LAMPIRAN A

HASIL UJI STANDARISASI

Hasil Perhitungan Penetapan Susut Pengeringan Simplisia

Replikasi	Hasil susut pengeringan
1	8,7%
2	8,5%
3	8,7%

Rata-rata : $\frac{8,7\% + 8,5\% + 8,7\%}{3} = 8,63\%$

Hasil Perhitungan Penetapan Susut Pengeringan Ekstrak Kering

Replikasi	Hasil susut pengeringan
1	9,7%
2	9,7%
3	9,6%

Rata-rata : $\frac{9,7\% + 9,7\% + 9,6\%}{3} = 9,67\%$

Hasil Perhitungan Penetapan Kadar Abu Total Simplisia

No	W (krus kosong) (gram)	W (bahan) (gram)	W (krus + abu) (gram)	% Kadar Abu	Rata-rata (%)
1	21,5928	2,0006	21,7584	8,2775	
2	21,5316	2,0085	21,6949	8,1304	8,2192
3	21,5507	2,0049	21,7161	8,2498	

I. Kadar abu $\frac{(berat\ kurs + serbuk) - berat\ kurs\ kosong}{berat\ serbuk} x100\%$

$: \frac{21,7584 - 21,5928}{2,0006} x100\% = 8,2775\%$

II. Kadar abu : $\frac{(berat\ kurs + serbuk) - berat\ kurs\ kosong}{berat\ serbuk} x100\%$

$: \frac{21,6949 - 21,5316}{2,0085} x100\% = 8,1304\%$

III Kadar abu : $\frac{(berat\ kurs + serbuk) - berat\ kurs\ kosong}{berat\ serbuk} x100\%$

$: \frac{21,7161 - 21,5507}{2,0049} x100\% = 8,2498\%$

Rata-rata kadar abu total **=** 8,22 %

Hasil Perhitungan Penetapan Kadar Abu Total Ekstrak Kental

No	W (krus kosong) (gram)	W (bahan) (gram)	W (krus + abu) (gram)	% Kadar Abu	Rata-rata (%)
1	23,4785	2,0541	23,6825	9,9314	
2	23,4213	2,0315	23,6219	9,8748	9,9056
3	23,4468	2,0378	23,6488	9,9107	

I. Kadar abu : $\frac{(berat\ kurs + serbuk) - berat\ kurs\ kosong}{berat\ serbuk} x100\%$

: $\frac{23,6825 - 23,4785}{2,0541} x100\% = 9,9314\%$

II. Kadar abu : $\frac{(berat\ kurs + serbuk) - berat\ kurs\ kosong}{berat\ serbuk} x100\%$

: $\frac{23,6219 - 23,4213}{2,0315} x100\% = 9,8748\%$

III. Kadar abu : $\frac{(berat\ kurs + serbuk) - berat\ kurs\ kosong}{berat\ serbuk} x100\%$

: $\frac{23,6488 - 23,4468}{2,0378} x100\% = 9,9107\%$

Rata-rata kadar abu total = 9,91 %

Hasil Perhitungan Randemen Ekstrak

$\frac{berat\ ekstrak\ kental}{berat\ serbuk} x100\%$

= $\frac{625,9926}{4000} x100\% = 15,6498\%$

Hasil Perhitungan Kadar Sari Larut Etanol

No	Berat cawan +ekstrak setelah diuapkan	Berat cawan kosong	Berat ekstrak
1	55,0804	54,6217	5,0203
2	53,7745	53,3078	5,0239
3	56,035	55,5712	5,0145

I. Kadar sari larut etanol = $\frac{(berat\ cawan + ekstrak) - (berat\ cawan\ kosong)}{berat\ ekstrak} x100\%$

$$= \frac{55,0804 - 54,6217}{5,0203} x100\% = 9,23\%$$

II. Kadar sari larut etanol = $\frac{(berat\ cawan + ekstrak) - (berat\ cawan\ kosong)}{berat\ ekstrak} x100\%$

$$= \frac{53,7745 - 53,3078}{5,0239} x100\% = 9,29\%$$

III Kadar sari larut etanol = $\frac{(berat\ cawan + ekstrak) - (berat\ cawan\ kosong)}{berat\ ekstrak} x100\%$

$$= \frac{56,035 - 55,5712}{5,0145} x100\% = 9,25\%$$

Rata-rata kadar sari larut etanol = 9,23%

Hasil Perhitungan Kadar Sari Larut Air

No	Berat cawan +ekstrak setelah diuapkan	Berat cawan kosong	Berat ekstrak
1	54,2926	53,5722	5,0236
2	54,1706	53,4471	5,0211
3	55,3367	54,6219	5,0164

