

LAMPIRAN

Lampiran 1 Data hasil pengujian kekuatan benang kapas *recycle* warna

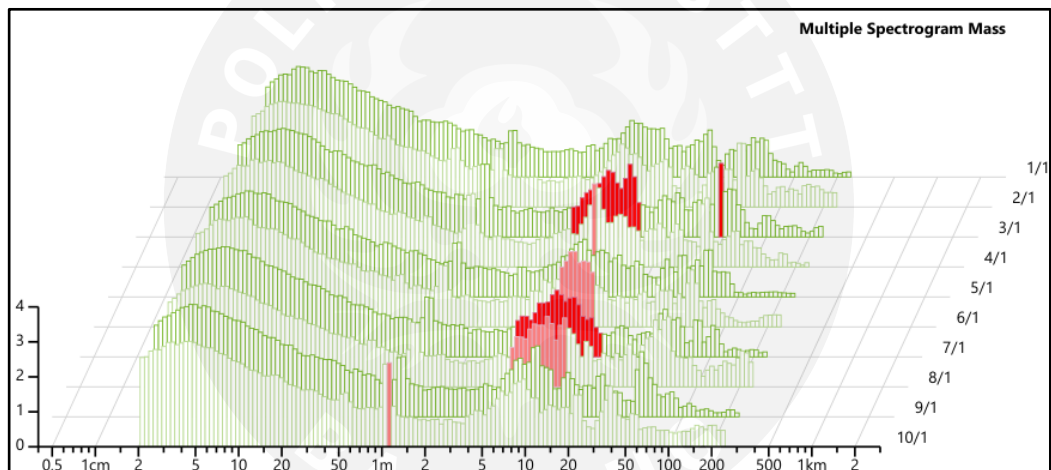
Total (60)	Machine / index	Time to break s	B-Force cN	Elongation %	Tenacity Rkm	B-Work cN.cm
1/1	Machine position 1	2.09	158.54	3.48	8.21	161.62
1/2	Machine position 1	1.99	180.53	3.24	9.35	176.83
1/3	Machine position 1	2.68	177.23	4.46	9.18	234.75
1/4	Machine position 1	2.26	146.33	3.73	7.58	159.34
1/5	Machine position 1	1.64	135.85	2.73	7.04	112.83
2/1	Machine position 2	2.64	187.99	4.39	9.74	239.10
2/2	Machine position 2	2.67	168.96	4.44	8.75	214.80
2/3	Machine position 2	2.77	170.27	4.60	8.82	224.98
2/4	Machine position 2	2.29	177.40	3.80	9.19	199.66
2/5	Machine position 2	3.08	196.50	5.12	10.18	285.54
3/1	Machine position 3	2.37	177.28	3.90	9.18	211.20
3/2	Machine position 3	2.13	153.18	3.55	7.94	158.25
3/3	Machine position 3	2.50	157.39	4.15	8.15	190.63
3/4	Machine position 3	2.21	160.29	3.66	8.30	181.21
3/5	Machine position 3	2.27	153.15	3.76	7.93	173.92
4/1	Machine position 4	3.05	178.96	5.06	9.27	245.06
4/2	Machine position 4	2.56	195.31	4.26	10.12	244.06
4/3	Machine position 4	1.97	172.12	3.27	8.92	166.44
4/4	Machine position 4	2.98	194.27	4.95	10.06	269.40
4/5	Machine position 4	2.61	190.48	4.33	9.87	239.00
5/1	Machine position 5	2.92	199.13	4.85	10.32	265.08
5/2	Machine position 5	2.19	182.50	3.57	9.45	196.31
5/3	Machine position 5	2.37	173.01	3.93	8.96	193.16
5/4	Machine position 5	2.64	169.51	4.35	8.78	207.51
5/5	Machine position 5	2.25	182.88	3.68	9.47	200.66
6/1	Machine position 6	1.69	179.60	2.80	9.30	144.34
6/2	Machine position 6	2.42	200.15	4.02	10.37	237.81
6/3	Machine position 6	2.62	167.85	4.36	8.70	212.40
6/4	Machine position 6	1.94	181.54	3.23	9.40	168.63
6/5	Machine position 6	1.56	185.51	2.59	9.61	135.51
7/1	Machine position 7	2.65	204.12	4.40	10.57	258.81
7/2	Machine position 7	2.00	209.45	3.33	10.85	205.32
7/3	Machine position 7	2.97	204.71	4.94	10.61	283.59
7/4	Machine position 7	2.60	179.24	4.28	9.29	219.74
7/5	Machine position 7	2.01	185.12	3.33	9.59	184.26
8/1	Machine position 8	2.02	173.48	3.35	8.99	166.15
8/2	Machine position 8	2.86	199.49	4.67	10.33	267.90
8/3	Machine position 8	2.60	202.88	4.31	10.51	257.07
8/4	Machine position 8	2.28	208.99	3.78	10.83	236.32
8/5	Machine position 8	2.76	202.78	4.57	10.51	268.87

