

## LAMPIRAN

### LAMPIRAN A Karakterisasi Bahan

#### A.1 Identifikasi Serat

##### A.1.1 Data Hasil Uji Pelarutan

Pelarut	Larut	Tidak Larut
H <sub>2</sub> SO <sub>4</sub> 59,5 %		
H <sub>2</sub> SO <sub>4</sub> 70 %		
HCl		
HNO <sub>3</sub>		
HCOOH		
NaOCl		
m-kresol mendidih		

##### A.1.2 Data Hasil Uji Mikroskopik

Penampang	Hasil Pengamatan
melintang	Seperti ginjal
membujur	Terdapat puntiran, seperti pita terpilin

## A.2 Dekomposisi Kain

### A.2.1 Data total benang per satuan panjang

pengujian ke-	Lusi		Pakan	
	helai/inch	helai/cm	helai/inch	helai/cm
1	88	35	67	27
2	88	34	66	26
3	87	34	67	27
4	88	34	67	27
5	88	34	66	26
rerata	88	34	67	27
standar deviasi	0,45	0,45	0,55	0,55

### A.2.2 Data panjang 10 helai benang

No.	panjang benang (cm)		No.	panjang benang (cm)		No.	panjang benang (cm)	
	Lusi	Pakan		Lusi	Pakan		Lusi	Pakan
1	10,9	11,4	1	11	11,3	1	10,9	11,4
2	11	11,3	2	10,9	11,3	2	11	11,3
3	11	11,2	3	11	11,3	3	11	11,2
4	10,8	11,3	4	10,9	11,2	4	10,8	11,3
5	11	11,3	5	10,9	11,2	5	11	11,3
6	10,9	11,3	6	11	11,3	6	10,9	11,3
7	11	11,2	7	11	11,3	7	11	11,2
8	10,9	11,2	8	11	11,4	8	10,9	11,2
9	10,9	11,3	9	10,9	11,4	9	10,9	11,3
10	10,8	11,4	10	11	11,1	10	10,8	11,4
jumlah	109,2	112,9	jumlah	109,6	112,8	jumlah	109,2	112,9
rerata	10,92	11,29	rerata	10,96	11,28	rerata	10,92	11,29
standar deviasi	0,08	0,07	standar deviasi	0,05	0,09	standar deviasi	0,08	0,07

**A.2.3 Data pengujian nomor benang**

Arah Kain	Panjang 10 helai benang (m)	Berat 10 helai benang (g)	Nm	Ne	Tex
Lusi	1,092	0,0208	52,50	30,98	19,05
	1,096	0,0210	52,19	30,79	19,16
	1,092	0,0206	53,01	31,28	18,86
Pakan	1,129	0,0208	54,28	32,02	18,42
	1,128	0,0208	54,23	32,00	18,44
	1,092	0,0209	54,02	31,87	18,51

**A.2.4 Data Pengujian Gramasi Kain**

pengujian ke-	Berat kain (g)	gramasi (g/m <sup>2</sup> )
1	1,2731	127,31
2	1,2632	126,32
3	1,2424	124,24
4	1,2541	125,41
5	1,2611	126,11
rerata	1,2588	125,88
standar deviasi	0,0114	1,14

### LAMPIRAN B Pengujian Kain Hasil Proses

#### B.1 Pengujian ketahanan terhadap nyala api cara vertikal

Data mentah hasil pengujian ketahanan terhadap nyala api cara vertikal untuk masing-masing sampel.

Kode Sampel	waktu nyala (s)	waktu bara (s)	panjang arang (cm)	Rerata		
				waktu nyala (s)	waktu bara (s)	panjang arang (cm)
Kontrol	10	11	-	11	9	-
	13	7	-			
	10	10	-			
	11	8	-			
	11	9	-			
R1	4	307	-	4.4	307.4	-
	5	300	-			
	4	300	-			
	4	310	-			
	5	320	-			
R2	0	147	16.5	0	148	16.5
	0	160	17			
	0	155	16			
	0	138	16.3			
	0	140	16.7			