I. Kadar sari larut etanol = $\frac{(berat\ cawan + ekstrak) - (berat\ cawan\ kosong)}{berat\ ekstrak} x\,100\%$

$$= \frac{54,2926 - 53,5722}{5,0236} x100\% = 14,34\%$$

II. Kadar sari larut etanol = $\frac{(berat\ cawan + ekstrak) - (berat\ cawan\ kosong)}{berat\ ekstrak} x\,100\%$

berat ekstrak

$$= \frac{54,1706 - 53,4471}{5,0211} x100\% = 14,41\%$$

III Kadar sari larut etanol = $\frac{(berat\ cawan + ekstrak) - (berat\ cawan\ kosong)}{berat\ ekstrak} x\,100\%$

$$= \frac{55,3367 - 54,6219}{5,0164} x100\% = 14,36\%$$

Rata-rata kadar sari larut etanol = 14,37%

Hasil Perhitungan Harga Rf pada Pemeriksaan secara KLT dengan Pelarut = kloroform : metanol : air (64:50:10)

No.	Pengamatan (UV 366)	Noda	Rf	Warna
1.	Klerak	A	0,775	Biru
2.	Ekstrak kental	A	0,775	Biru
		B	0,8625	Biru tua
3.	Ekstrak kering	A	0,775	Biru
		B	0,875	Biru tua
4.	Tablet F I	A	0,775	Biru
		B	0,85	Biru tua
5.	Tablet F II	A	0,775	Biru
		B	0,8625	Biru tua
6.	Tablet F III	A	0,775	Biru
		B	0,875	Biru tua
7.	Tablet F IV	A	0,775	Biru
		B	0,875	Biru tua

Contoh perhitungan : $Rf = \frac{jarak\ yang\ ditempuh\ oleh\ zat}{jarak\ yang\ ditempuh\ oleh\ fase\ gerak}$

Pada λ 366 nm :

1. $RfA = \frac{6,2}{8} = 0,775$

2. $RfA = \frac{6,2}{8} = 0,775 \qquad RfB = \frac{6,9}{8} = 0,8625$

3. $RfA = \frac{6,2}{8} = 0,775 \qquad RfB = \frac{7,0}{8} = 0,875$

4. $RfA = \frac{6,2}{8} = 0,775 \qquad RfB = \frac{6,8}{8} = 0,85$

5. $RfA = \frac{6,2}{8} = 0,775 \qquad RfB = \frac{6,9}{8} = 0,8625$

6. $RfA = \frac{6,2}{8} = 0,775 \qquad RfB = \frac{7,0}{8} = 0,875$

7. $RfA = \frac{6,2}{8} = 0,775 \qquad RfB = \frac{7,0}{8} = 0,875$

LAMPIRAN B

HASIL UJI MUTU FISIK GRANUL

Mutu fisik yang diuji	Replikasi	Formula Tablet Hisap Ekstrak Daun Sirih Merah				Persyaratan
		FI	FII	FIII	FIV	
Kadar air (persen)	1	3,46	3,62	3,91	3,92	3-5 % (Voigt, 1995)
	2	3,57	3,48	3,86	3,69	
	3	3,39	3,51	3,79	3,88	
	$\bar{x}$	3,47	3,54	3,85	3,83	
	SD	0,0907	0,0737	0,0603	0,1228	
Waktu alir (detik)	1	8,89	9,18	9,28	10,19	Tidak lebih dari 10 detik (Parrott, 1971)
	2	8,85	9,34	9,34	10,24	
	3	8,84	9,29	9,31	10,2	
	1	9,21	9,09	9,58	10,39	
	2	9,14	9,16	9,51	10,41	
	3	9,16	9,17	9,56	10,4	
	1	9,19	9,41	9,48	9,98	
	2	9,30	9,44	9,51	9,96	
	3	9,35	9,44	9,54	9,97	
	$\bar{x}$	9,10	9.48	9,4567	10,1933	
	SD	0,1943	0,1344	0,1148	0,1872	
Sudut diam (derajat)	1	31,45	31,43	34,19	33,24	30 °- 40 ° Cukup baik (Wells, 1988)
	2	31,48	31,42	34,2	33,23	
	3	31,48	31,47	34,21	33,22	
	1	31,07	31,65	32,48	34,82	
	2	31,04	31,67	32,47	34,86	
	3	31,04	31,69	32,49	34,87	
	1	32,49	32,52	32,48	34,39	
	2	32,51	32,51	32,50	34,37	
	3	32,50	32,53	32,52	34,41	
	$\bar{x}$	31,6733	31,8767	33,06	34,1567	
	SD	0,6463	0,4930	0,8551	0,7232	

