2	0.0005849	0.0002924	2.54	0.159
Residual Error	6	0.0006911	0.0001152		
Total	8	0.0012759			

Table 4.45: Regression analysis: air permeability versus porosity, fabric thickness, tightness factor

Predictor	Coefficient	SE Coefficient	T	P	
Constant	73	10199	0.01	0.995	
Tightness factor	-534.3	693.6	-0.77	0.476	
Porosity	19.4	104.4	0.19	0.860	
Fabric thickness	-1151.4	816.6	-1.41	0.218	
S = 51.4417 R ² = 89.2% R ² (adjusted) = 82.7%					
Analysis of Variance					
Source	DF	SS	MS	F	P
Regression	3	109002	36334	13.73	0.008
Residual Error	5	13231	2646		
Total	8	122233			

Table 4.47: Regression analysis thermal resistance versus porosity, fabric thickness

Predictor	Coefficient	SE Coefficient	T	P	
Constant	-0.0238	0.1131	-0.21	0.840	
Porosity	0.000198	0.001371	0.14	0.890	
Fabric thickness	0.04185	0.04172	1.00	0.355	
S = 0.00609300 R ² = 30.4% R ² (adjusted) = 7.2%					
Analysis of Variance					
Source	DF	SS	MS	F	P
Regression	2	0.00009725	0.00004863	1.31	0.337
Residual Error	6	0.00022275	0.00003712		
Total	8	0.00032000			

Table 4.48: Regression analysis: thermal conductivity versus porosity, fabric thickness

Predictor	Coefficient	SE Coefficient	T	P	
Constant	0.7604	0.3774	2.01	0.091	
Porosity	-0.000961	0.004575	-0.21	0.841	
Fabric thickness	-0.1336	0.1392	-0.96	0.374	
S = 0.0203280 R ² = 30.7% R ² (adjusted) = 7.6%					
Analysis of Variance					
Source	DF	SS	MS	F	P
Regression	2	0.0011002	0.0005501	1.33	0.332
Residual Error	6	0.0024794	0.0004132		
Total	8	0.0035796			

Table 4.49: Regression analysis: air permeability versus porosity, fabric thickness, tightness factor

Predictor	Coefficient	SE Coefficient	T	P	
Constant	168.3	735.5	0.23	0.828	
Tightness factor	-540.22	73.24	-7.38	0.001	
Porosity	14.597	7.752	1.88	0.118	
Fabric thickness	-378.3	173.8	-2.18	0.081	
S = 15.5858	R ² = 98.8%	R ² (adjusted) = 98.0%			
Analysis of Variance					
Source	DF	SS	MS	F	P
Regression	3	98308	32769	134.90	0.000
Residual Error	5	1215	243		
Total	8	99523			

Table 4.50: ANOVA Test for Fibre type and Fabric Structure

Source	Dependent variable	Sum of Squares	Df	Mean Square	F	Sig.
Fibre Type	Thermal conductivity	0.0150575	3	0.0050192	45.84	0.000
	Thermal Resistance	0.0014159	3	0.0004720	47.43	0.000
Fabric structure	Thermal conductivity	0.0043132	1	0.0043132	39.39	0.000
	Thermal Resistance	0.0003648	1	0.0003648	36.66	0.000
Error	Thermal conductivity	0.0061315	56	0.0001095		
	Thermal Resistance	0.0005572	56	0.0000100		
Total	Thermal conductivity	0.0420362	63			
	Thermal Resistance	0.0039105	63			