## B.2

Kode Sampel	waktu nyala (s)	waktu bara (s)	panjang arang (cm)	Rerata		
				waktu nyala (s)	waktu bara (s)	panjang arang (cm)
R3	0	34	10,5	0	36,8	10,5
	0	39	10,3			
	0	36	10,2			
	0	35	10,8			
	0	40	10,8			
R4	0	0	14	0	0	14,9
	0	0	15			
	0	0	16			
	0	0	15,5			
	0	0	14			
R5	0	0	29	0	1,6	28,5
	0	3	29			
	0	5	28			
	0	0	28,5			
	0	0	28			
R6	0	0	28,5	0	0	28,8
	0	0	29			
	0	0	29			
	0	0	28,5			
	0	0	28,8			

**B.2 Pengujian Permeabilitas Udara**

Data mentah hasil pengujian permeabilitas udara

Pengujian ke-	Kode Sampel		
	Kontrol	R2	R4
1	24,4	19,3	14,2
2	24,9	19,0	14,3
3	24,3	19,2	14,3
4	24,6	19,3	14,1
5	24,4	19,6	14,4
rerata	24,52	19,28	14,26
standar deviasi	0,24	0,22	0,11

### B.3 Pengujian Fitur Fisik Kain

Data mentah hasil pengujian fitur fisik kain menggunakan FTT

Kode Sampel	Bending				Qmax W/(m <sup>2</sup> )	Roughness			
	BARa	BARe	BWa	BWe		SRaA	SRaE	SRWa	SRWe
	gf mm/rad		gf mm rad			um		mm	
kontrol	146,04	147,51	459,68	559,47	1242,03	16,48	21,85	1,29	1,04
	150,05	104,72	725,16	528,71	1273,41	19,05	16,05	0,84	1,55
	150,10	121,04	625,95	577,99	1238,82	19,18	21,03	1,21	1,26
	158,67	124,58	749,68	535,59	1256,48	17,44	26,14	0,98	2,07
	165,17	118,57	804,08	622,66	1228,49	19,93	22,59	1,52	1,47
rerata	154,01	123,29	672,91	564,89	1247,84	18,42	21,53	1,17	1,48
R2	194,30	166,31	1108,48	990,38	1182,17	37,84	27,48	2,54	1,91
	308,89	187,19	1138,51	950,51	1170,55	21,24	29,54	1,25	1,08
	262,19	191,90	1365,75	963,17	1227,75	21,01	31,59	1,31	2,27
	277,64	150,94	1325,84	897,80	1236,31	23,29	27,65	1,34	2,05
	209,03	154,94	1167,57	858,61	1213,91	27,14	32,22	1,87	2,54
rerata	250,41	170,25	1221,23	932,09	1206,14	26,10	29,70	1,66	1,97
R4	331,98	269,88	1530,16	1628,18	1199,29	24,56	30,62	1,11	1,49
	299,29	319,61	1625,40	1516,70	1190,71	18,55	33,74	0,78	2,86
	204,72	189,89	1036,45	875,77	1292,66	15,01	23,16	0,86	1,56
	393,51	264,98	1650,41	1355,50	1204,20	23,75	23,17	0,96	0,95
	274,49	293,55	1449,14	1536,53	1187,50	28,75	57,65	1,9	6,05
rerata	300,80	267,58	1458,31	1382,53	1214,87	22,12	33,67	1,12	2,58

#### B.4 Pengujian Kekuatan Tarik dan Mulur Kain

Tabel VI.9 Data Hasil Pengujian Kekuatan Tarik dan Mulur Kain Arah Lusi dan Pakan

Kode Sampel	Arah lusi				Kode Sampel	Arah pakan			
	kekuatan tarik (N)	Rerata	mulur (cm)	Rerata		kekuatan tarik (N)	Rerata	mulur (cm)	Rerata
kontrol	214,44	217,69	32,80	30,88	kontrol	212,53	213,10	40,00	38,61
	213,95		26,93			220,23		37,33	
	215,00		32,53			212,99		44,53	
	218,05		29,07			207,20		39,47	
	227,01		33,07			212,53		31,73	
R2	300,41	297,85	35,47	35,47	R2	233,29	216,46	42,93	39,85
	287,38		34,40			208,01		35,47	
	304,77		37,07			210,08		40,80	
	297,45		35,02			220,32		39,07	
	299,23		35,40			210,58		41,00	
R4	225,05	222,94	31,20	28,69	R4	205,25	197,98	33,33	33,35
	207,66		28,00			205,75		34,13	
	226,51		29,33			182,07		32,47	
	226,05		29,33			190,31		32,53	
	229,42		25,60			206,50		34,30	