Indeks kompresibilitas (%)	1	14,99	8,9977	15,0028	12,9980	5-15% Baik sekali (Fiese dan Hagen, 1986)
	2	15,01	8,9978	15,0030	12,9970	
	3	14,97	8,9982	15,0029	12,9990	
	1	13,97	9,0064	12,9965	12,9923	
	2	13,98	9,0066	12,9963	12,9920	
	3	14,02	9,0065	12,9961	12,9920	
	1	13,49	8,9975	13,9990	12,9965	
	2	13,49	8.9978	13,9994	12,9967	
	3	14,02	8,9978	13,9992	12,9963	
	$\overline{x}$	14,1533	9,0007	13,9995	12,9955	
	SD	0,6655	0,0044	0,8688	0,0027	

LAMPIRAN C

HASIL UJI KEKERASAN TABLET HISAP EKSTRAK DAUN SIRIH MERAH

Batch I

No	Kekerasan Tablet Hisap Ekstrak Daun Sirih Merah (kp)			
	Formula I	**Formula II**	**Formula III**	**Formula IV**
1	8,3	9,2	12,8	8,.4
2	8,3	9,2	12,7	8,3
3	8,2	8,9	12,8	8,5
4	8,4	9,1	12,5	8,5
5	8,3	9,2	12,7	8,4
6	8,3	9,0	12,7	8,3
7	8,2	8,9	12,6	8,2
8	8,4	9,1	12,6	8,3
9	8,3	9,1	12,5	8,3
10	8,2	9,0	12,7	8,2
$\bar{X}$ ± SD	8,29 ± 0,0738	9,07 ± 0,1159	12,66 ± 0,1075	8,34 ± 0,1075
SD rel (%)	0,8902	0,0128	0,8491	0,0129

Batch II

No	Kekerasan Tablet Hisap Ekstrak Daun Sirih Merah (kp)			
	Formula I	**Formula II**	**Formula III**	**Formula IV**
1	8,6	10,4	12,9	8,0
2	8,6	10,6	12,8	8,0
3	8,7	10,5	12,8	8,1
4	8,6	10,5	12,9	8,0
5	8,6	10,6	12,7	7,9
6	8,9	10,5	13,1	7,9
7	8,7	10,6	12,8	8,0
8	8,6	10,8	12,8	7,9
9	8,7	10,5	12,8	7,9
10	8,6	10,7	12,7	8,0

$\bar{X}$ ± SD	8,66 ± 0,0966	10,57 ± 0,1159	12,83 ± 0,1159	7,97 ± 0,1315
SD rel (%)	1,1155	1,0965	0,9034	1,6499

Batch III

No	Kekerasan Tablet Hisap Ekstrak Daun Sirih Merah (kp)			
	Formula I	**Formula II**	**Formula III**	**Formula IV**
1	8,6	9,3	12,6	8,2
2	8,5	9,5	12,5	8,4
3	8,6	9,4	12,7	8,2
4	8,6	9,4	12,5	8,2
5	8,5	9,5	12,6	8,3
6	8,6	9,5	12,6	8,3
7	8,5	9,5	12,4	8,3
8	8,6	9,5	12,7	8,3
9	8,7	9,6	12,6	8,4
10	8,4	9,7	12,6	8,3
$\bar{X}$ ± SD	8,56 ± 0,0843	9,49 ± 0,1101	12,58 ± 0,0919	8,29 ± 0,1438
SD rel (%)	0,9848	1,1602	0,7305	1,7346

LAMPIRAN D

HASIL UJI KERAPUHAN TABLET HISAP EKSTRAK DAUN SIRIH MERAH

Batch I

Formula	Replikasi	Berat awal (gram)	Berat akhir (gram)	Kerapuhan (%)	$\bar{X}$ ±SD
I	1	16,0489	16,0294	0,1212	0,1217 ± 0,0006
	2	16,0413	16,0218	0,1216	
	3	16,0478	16,0282	0,1223	
II	1	16,0264	16,0068	0,1221	0,1223 ± 0,0003
	2	16,0357	16,0160	0,1226	
	3	16,0288	16,0092	0,1222	
III	1	16,0231	16,0133	0,0611	0,0612 ± 0.0002
	2	16,0401	16,0303	0,0614	
	3	16,0273	16,0175	0,0611	
IV	1	16,0216	15,9930	0,1786	0,1788 ± 0,0002
	2	16,0198	15,9911	0,1789	
	3	16,0244	15,9957	0,1789	