Moisture Management Properties And Fabric Classification

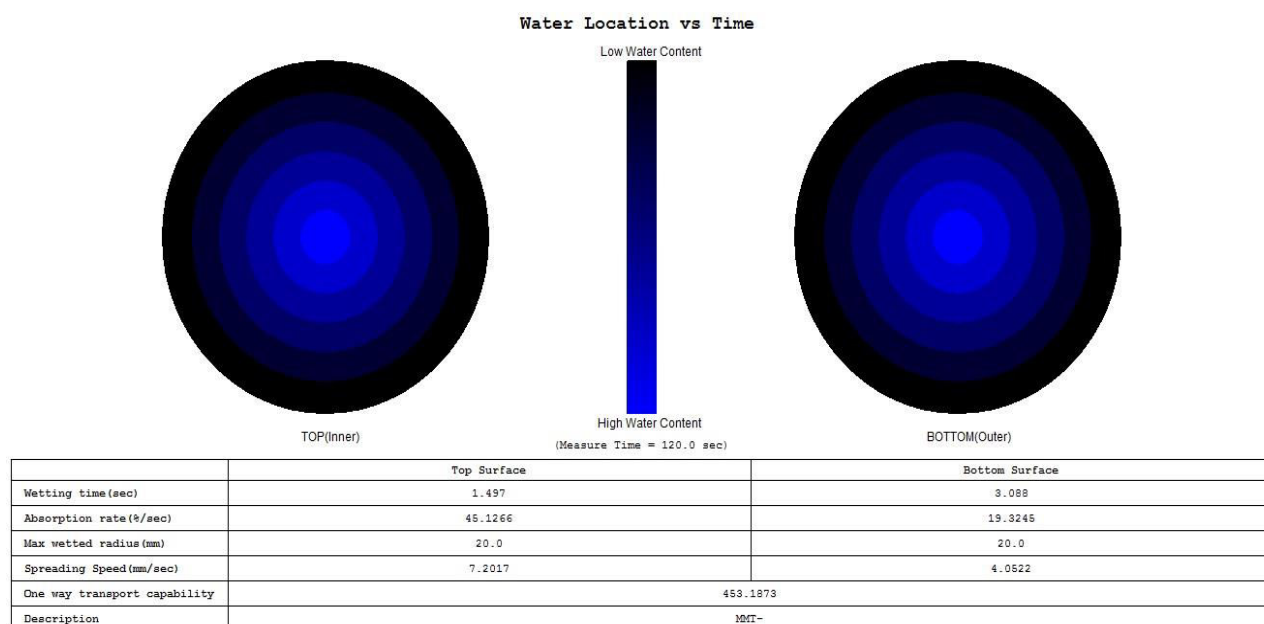


Figure 4.53: Typical water location versus time simulation of Single Jersey Cotton knitted Fabric (SC5).

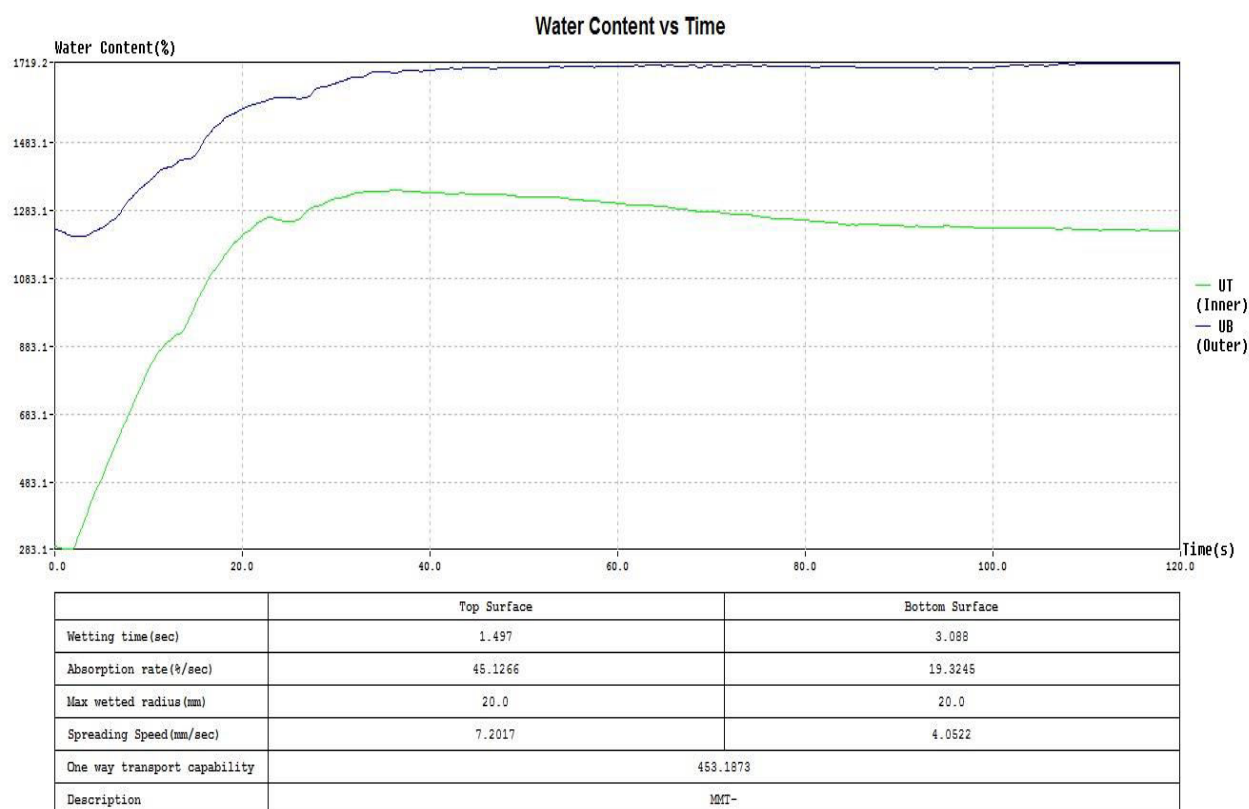


Figure 4.55: Typical Water content versus time for Single Jersey Cotton knitted Fabric (SC5).