## LAMPIRAN C Pengolahan Statistik Data Hasil Pengujian

Metoda yang digunakan *one way anova*, Metoda ini digunakan untuk melihat apakah variansi antara dua buah rerata berbeda atau tidak.

Hipotesa

$H_0$  : varian kedua harga rerata sama

$H_1$  : varian kedua harga rerata berbeda

### C.1 Pengujian Permeabilitas Udara

Pengolahan statistik data hasil pengujian permeabilitas udara

Tests of Normality							
Treatment	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk			
	Statistic	df	Sig.	Statistic	df	Sig.	
DTU	Kontrol	.292	5	.148	.877	5	.294
	R2	.263	5	.200 <sup>*</sup>	.951	5	.747
	R4	.237	5	.200 <sup>*</sup>	.961	5	.814

a. Lilliefors Significance Correction

<sup>\*</sup>. This is a lower bound of the true significance.

### Test of Homogeneity of Variances

DTU	Levene Statistic	df1	df2	Sig.
	.893	2	12	.435

### ANOVA

DTU	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	263.209	2	131.605	3374.479	.000
Within Groups	.468	12	.039		
Total	263.677	14			

## Post Hoc Tests

### Homogeneous Subsets

#### DTU

Student-Newman-Keuls<sup>a</sup>

Treatment	N	Subset for alpha = 1.05		
		1	2	3
R4	5	14.2800		
R2	5		19.2800	
Kontrol	5			24.5200
Sig.		1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 5.000.

## C.2 Pengujian Fitur Fisik Kain

### C.2.1 Bending

Pengolahan statistik data hasil pengujian bending meliputi *Bending Average Rigidity (BAR)* dan *Bending Work (BW)* untuk arah lusi (a) dan pakan (e) menggunakan alat Fabric Touch Tester.

#### Tests of Normality

treatment	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
BARa kontrol	.293	5	.187	.909	5	.463
R2	.206	5	.200*	.938	5	.655
R4	.153	5	.200*	.996	5	.996

a. Lilliefors Significance Correction

\*. This is a lower bound of the true significance.

**Test of Homogeneity of Variances**

BARa

Levene Statistic	df1	df2	Sig.
3.458	2	12	.065

**ANOVA**

BARa

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	55634.288	2	27817.144	11.552	.002
Within Groups	28894.739	12	2407.895		
Total	84529.027	14			

**Post Hoc Tests****Homogeneous Subsets**

BARa

Student-Newman-Keuls<sup>a</sup>

treatment	N	Subset for alpha = 0.05	
		1	2
kontrol	5	154.0060	
R2	5		250.4100
R4	5		300.7980
Sig.		1.000	.130

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 5.000.

**Tests of Normality**

treatment	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
BARe kontrol	.352	5	.042	.818	5	.113
R2	.219	5	.200*	.889	5	.352
R4	.279	5	.200*	.919	5	.527

a. Lilliefors Significance Correction

\*. This is a lower bound of the true significance.

**Test of Homogeneity of Variances**

BARE

Levene Statistic	df1	df2	Sig.
.929	2	12	.422

**ANOVA**

BARE

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	51337.014	2	25668.507	23.188	.000
Within Groups	13283.772	12	1106.981		
Total	64620.787	14			

**Post Hoc Tests****Homogeneous Subsets**

BARE

Student-Newman-Keuls<sup>a</sup>

treatment	N	Subset for alpha = 0.05	
		1	2
kontrol	5	127.8320	
R2	5	170.2560	
R4	5		267.5820
Sig.		.067	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 5.000.

**a Surface Roughness****Tests of Normality**

treatment	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
SRAa kontrol	.273	5	.200*	.923	5	.546
R2	.256	5	.200*	.810	5	.097
R4	.219	5	.200*	.967	5	.853

a. Lilliefors Significance Correction

\*. This is a lower bound of the true significance.