Total (60)	Machine / index	Time to break s	B-Force cN	Elongation %	Tenacity Rkm	B-Work cN.cm
9/1	Machine position 9	2.68	191.71	4.36	9.93	242.29
9/2	Machine position 9	2.84	207.40	4.70	10.74	293.76
9/3	Machine position 9	2.57	175.80	4.26	9.11	212.22
9/4	Machine position 9	2.45	182.19	4.07	9.44	213.12
9/5	Machine position 9	1.99	189.24	3.31	9.80	187.03
10/1	Machine position 10	2.16	199.68	3.53	10.34	209.85
10/2	Machine position 10	2.24	175.71	3.71	9.10	180.46
10/3	Machine position 10	2.85	197.79	4.74	10.25	257.27
10/4	Machine position 10	2.35	223.51	3.90	11.58	261.19
10/5	Machine position 10	2.18	195.38	3.63	10.12	204.76
11/1	Machine position 11	1.97	205.14	3.27	10.63	195.10
11/2	Machine position 11	2.76	227.14	4.59	11.77	289.54
11/3	Machine position 11	2.99	220.20	4.98	11.41	302.37
11/4	Machine position 11	2.61	238.27	4.34	12.34	302.13
11/5	Machine position 11	2.79	230.70	4.60	11.95	310.37
12/1	Machine position 12	2.34	206.35	3.89	10.69	236.95
12/2	Machine position 12	2.59	185.57	4.29	9.61	222.53
12/3	Machine position 12	2.67	179.24	4.45	9.29	225.73
12/4	Machine position 12	2.61	206.97	4.32	10.72	271.97
12/5	Machine position 12	2.81	190.17	4.66	9.85	252.12
Mean (t)		2.44	187.53	4.05	9.72	221.15
CV (t)		14.97	10.98	15.01	10.98	20.42
s (t)		0.37	20.59	0.61	1.07	45.15
Q95 (t)		0.09	5.32	0.16	0.28	11.67
USP™ 2018			78	94	78	>95
Min (t)		1.56	135.85	2.59	7.04	112.83
Max (t)		3.08	238.27	5.12	12.34	310.37

Lampiran 2 Data hasil pengujian IPI dan ketidakrataan benang kapas *recycle* warna dan spektogram *sliver drawing* kapas *recycle*

No.	U %	CVm %	CVm 1m %	CVm 3m %	CVm 10m %	CVm 50m %	Thin -30% /km	Thin -40% /km	Thin -50% /km	Thick 35% /km	Thick 50% /km	Neps 140% /km	Neps 200% /km	Neps 280% /km	H	sh
1 / 1	12.16	15.45	6.20	5.26	3.44	1.78	3,544	401	13	819	120	4,470	808	147	4.43	1.19
2 / 1	12.00	15.30	6.06	5.05	3.47	1.26	3,376	385	15	783	103	4,153	784	131	4.72	1.25
3 / 1	12.43	15.79	6.67	5.85	4.06	1.95	3,620	477	22	876	143	4,697	937	165	4.37	1.20
4 / 1	12.29	15.69	6.61	5.68	3.88	1.82	3,537	423	18	780	120	4,603	886	154	4.44	1.19
5 / 1	11.88	15.08	5.82	4.92	3.24	1.31	3,114	351	19	765	123	4,084	785	133	4.69	1.28
6 / 1	12.47	15.83	6.26	5.41	3.38	1.41	3,898	539	21	912	158	4,762	929	155	4.52	1.26
7 / 1	12.43	15.78	6.48	5.49	3.80	1.59	3,833	556	34	844	119	4,566	865	151	4.59	1.25
8 / 1	12.11	15.45	6.94	6.07	4.23	1.90	3,183	369	16	710	122	3,838	685	112	4.85	1.30
9 / 1	12.47	15.87	6.02	5.09	3.45	1.02	4,134	609	31	921	145	5,396	1,091	156	4.50	1.27
10 / 1	12.24	15.57	6.54	5.60	4.11	2.54	3,349	433	21	728	126	3,808	705	110	4.46	1.18
11 / 1	12.33	15.74	6.95	6.05	4.33	1.89	3,464	445	22	772	122	4,389	814	158	4.39	1.21
12 / 1	12.00	15.22	6.10	5.24	3.33	1.67	3,211	370	29	716	121	4,059	752	127	4.42	1.19
Mean	12.23	15.56	6.39	5.48	3.73	1.68	3,522	447	22	802	127	4,402	837	142	4.53	1.23
CV	1.7	1.7	5.8	7.0	10.4	23.8	8.8	18.5	29.9	9.1	11.6	10.2	13.5	13.0	3.4	3.4
s	0.20	0.26	0.37	0.38	0.39	0.40	310	83	7	73	15	450	113	18	0.15	0.04
Q95	0.13	0.17	0.23	0.24	0.25	0.25	197	53	4	46	9	286	72	12	0.10	0.03
USP™ 2018		53	>95	>95	>95		26	35	51	52	75	>95			36	22
Min	11.88	15.08	5.82	4.92	3.24	1.02	3,114	351	13	710	103	3,808	685	110	4.37	1.18
Max	12.47	15.87	6.95	6.07	4.33	2.54	4,134	609	34	921	158	5,396	1,091	165	4.85	1.30