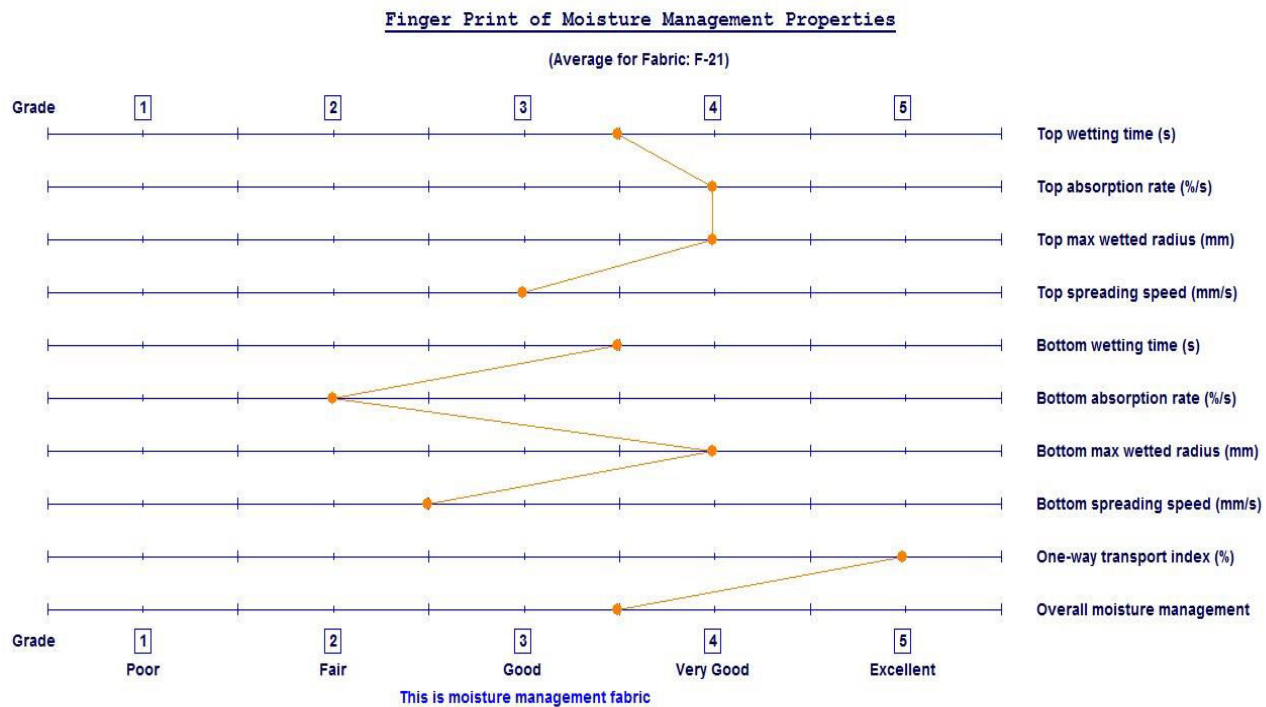


Figure 4.68: Typical Fingerprint of moisture management properties of Single Jersey Cotton knitted Fabric (SC5).