Batch II

Formula	Replikasi	Berat awal (gram)	Berat akhir (gram)	Kerapuhan (%)	$\bar{X}$ ± SD
I	1	16,0218	16,0023	0,1214	0,1215 ± 0,0001
	2	16,0209	16,0014	0,1216	
	3	16,0189	15,9994	0,1215	
II	1	16,0232	16,0042	0,1189	0,1187 ± 0,0002
	2	16,0177	15,9987	0,1186	
	3	16,0159	15,9969	0,1186	
III	1	16,0153	16,0051	0,0635	0,0633 ± 0,0002
	2	16,0128	16,0027	0,0632	
	3	16,0137	16,0036	0,0633	
IV	1	16,0202	15,9909	0,1827	0,1826 ± 0,0002
	2	16,0142	15,9849	0,1827	
	3	16,0183	15,9891	0,1824	

Batch III

Formula	Replikasi	Berat awal (gram)	Berat akhir (gram)	Kerapuhan (%)	$\overline{X}$ ± SD
I	1	16,0107	15,9915	0,1201	0,1204 ± 0,0003
	2	16,0125	15,9932	0,1205	
	3	16,0134	15,9941	0,1206	
II	1	16,0209	16,0015	0,1209	0,1210 ± 0,0002
	2	16,0147	15,9953	0,1212	
	3	16,0135	15,9941	0,1209	
III	1	16,0121	16,0022	0,0618	0,0617 ± 0,0002
	2	16,0152	16,0054	0,0615	
	3	16,0173	16,0074	0,0618	
IV	1	16,0098	15,9811	0,1795	0,1794 ± 0,0002
	2	16,0162	15,9875	0,1795	
	3	16,0110	15,9823	0,1792	

LAMPIRAN E

HASIL UJI WAKTU HANCUR TABLET HISAP EKSTRAK DAUN SIRIH MERAH

Batch I

Replikasi	Waktu Hancur (menit)			
	Formula I	**Formula II**	**Formula III**	**Formula IV**
1	21,41	20,46	27,44	16,29
2	21,35	20,49	27,41	16,26
3	21,35	20,46	27,44	16,29
$\overline{X}$ ± SD	21,37 ± 0,0629	20,47 ± 0,0173	27,43 ± 0,0173	16,28 ± 0,0173

Batch II

Replikasi	Waktu Hancur (menit)			
	Formula I	**Formula II**	**Formula III**	**Formula IV**
1	22,06	22,11	27,37	16,10
2	22,09	22,15	27,38	16,13
3	22,06	22,10	27,42	16,10
$\overline{X}$ ± SD	22,07 ± 0,0173	22,12 ± 0,0265	27,39 ± 0,0265	16,11 ± 0,0173

Batch III

Replikasi	Waktu Hancur (menit)			
	Formula I	**Formula II**	**Formula III**	**Formula IV**
1	22,11	22,08	26,5	16,09
2	22,16	22,12	26,55	16,06
3	22,12	22,07	26,51	16,06
$\overline{X}$ ± SD	22,13 ± 0.0265	22,09 ± 0,0265	26,52 ± 0,0265	16,07 ± 0,0173

LAMPIRAN F

CONTOH PERHITUNGAN SUDUT DIAM

Formula (I):

W persegi panjang = 3,48 gram

W lingkaran = 0,80 gram

Luas persegi panjang = 21,5 cm x 29,6 cm

= 636,4 cm^2

Luas lingkaran = $\frac{0,80}{3,48}$ x 636,4

= 146,2988 cm^2

A = л x r^2

r^2 = $\frac{A}{л}$

= $\frac{146,2988}{3,14}$

r = 6,83 cm

tg α = $\frac{t}{r}$ = $\frac{4,11}{6,83}$

α = 31,05 °

LAMPIRAN G

CONTOH PERHITUNGAN INDEKS KOMPRESIBILITAS

Formula (I) :

Berat gelas = 121,20 g (W_1)

Berat gelas + granul = 163,11 g (W_2)