No.	S3u /100m	S1+2u /100m	2DØ mm	CV2D 8mm %	CV2D 0.3mm %	CV FS %	Shape	D g/cm ³
1 / 1	984	4,284	0.235	10.23	16.68	13.18	0.74	0.45
2 / 1	1,287	5,559	0.239	10.46	17.07	13.50	0.75	0.44
3 / 1	1,341	4,810	0.231	10.32	16.79	13.24	0.74	0.47
4 / 1	1,237	4,706	0.232	10.39	16.94	13.38	0.74	0.46
5 / 1	1,432	6,024	0.237	10.40	17.23	13.74	0.75	0.45
6 / 1	1,229	5,121	0.237	10.51	16.98	13.34	0.73	0.45
7 / 1	1,214	5,141	0.237	10.43	16.95	13.37	0.74	0.45
8 / 1	1,722	6,717	0.236	10.40	17.34	13.87	0.75	0.45
9 / 1	1,125	4,723	0.239	10.32	16.96	13.46	0.73	0.44
10 / 1	1,278	5,077	0.235	10.27	16.48	12.89	0.75	0.45
11 / 1	1,270	5,387	0.235	10.17	16.51	13.00	0.74	0.45
12 / 1	1,212	4,403	0.234	10.10	16.54	13.09	0.75	0.46
Mean	1,278	5,163	0.236	10.33	16.87	13.34	0.74	0.45
CV	13.9	13.4	1.0	1.2	1.7	2.1	1.0	2.0
s	178	691	0.002	0.12	0.28	0.29	0.01	0.01
Q95	113	439	0.002	0.08	0.18	0.18	0.00	0.01
USP™ 2018	<5	22			69	>95	46	19
Min	984	4,284	0.231	10.10	16.48	12.89	0.73	0.44
Max	1,722	6,717	0.239	10.51	17.34	13.87	0.75	0.47