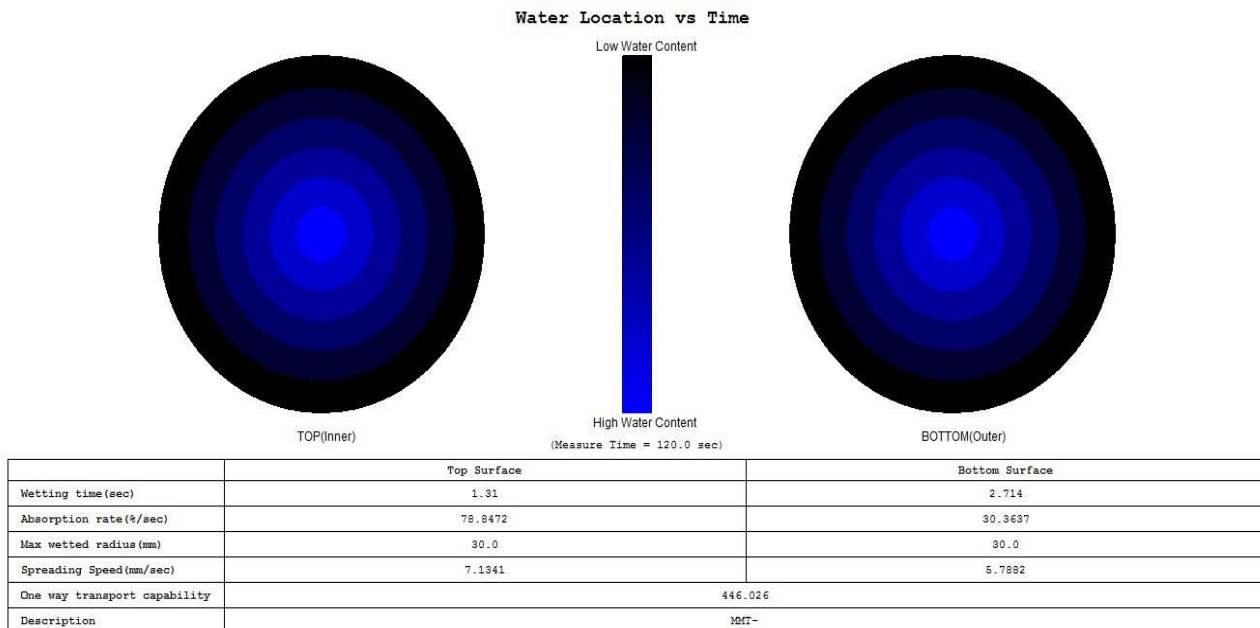


Figure 4.133: Typical water location versus time simulation of Pique knitted Modal fabric (SM16).

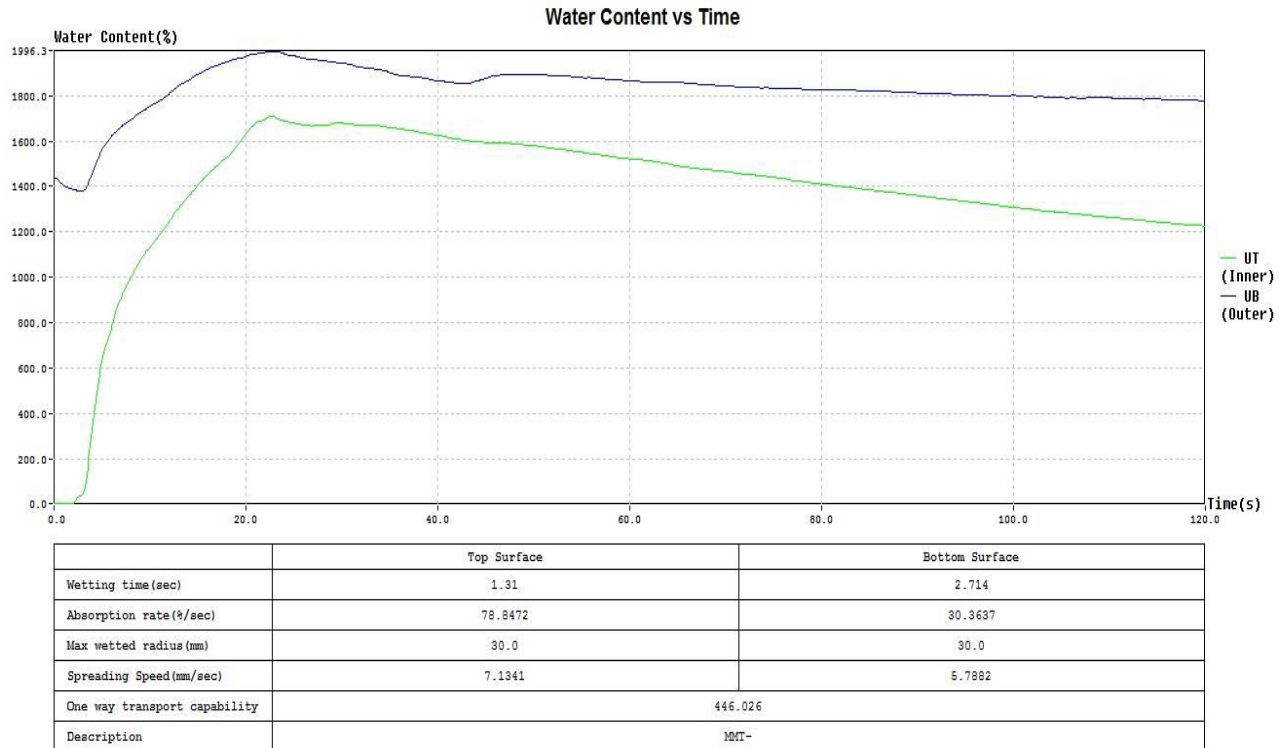


Figure 4.134: Typical Water content versus time for Pique knitted Modal fabric (SM16).