V_1 = 100 ml

V_2 = 86 ml

Bj nyata = $\frac{(W_2 - W_1)}{V_1} = \frac{(163{,}11 - 121{,}20)}{100} = 0{,}4191$

Bj mampat = $\frac{(W_2 - W_1)}{V_2} = \frac{(163{,}11 - 121{,}20)}{86} = 0{,}4873$

$$\%\text{Kompresibilitas} = \left(1 - \frac{Bj.nyata}{Bj.mampat}\right) x\,100\ \%$$

$$= \left(1 - \frac{0{,}4191}{0{,}4873}\right) x\,100\ \% = 13{,}99\%$$

LAMPIRAN H

SERTIFIKAT ANALISIS SORBITOL

PT Sorini Towa Berlian Corporindo

STBC

SORBITOL & OTHER POLYOLS MANUFACTURER

CERTIFICATE OF ANALYSIS

PRODUCT : SORBITOL LTS POWDER 50 M
BATCH No. : 2001055
MANUFACTURING DATE : 20 January 2010
EXPIRY DATE : 19 January 2012

TEST ITEM	RESULT	SPECIFICATION	TEST METHOD
Description	Passed	White powder, granules, or crystalline masses, very soluble in water, slightly soluble in ethanol, in methanol and in acetic acid; insoluble in ether; hygroscopic powder	FCC V
Identification	Passed	The retention time of the major peak in the chromatogram of the Assay Solution corresponds to that in the chromatogram of the Standard Solution	FCC V —
Assay	99.1%	Not less than 91.0 % and not more than 100.5 %	FCC V
Lead	Passed	Not more than 2 mg / kg	FCC V
Nickel	Passed	Not more than 1 mg/kg	FCC V
pH (10% w/w solution)	Passed	3.5 ~ 7.0	FCC V
Reducing sugars	0.028%	Not more than 0.30 %	FCC V
Residue on ignition	Passed	Not more than 0.1 %	FCC V
Water	0.36%	Not more than 1.5 %	FCC V

BEJI, 22 January 2010
QUALITY ASSURANCE DIVISION

LAMPIRAN I

DETERMINASI SIRIH MERAH

DINAS KESEHATAN PROPINSI JAWA TIMUR
UPT MATERIA MEDICA
Jalan Lahor No.87 Telp. (0341) 593396 Batu (65313)
KOTA BATU

Nomor	:	074 / 86/ 101.8 / 2010
Sifat	:	Biasa
Perihal	:	**Determinasi Tanaman Sirih Merah**

Memenuhi permohonan saudara :

Nama	:	Gusti Ayu Made Ratih Kusuma Ratna Dewi
NIM	:	2443007090
Fakultas	:	Fakultas Farmasi Universitas Katolik Widya Mandala Surabaya

1. Perihal determinasi tanaman Sirih Merah :

Kingdom	: Plantae
Divisi	: Spermatophyta
Sub divisi	: Angiospermae
Kelas	: Dicotyledonae
Bangsa	: Piperales
Suku	: Piperaceae
Marga	: Piper
Jenis	: *Piper crocatum*
Sinonim	: *Piper cf.fragile* Benth

2. Nama Simplisia : *Piperis crocati Folium* / Daun Sirih Merah

3. Kandungan kimia : Alkaloid, terpenoid, isprenoid, flavonoid, saponin, cyanogenik, glukosida, glu-casonilate, dan non protein amino acid.

5. Penggunaan : Penelitian

Demikian determinasi ini kami buat untuk dipergunakan sebagaimana mestinya.

Batu, 4 September 2010
An. Kepala UPT Materia Medica Batu
Ka Sub Bag TU

Unik Fatwaningtyas, SKM
NIP. 19640424 198702 2 002

LAMPIRAN J

TABEL UJI HSD (0,05)