Lampiran 3 Data hasil pengujian kekuatan benang kapas *fresh*

Total (60)	Machine / index	Time to break s	B-Force cN	Elongation %	Tenacity Rkm	B-Work cN.cm
1/1	Machine position 1	3.27	245.50	5.45	12.72	381.61
1/2	Machine position 1	2.95	221.51	4.91	11.48	304.75
1/3	Machine position 1	3.72	216.56	6.17	11.22	344.96
1/4	Machine position 1	3.19	211.47	5.30	10.96	307.11
1/5	Machine position 1	2.96	237.60	4.91	12.31	340.92
2/1	Machine position 2	3.31	211.40	5.47	10.95	306.67
2/2	Machine position 2	3.03	179.06	5.04	9.28	241.79
2/3	Machine position 2	3.16	222.95	5.24	11.55	326.18
2/4	Machine position 2	3.83	217.57	6.33	11.27	352.74
2/5	Machine position 2	3.34	204.73	5.54	10.61	305.97
3/1	Machine position 3	2.96	216.15	4.92	11.20	297.37
3/2	Machine position 3	3.34	206.26	5.55	10.69	305.37
3/3	Machine position 3	2.74	238.92	4.55	12.38	317.16
3/4	Machine position 3	2.26	207.39	3.75	10.74	221.74
3/5	Machine position 3	3.49	203.58	5.79	10.55	318.37
4/1	Machine position 4	2.45	182.85	4.06	9.47	210.67
4/2	Machine position 4	2.10	198.42	3.49	10.28	201.94
4/3	Machine position 4	3.07	195.73	5.10	10.14	269.91
4/4	Machine position 4	2.95	195.50	4.90	10.13	263.71
4/5	Machine position 4	2.08	199.48	3.46	10.33	205.40
5/1	Machine position 5	2.68	180.23	4.45	9.34	226.07
5/2	Machine position 5	3.42	213.21	5.68	11.05	327.10
5/3	Machine position 5	3.89	236.93	6.46	12.27	398.69
5/4	Machine position 5	2.87	201.69	4.77	10.45	271.40
5/5	Machine position 5	2.55	192.50	4.23	9.97	237.80
6/1	Machine position 6	2.88	222.48	4.77	11.53	300.93
6/2	Machine position 6	3.55	220.74	5.88	11.44	342.84
6/3	Machine position 6	3.37	210.39	5.60	10.90	320.08
6/4	Machine position 6	2.97	216.65	4.90	11.22	305.64
6/5	Machine position 6	3.23	213.88	5.36	11.08	308.56
7/1	Machine position 7	3.27	236.09	5.43	12.23	358.84
7/2	Machine position 7	3.20	202.68	5.33	10.50	297.14
7/3	Machine position 7	2.47	191.79	4.12	9.94	230.26
7/4	Machine position 7	2.58	208.03	4.30	10.78	264.30
7/5	Machine position 7	3.27	227.28	5.44	11.77	337.83
8/1	Machine position 8	2.77	185.81	4.61	9.63	238.20
8/2	Machine position 8	2.54	193.49	4.21	10.02	232.57
8/3	Machine position 8	3.44	203.27	5.71	10.53	303.19
8/4	Machine position 8	2.69	205.93	4.47	10.67	259.78
8/5	Machine position 8	2.88	220.91	4.79	11.44	296.59

Total (60)	Machine / index	Time to break s	B-Force cN	Elongation %	Tenacity Rkm	B-Work cN.cm
9/1	Machine position 9	2.53	228.65	4.21	11.85	274.45
9/2	Machine position 9	3.07	233.25	5.11	12.08	344.05
9/3	Machine position 9	3.33	206.16	5.52	10.68	313.65
9/4	Machine position 9	2.79	216.28	4.64	11.20	288.14
9/5	Machine position 9	2.67	224.98	4.37	11.66	296.07
10/1	Machine position 10	3.07	211.99	5.11	10.98	293.55
10/2	Machine position 10	3.56	201.03	5.91	10.41	311.15
10/3	Machine position 10	2.81	202.43	4.67	10.49	264.57
10/4	Machine position 10	3.22	214.76	5.35	11.13	312.61
10/5	Machine position 10	2.75	156.44	4.57	8.10	190.83
11/1	Machine position 11	2.60	224.84	4.26	11.65	277.11
11/2	Machine position 11	3.52	212.19	5.84	10.99	329.05
11/3	Machine position 11	2.77	183.73	4.60	9.52	232.92
11/4	Machine position 11	2.85	238.68	4.73	12.37	330.79
11/5	Machine position 11	3.36	226.56	5.58	11.74	341.16
12/1	Machine position 12	3.21	190.37	5.32	9.86	263.25
12/2	Machine position 12	2.80	196.55	4.65	10.18	251.90
12/3	Machine position 12	2.89	229.08	4.79	11.87	311.57
12/4	Machine position 12	3.96	241.47	6.56	12.51	405.03
12/5	Machine position 12	2.72	204.54	4.51	10.60	256.34
	Mean (t)	3.02	210.68	5.01	10.91	292.84
	CV (t)	13.75	8.43	13.73	8.43	16.37
	s (t)	0.42	17.76	0.69	0.92	47.93
	Q95 (t)	0.11	4.59	0.18	0.24	12.39
	USP™ 2018		46	64	46	60
	Min (t)	2.08	156.44	3.46	8.10	190.83
	Max (t)	3.96	245.50	6.56	12.72	405.03

Lampiran 4 Data hasil pengujian IPI dan ketidakrataan benang kapas *fresh* dan spektrogram *sliver drawing* kapas *fresh*