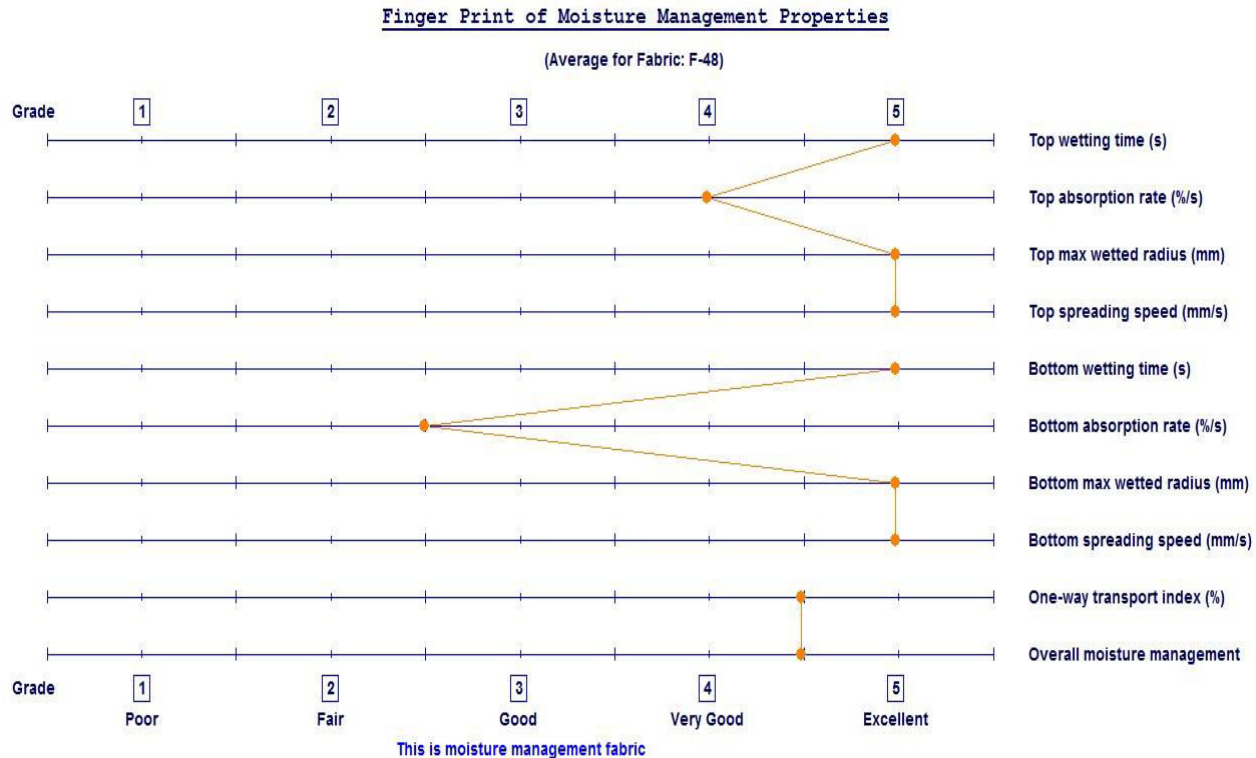


Figure 4.146: Typical Fingerprint of moisture management properties of Modal Pique fabric (SM16).

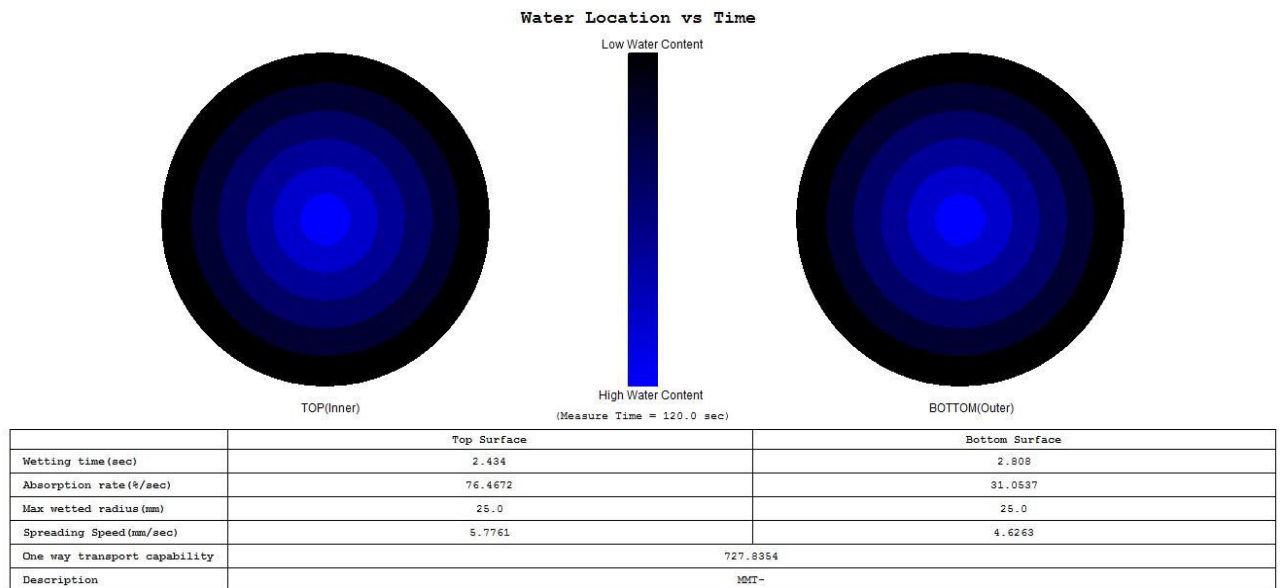


Figure 4.150: Typical water location versus time simulation of Single Jersey Excel Fabric (SE1).