d.k. \ k	2	3	4	5	6	7	8	9	10	11
5	3.64	4.60	5.22	5.67	6.03	6.33	6.58	6.80	6.99	7.17
6	3.46	4.34	4.90	5.30	5.63	5.90	6.12	6.32	6.49	6.65
7	3.34	4.16	4.68	5.06	5.36	5.61	5.82	6.00	6.16	6.30
8	3.26	4.04	4.53	4.89	5.17	5.40	5.60	5.77	5.92	6.05
9	3.20	3.95	4.41	4.76	5.02	5.24	5.43	5.59	5.74	5.87
10	3.15	3.88	4.33	4.65	4.91	5.12	5.30	5.46	5.60	5.72
11	3.11	3.82	4.26	4.57	4.82	5.03	5.20	5.35	5.49	5.61
12	3.08	3.77	4.20	4.51	4.75	4.95	5.12	5.27	5.39	5.51
13	3.06	3.73	4.15	4.45	4.69	4.88	5.05	5.19	5.32	5.43
14	3.03	3.70	4.11	4.41	4.64	4.83	4.99	5.13	5.25	5.36
15	3.01	3.67	4.08	4.37	4.59	4.78	4.94	5.08	5.20	5.31
16	3.00	3.65	4.05	4.33	4.56	4.74	4.90	5.03	5.15	5.26
17	2.98	3.63	4.02	4.30	4.52	4.71	4.86	4 99	5.11	5.21
18	2.97	3.61	4.00	4.28	4.49	4.67	4.82	4.96	5.07	5.17
19	2.96	3.59	3.98	4.25	4.47	4.65	4.79	4.92	5.04	5.14
20	2.95	3.58	3.96	4.23	4.45	4.62	4.77	4.90	5.01	5.11
24	2.92	3.53	3.90	4.17	4.37	4.54	4.68	4.81	4.92	5.01
30	2.89	3.49	3.85	4.10	4.30	4.46	4.60	4.72	4.82	4.92
40	2.86	3.44	3.79	4.04	4.23	4.39	4.52	4.63	4.73	4.82
60	2.83	3.40	3.74	3.98	4.16	4.31	4.44	4.55	4.65	4.73
120	2.80	3.36	3.68	3.92	4.10	4.24	4.36	4.47	4.56	4.64
∞	2.77	3.31	3.63	3.86	4.03	4.17	4.29	4.39	4.47	4.55

Catatan kaki: Dari *Annals of mathematical statistics.* Diulang cetak seizin penerbit, The Institute of Mathematical Statistics.

Sumber: Schefler (1987).

LAMPIRAN K

TABEL UJI F

TABEL DISTRIBUSI F UNTUK 5% DAN 1%

Baris atas untuk taraf signifikan 5%
Baris bawah untuk taraf signifikan 1%

V_2 = dk penyebut	V_1 = dk pembilang																						
	1	2	3	4	5	6	7	8	9	10	11	12	14	16	20	24	30	40	50	75	100	200	500	∞
1	161	200	216	225	230	234	237	239	241	242	243	244	245	246	248	249	250	251	252	253	253	254	254	254
	4052	4999	5403	5625	5764	5859	5928	5961	6022	6056	6082	6106	6142	61,69	6208	6234	6258	6286	6302	6323	6334	6352	6361	6366
2	18,51	19,00	19,16	19,25	19,30	19,33	19,36	19,37	19,38	19,39	19,40	19,41	19,42	19,43	19,44	19,45	19,46	19,47	19,47	19,48	19,49	19,49	19,50	19,50