**Test of Homogeneity of Variances**

SRAa

Levene Statistic	df1	df2	Sig.
2.833	2	12	.098

**ANOVA**

SRAa

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	147.825	2	73.913	2.770	.103
Within Groups	320.176	12	26.681		
Total	468.001	14			

**Post Hoc Tests****Homogeneous Subsets**

SRAa

Student-Newman-Keuls<sup>a</sup>

treatment	N	Subset for alpha = 0.05
		1
kontrol	5	18.4160
R4	5	22.1240
R2	5	26.1040
Sig.		.086

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 5.000.

**Tests of Normality**

treatment	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
SRAa kontrol	.245	5	.200*	.951	5	.743
R2	.226	5	.200*	.882	5	.317
R4	.298	5	.168	.806	5	.091

a. Lilliefors Significance Correction

\*. This is a lower bound of the true significance.

**Test of Homogeneity of Variances**

SRAe

Levene Statistic	df1	df2	Sig.
3.092	2	12	.083

**ANOVA**

SRAe

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	382.850	2	191.425	2.620	.114
Within Groups	876.895	12	73.075		
Total	1259.746	14			

**Post Hoc Tests****Homogeneous Subsets**

SRAe

Student-Newman-Keuls<sup>a</sup>

treatment	N	Subset for alpha = 0.05
		1
kontrol	5	21.5320
R2	5	29.6960
R4	5	33.6680
Sig.		.104

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 5.000.

**Tests of Normality**

treatment	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
SRWa kontrol	.163	5	.200*	.979	5	.929
R2	.321	5	.102	.813	5	.103
R4	.311	5	.129	.732	5	.070

a. Lilliefors Significance Correction

\*. This is a lower bound of the true significance.

**Test of Homogeneity of Variances**

SRWa

Levene Statistic	df1	df2	Sig.
1.164	2	12	.345

**ANOVA**

SRWa

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.896	2	.448	2.326	.140
Within Groups	2.312	12	.193		
Total	3.208	14			

**Post Hoc Tests****Homogeneous Subsets**

SRWa

Student-Newman-Keuls<sup>a</sup>

treatment	N	Subset for alpha = 0.05
		1
R4	5	1.1220
kontrol	5	1.1680
R2	5	1.6620
Sig.		.169

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 5.000.

**Tests of Normality**

treatment	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
ERWe kontrol	.226	5	.200*	.957	5	.783
R2	.257	5	.200*	.918	5	.523
R4	.290	5	.197	.814	5	.105

a. Lilliefors Significance Correction

\*. This is a lower bound of the true significance.

**Test of Homogeneity of Variances**

SRWe

Levene Statistic	df1	df2	Sig.
4.272	2	12	.040

**ANOVA**

SRWe

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3.059	2	1.530	.975	.405
Within Groups	18.817	12	1.568		
Total	21.876	14			

**Post Hoc Tests****Homogeneous Subsets**

SRWe

Student-Newman-Keuls<sup>a</sup>

treatment	N	Subset for alpha = 0.05
		1
kontrol	5	1.4780
R2	5	1.9700
R4	5	2.5820
Sig.		.375

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 5.000.



b  $Q_{\max}$ **Tests of Normality**

treatment	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
$Q_{\max}$ kontrol	.231	5	.200 <sup>*</sup>	.956	5	.778
R2	.207	5	.200 <sup>*</sup>	.913	5	.485
R4	.396	5	.010	.691	5	.008

a. Lilliefors Significance Correction

\*. This is a lower bound of the true significance.

**ANOVA**

$Q_{\max}$

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4838.541	2	2419.271	2.372	.135
Within Groups	12237.508	12	1019.792		
Total	17076.049	14			

**Post Hoc Tests****Homogeneous Subsets**

$Q_{\max}$

Student-Newman-Keuls<sup>a</sup>

treatment	N	Subset for alpha = 0.05
		1
R2	5	1206.1380
R4	5	1214.8720
kontrol	5	1247.8460
Sig.		.139

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 5.000.