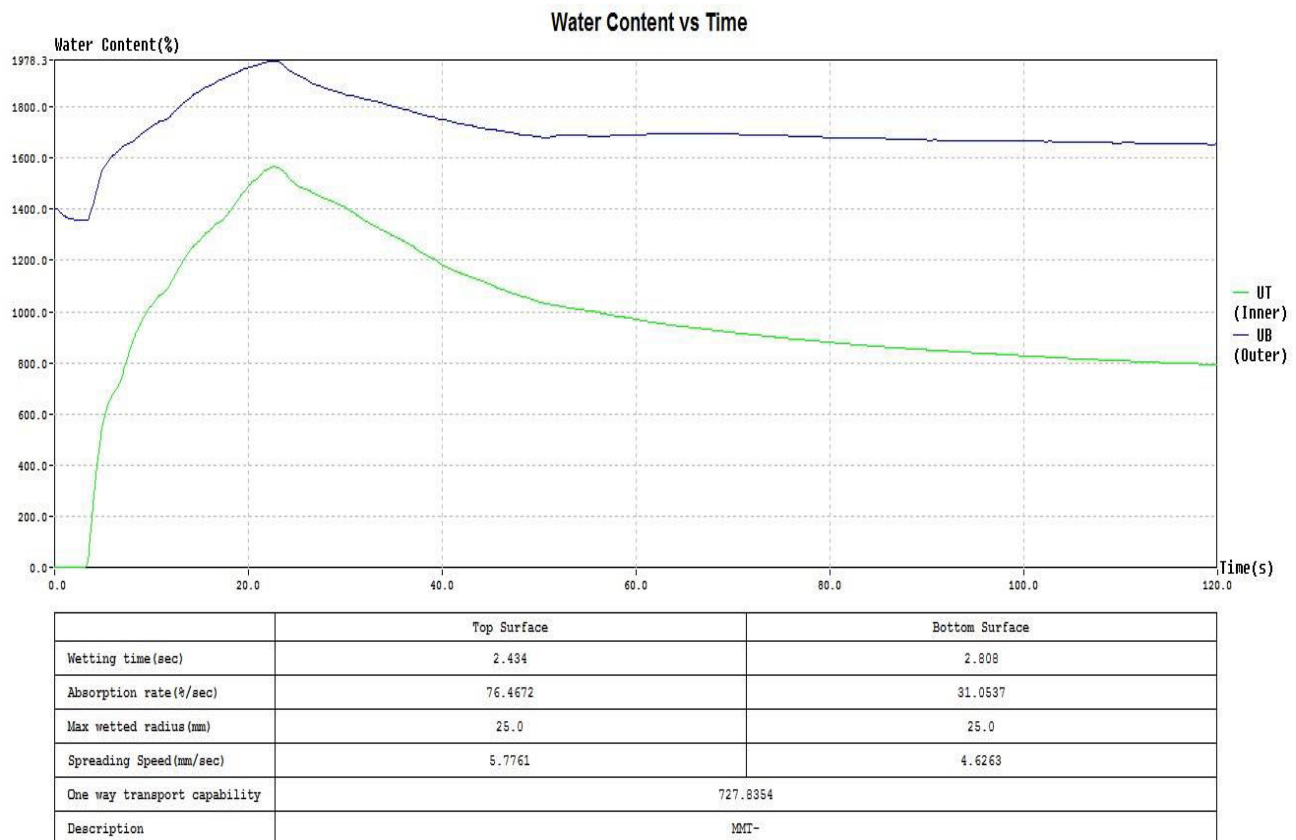


Figure 4.151: Typical Water content versus time for Single Jersey Excel Fabric (SE1).