	98,49	99,01	99,17	99,25	99,30	99,33	99,34	99,36	97,38	99,40	99,41	99,42	99,43	99,44	99,45	99,46	99,47	99,48	99,48	99,49	99,49	99,49	99,50	99,50
3	10,13	9,55	9,28	9,12	9,01	8,94	8,88	8,84	8,81	8,78	8,76	8,74	8,71	8,69	8,66	8,64	8,62	8,60	8,58	8,57	8,56	8,54	8,54	8,53
	34,12	30,81	29,46	28,71	28,24	27,91	27,67	27,49	27,34	27,23	27,13	27,05	26,92	26,83	26,69	26,60	26,50	26,41	26,30	26,27	26,23	26,18	26,14	26,12
4	7,71	6,94	6,59	6,39	6,26	6,16	6,09	6,04	6,00	5,96	5,93	5,91	5,87	5,84	5,80	5,77	5,74	5,71	5,70	5,68	5,66	5,65	5,64	5,53
	21,20	18,00	16,69	15,98	15,52	15,21	14,98	14,80	14,66	14,54	14,45	14,37	14,24	14,15	14,02	13,93	13,83	13,74	13,69	13,61	13,57	13,52	13,48	13,46
5	6,61	5,79	5,41	5,19	5,05	4,95	4,88	4,82	4,78	4,74	4,70	4,68	4,64	4,60	4,56	4,53	4,50	4,46	4,44	4,42	4,40	4,38	4,37	4,36
	16,26	13,27	12,06	11,39	10,97	10,67	10,45	10,27	10,15	10,05	9,96	9,89	9,77	9,68	9,55	9,47	9,38	9,29	9,24	9,17	9,13	9,07	9,04	9,02
6	5,99	5,14	4,76	4,53	4,39	4,28	4,21	4,15	4,10	4,06	4,03	4,00	3,96	3,92	3,87	3,84	3,81	3,77	3,75	3,72	3,71	3,69	3,68	3,67
	13,74	10,92	9,78	9,15	8,75	8,47	8,26	8,10	7,98	7,87	7,79	7,72	7,60	7,52	7,39	7,31	7,23	7,14	7,09	7,02	6,99	6,94	6,90	6,88
7	5,59	4,74	4,35	4,12	3,97	3,87	3,79	3,73	3,68	3,63	3,60	3,57	3,52	3,49	3,44	3,41	3,38	3,34	3,32	3,29	3,28	3,25	3,24	3,23
	12,25	9,55	8,45	7,85	7,46	7,19	7,00	6,84	6,71	6,62	6,54	6,47	6,35	6,27	6,15	6,07	5,98	5,90	5,85	5,78	5,75	5,70	5,67	5,65
8	5,32	4,46	4,07	3,84	3,69	3,58	3,50	3,44	3,39	3,34	3,31	3,28	3,23	3,20	3,15	3,12	3,08	3,05	3,03	3,00	2,98	2,96	2,94	2,93
	11,26	8,65	7,59	7,01	6,63	6,37	6,19	6,03	5,91	5,82	5,74	5,67	5,56	5,48	5,36	5,28	5,20	5,11	5,06	5,00	4,96	4,91	4,88	4,86
9	5,12	4,26	3,86	3,63	3,48	3,37	3,29	3,23	3,18	3,13	3,10	3,07	3,02	2,98	2,93	2,90	2,86	2,82	2,80	2,77	2,76	2,73	2,72	2,71
	10,56	8,02	6,99	6,42	6,06	5,80	5,62	5,47	5,35	5,26	5,18	5,11	5,00	4,92	4,80	4,73	4,61	4,56	4,51	4,45	4,41	4,36	4,33	4,34