No.	U %	CVm %	CVm 1m %	CVm 3m %	CVm 10m %	CVm 50m %	Thin -30% /km	Thin -40% /km	Thin -50% /km	Thick 35% /km	Thick 50% /km	Neps 140% /km	Neps 200% /km	Neps 280% /km	H	sh
1 / 1	12.38	15.64	4.24	3.48	2.65	1.50	4,370	676	38	1,003	158	5,221	985	122	4.28	1.16
2 / 1	12.16	15.42	4.16	3.42	2.30	1.08	3,787	562	22	928	118	3,819	628	95	4.22	1.15
3 / 1	12.10	15.33	4.02	3.18	2.25	0.89	3,724	523	30	860	137	3,873	647	103	4.12	1.13
4 / 1	12.20	15.43	4.09	3.42	2.45	0.79	3,948	554	32	846	110	4,058	703	89	4.47	1.24
5 / 1	12.25	15.50	4.08	3.28	2.22	1.15	3,990	618	40	863	107	4,093	633	77	4.30	1.17
6 / 1	12.21	15.44	4.10	3.30	2.11	0.70	4,073	587	39	942	117	4,101	716	115	4.27	1.20
7 / 1	11.76	14.88	4.36	3.65	2.80	1.90	3,448	473	29	761	79	3,892	619	83	4.41	1.19
8 / 1	12.05	15.22	4.07	3.35	2.58	1.47	3,726	493	27	858	119	3,920	608	90	4.25	1.16
9 / 1	12.06	15.27	4.27	3.54	2.74	1.77	3,681	539	26	794	82	3,561	517	70	4.16	1.11
10 / 1	12.36	15.65	4.09	3.42	2.49	1.31	4,252	645	47	936	140	5,103	904	120	4.10	1.15
11 / 1	11.94	15.12	3.77	3.07	2.06	1.02	3,669	523	20	872	118	4,059	677	93	4.17	1.13
12 / 1	12.11	15.31	4.11	3.41	2.56	1.56	3,912	566	32	887	118	4,138	691	105	4.12	1.13
Mean	12.13	15.35	4.11	3.38	2.43	1.26	3,882	563	32	879	117	4,153	694	97	4.24	1.16
CV	1.4	1.4	3.5	4.6	10.0	30.6	6.8	10.7	24.9	7.5	19.0	12.0	18.7	17.2	2.7	3.2
s	0.17	0.22	0.14	0.16	0.24	0.39	263	60	8	66	22	498	129	17	0.12	0.04
Q95	0.11	0.14	0.09	0.10	0.16	0.25	167	38	5	42	14	317	82	11	0.07	0.02
USP™ 2018		47	35	46	47			41	50	59	48		67	89	26	15
Min	11.76	14.88	3.77	3.07	2.06	0.70	3,448	473	20	761	79	3,561	517	70	4.10	1.11
Max	12.38	15.65	4.36	3.65	2.80	1.90	4,370	676	47	1,003	158	5,221	985	122	4.47	1.24

No.	S3u /100m	S1+2u /100m	2DØ mm	CV2D 8mm %	CV2D 0.3mm %	CV FS %	Shape	D g/cm ³
1 / 1	650	2,942	0.233	10.31	16.24	12.55	0.77	0.46
2 / 1	633	3,207	0.237	10.01	15.50	11.84	0.77	0.45
3 / 1	631	3,236	0.231	9.80	15.36	11.83	0.77	0.47
4 / 1	954	4,279	0.235	10.07	16.00	12.43	0.77	0.45
5 / 1	701	3,285	0.234	10.34	16.11	12.36	0.77	0.46
6 / 1	709	3,570	0.232	10.19	16.03	12.37	0.75	0.47
7 / 1	858	3,909	0.232	10.03	15.91	12.35	0.77	0.46
8 / 1	684	3,259	0.233	10.15	15.76	12.06	0.76	0.46
9 / 1	689	3,173	0.232	9.96	15.32	11.64	0.77	0.47
10 / 1	669	3,358	0.229	10.27	16.13	12.44	0.75	0.48
11 / 1	670	3,468	0.229	10.15	15.90	12.25	0.76	0.48
12 / 1	705	3,248	0.228	10.08	15.78	12.14	0.76	0.48
Mean	713	3,411	0.232	10.11	15.84	12.19	0.76	0.47
CV	13.5	10.6	1.1	1.5	1.9	2.4	0.9	2.2
s	96	363	0.003	0.15	0.30	0.29	0.01	0.01
Q95	61	230	0.002	0.10	0.19	0.18	0.00	0.01
USP™ 2018	<5	<5			45	73	27	12
Min	631	2,942	0.228	9.80	15.32	11.64	0.75	0.45
Max	954	4,279	0.237	10.34	16.24	12.55	0.77	0.48