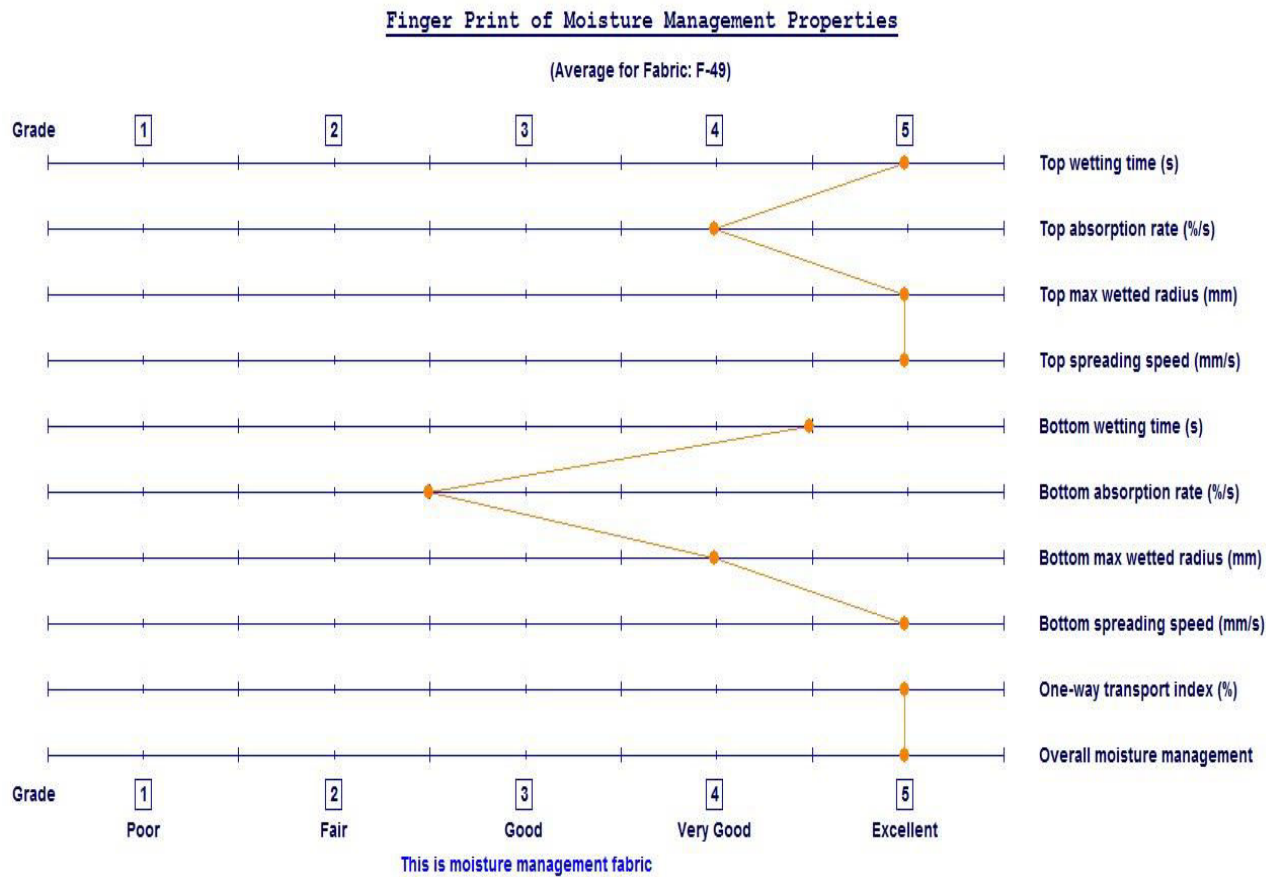


Figure 4.164: Typical Fingerprint of moisture management properties of Single Jersey Excel fabric (SE1).

Table 4.75: ANOVA Test for Fibre type and Fabric Structure

Source	Dependent variable	Sum of Squares	Df	Mean Square	F	Sig.
Fibre Type	WTt	414.922	3	138.307	158.84	0.000
	WTb	20155.1	3	6718.38	24.07	0.000
	ARt	488548	3	162849	65.24	0.000
	ARb	26958.4	3	8986.15	252.97	0.000
	MWRt	3689.76	3	1229.92	163.90	0.000
	MWRb	3655.30	3	1218.43	127.57	0.000
	SSt	147.919	3	49.3063	45.82	0.000
	SSb	200.744	3	66.9148	168.60	0.000
	AOTI	1387208	3	462403	6.00	0.001
	OMMC	0.34443	3	0.114811	6.22	0.001
Fabric Structure	WTt	5.312	1	5.312	6.10	0.017
	WTb	61.9	1	61.93	0.22	0.639
	ARt	20	1	20	0.01	0.929
	ARb	172.9	1	172.88	4.87	0.032
	MWRt	59.90	1	59.90	7.98	0.007
	MWRb	48.56	1	48.56	5.08	0.028
	SSt	12.416	1	12.4163	11.54	0.001
	SSb	4.703	1	4.7034	11.85	0.001
	AOTI	267452	1	267452	3.47	0.068
	OMMC	0.02482	1	0.024816	1.34	0.251
Error	WTt	48.760	56	0.871		
	WTb	15628.6	56	279.08		
	ARt	139781	56	2496		
	ARb	1989.3	56	35.52		
	MWRt	420.24	56	7.50		
	MWRb	534.87	56	9.55		
	SSt	60.265	56	1.0762		
	SSb	22.226	56	0.3969		
	AOTI	4318032	56	77108		
	OMMC	1.03370	56	0.018459		
Total	WTt	475.138	63			
	WTb	35987.1	63			
	ARt	629926	63			
	ARb	29236.7	63			
	MWRt	4205.32	63			
	MWRb	4255.08	63			
	SSt	224.963	63			
	SSb	229.463	63			
	AOTI	7187130	63			
	OMMC	1.64327	63			

Table 4.76: Fabric classification results of Viscose knitted fabrics

Fabric code	Tightness Factor	Fabric classification
SV1	1.64	Fast absorbing and quick drying fabric
SV2	1.53	Fast absorbing and quick drying fabric
SV3	1.43	Fast absorbing and quick drying fabric
SV4	1.34	Fast absorbing and quick drying fabric
SV5	1.42	Fast absorbing and quick drying fabric
SV6	1.33	Fast absorbing and quick drying fabric
SV7	1.24	Fast absorbing and quick drying fabric
SV8	1.16	Fast absorbing and quick drying fabric
SV9	1.64	Fast absorbing and slow drying fabric
SV10	1.53	Fast absorbing and slow drying fabric
SV11	1.43	Fast absorbing and slow drying fabric
SV12	1.34	Fast absorbing and quick drying fabric
SV13	1.42	Fast absorbing and quick drying fabric
SV14	1.33	Fast absorbing and quick drying fabric
SV15	1.24	Fast absorbing and quick drying fabric
SV16	1.16	Fast absorbing and quick drying fabric

Table 4.77: Fabric classification results of Cotton knitted fabrics

Fabric code	Tightness Factor	Fabric classification
SC1	1.64	Water proof fabric
SC2	1.53	Water repellent fabric
SC3	1.43	Water repellent fabric
SC4	1.34	Water repellent fabric
SC5	1.42	Moisture management fabric
SC6	1.33	Water repellent fabric
SC7	1.24	Water repellent fabric
SC8	1.16	Water penetration fabric
SC9	1.64	Water repellent fabric
SC10	1.53	Water penetration fabric
SC11	1.43	Water penetration fabric
SC12	1.34	Water penetration fabric
SC13	1.42	Water penetration fabric
SC14	1.33	Water penetration fabric
SC15	1.24	Water penetration fabric
SC16	1.16	Water penetration fabric

Table 4.78: Fabric classification results of Modal knitted fabrics

Fabric code	Tightness Factor	Fabric classification
SM1	1.64	Fast absorbing and quick drying fabric
SM2	1.53	Fast absorbing and quick drying fabric
SM3	1.43	Fast absorbing and quick drying fabric
SM4	1.34	Fast absorbing and quick drying fabric
SM5	1.42	Fast absorbing and quick drying fabric
SM6	1.33	Fast absorbing and quick drying fabric
SM7	1.24	Fast absorbing and quick drying fabric
SM8	1.16	Fast absorbing and quick drying fabric
SM9	1.64	Fast absorbing and quick drying fabric
SM10	1.53	Fast absorbing and quick drying fabric
SM11	1.43	Fast absorbing and quick drying fabric
SM12	1.34	Fast absorbing and quick drying fabric
SM13	1.42	Fast absorbing and quick drying fabric
SM14	1.33	Fast absorbing and quick drying fabric
SM15	1.24	Fast absorbing and quick drying fabric
SM16	1.16	Moisture management fabric

Table 4.79: Fabric classification results of Excel knitted fabrics

Fabric code	Tightness Factor	Fabric classification
SE1	1.64	Moisture management fabric
SE2	1.53	Moisture management fabric
SE3	1.43	Fast absorbing and quick drying fabric
SE4	1.34	Fast absorbing and quick drying fabric
SE5	1.42	Fast absorbing and quick drying fabric
SE6	1.33	Fast absorbing and quick drying fabric
SE7	1.24	Fast absorbing and quick drying fabric
SE8	1.16	Fast absorbing and quick drying fabric
SE9	1.64	Fast absorbing and quick drying fabric
SE10	1.53	Fast absorbing and quick drying fabric
SE11	1.43	Fast absorbing and quick drying fabric
SE12	1.34	Fast absorbing and quick drying fabric
SE13	1.42	Fast absorbing and quick drying fabric
SE14	1.33	Fast absorbing and quick drying fabric
SE15	1.24	Fast absorbing and quick drying fabric
SE16	1.16	Fast absorbing and quick drying fabric

LIST OF PUBLICATIONS

Original Papers published in Peer-reviewed International Journals

Sr.No.	Journal/ ISSN	Title	Issue/Vol.	Page Number
1.	International Journal of Engineering Research and Development e-ISSN: 2278-067X, p-ISSN: 2278-800X,	Factors Affecting Air Permeability of Viscose & Excel Single Jersey Fabric	Volume 5, Issue 7 (January 2012)	48-54
2.	International Journal of Textile and Fashion Technology (IJTFT) ISSN 2250-2378	Comparative Analysis of the thermal comfort properties of knitted fabrics made of cotton and modal fibres	Vol. 3, Issue 1, Mar 2013	1-10
3.	International Journal of Engineering Research and Development e-ISSN: 2278-067X, p-ISSN: 2278-800X	Investigation of Air Permeability of Cotton & Modal Knitted Fabrics	www.ijerd.com Volume 6, Issue 12 (May 2013)	01-06
4.	International Journal of Engineering Research and Development e-ISSN: 2278-067X, p-ISSN: 2278-800X.	Air Permeability of Knitted fabrics made from Regenerated Cellulosic fibres	www.ijerd.com Volume 10, Issue 7 (July 2014)	16-22