V_2 = dk penyebut	V_1 = dk pembilang																					
	1	2	3	4	5	6	7	8	9	10	11	12	14	16	20	24	30	40	50	75	100	200	500	∞
10	4,96	4,10	3,71	3,48	3,33	3,22	3,14	3,07	3,02	2,97	2,94	2,91	2,86	2,82	2,77	2,74	2,70	2,67	2,64	2,61	2,59	2,56	2,55	2,54
	10,04	7,56	6,55	5,99	5,64	5,39	5,21	5,06	4,95	4,85	4,78	4,71	4,60	4,52	4,41	4,33	4,25	4,17	4,12	4,05	4,01	3,96	3,93	3,91
11	4,84	3,98	3,59	3,36	3,20	3,09	3,01	2,95	2,90	2,86	2,82	2,79	2,74	2,70	2,65	2,61	2,57	2,53	2,50	2,47	2,45	2,42	2,41	2,40
	9,65	7,20	6,22	5,67	5,32	5,07	4,88	4,74	4,63	4,54	4,46	4,40	4,29	4,21	4,10	4,02	3,94	3,86	3,80	3,74	3,70	3,66	3,62	3,60
12	4,75	3,88	3,49	3,26	3,11	3,00	2,92	2,85	2,80	2,76	2,72	2,69	2,64	2,60	2,54	2,50	2,46	2,42	2,40	2,36	2,35	2,32	2,31	2,30
	9,33	6,93	5,95	5,41	5,06	4,82	4,65	4,50	4,39	4,30	4,22	4,16	4,05	3,98	3,86	3,78	3,70	3,61	3,56	3,49	3,46	3,41	3,38	3,36
13	4,67	3,80	3,41	3,18	3,02	2,92	2,84	2,77	2,72	2,67	2,63	2,60	2,55	2,51	2,46	2,42	2,38	2,34	2,32	2,28	2,26	2,24	2,22	2,21
	9,07	6,70	5,74	5,20	4,86	4,62	4,44	4,30	4,19	4,10	4,02	3,96	3,85	3,78	3,67	3,59	3,51	3,42	3,37	3,30	3,27	3,21	3,18	3,16
14	4,60	3,74	3,34	3,11	2,96	2,85	2,77	2,70	2,65	2,60	2,56	2,53	2,48	2,44	2,39	2,35	2,31	2,27	2,24	2,21	2,19	2,16	2,14	2,13
	8,86	6,51	5,56	5,03	4,69	4,46	4,28	4,14	4,03	3,94	3,86	3,80	3,70	3,62	3,51	3,43	3,34	3,26	3,21	3,14	3,11	3,06	3,02	3,00
15	4,54	3,68	3,29	3,06	2,90	2,79	2,70	2,64	2,59	2,55	2,51	2,48	2,43	2,39	2,33	2,29	2,25	2,21	2,18	2,15	2,12	2,10	2,08	2,07
	8,68	6,36	5,42	4,89	4,56	4,32	4,14	4,00	3,89	3,80	3,73	3,67	3,56	3,48	3,36	3,29	3,20	3,12	3,07	3,00	2,97	2,92	2,89	2,87
16	4,49	3,63	3,24	3,01	2,85	2,74	2,66	2,59	2,54	2,49	2,45	2,42	2,37	2,33	2,28	2,24	2,20	2,16	2,13	2,09	2,07	2,04	2,02	2,01
	8,53	6,23	5,29	4,77	4,44	4,20	4,03	3,89	3,78	3,69	3,61	3,55	3,45	3,37	3,25	3,18	3,10	3,01	2,96	2,89	2,86	2,80	2,77	2,75
17	4,45	3,59	3,20	2,96	2,81	2,70	2,62	2,55	2,50	2,45	2,41	2,38	2,33	2,29	2,23	2,19	2,15	2,11	2,08	2,04	2,02	1,99	1,97	1,96
	8,40	6,11	5,18	4,67	4,34	4,10	3,93	3,79	3,68	3,59	3,52	3,45	3,35	3,27	3,16	3,08	3,00	2,92	2,86	2,79	2,76	2,70	2,67	2,65
18	4,41	3,55	3,16	2,93	2,77	2,66	2,58	2,51	2,46	2,41	2,37	2,34	2,29	2,25	2,19	2,15	2,11	2,07	2,04	2,00	1,98	1,95	1,93	1,92
	8,28	6,01	5,09	4,58	4,25	4,01	3,85	3,71	3,60	3,51	3,44	3,37	3,27	3,19	3,07	3,00	2,91	2,83	2,78	2,71	2,68	2,62	2,59	2,57
19	4,38	3,52	3,13	2,90	2,74	2,63	2,55	2,48	2,43	2,38	2,34	2,31	2,26	2,21	2,15	2,11	2,07	2,02	2,00	1,96	1,94	1,91	1,90	1,88
	8,18	5,93	5,01	4,50	4,17	3,94	3,77	3,63	3,52	3,43	3,36	3,30	3,19	3,12	3,00	2,92	2,84	2,76	2,70	2,63	2,60	2,54	2,51	2,49
20	4,35	3,49	3,10	2,87	2,71	2,60	2,52	2,45	2,40	2,35	2,31	2,28	2,23	2,18	2,12	2,08	2,04	1,99	1,96	1,92	1,90	1,87	1,85	1,84
	8,10	5,85	4,94	4,43	4,10	3,87	3,71	3,56	3,45	3,37	3,30	3,23	3,13	3,05	2,94	2,86	2,77	2,69	2,63	2,56	2,53	2,47	2,44	2,42
21	4,32	3,47	3,07	2,84	2,68	2,57	2,49	2,42	2,37	2,32	2,28	2,25	2,20	2,15	2,09	2,05	2,00	1,96	1,93	1,89	1,87	1,84	1,82	1,81
	8,02	5,78	4,87	4,37	4,04	3,81	3,65	3,51	3,40	3,31	3,24	3,17	3,07	2,99	2,88	2,80	2,72	2,63	2,58	2,51	2,47	2,42	2,38	2,36
22	4,30	3,44	3,05	2,82	2,66	2,55	2,47	2,40	2,35	2,30	2,26	2,23	2,18	2,13	2,07	2,03	1,98	1,93	1,91	1,87	1,84	1,81	1,80	1,78
	7,94	5,72	4,82	4,31	3,99	3,76	3,59	3,45	3,35	3,26	3,18	3,12	3,02	2,94	2,83	2,75	2,67	2,58	2,53	2,46	2,42	2,37	2,33	2,31
23	4,28	3,42	3,03	2,80	2,64	2,53	2,45	2,38	2,32	2,28	2,24	2,20	2,14	2,10	2,04	2,00	1,96	1,91	1,88	1,84	1,82	1,79	1,77	1,76
	7,88	5,66	4,76	4,26	3,94	3,71	3,54	3,41	3,30	3,21	3,14	3,07	2,97	2,89	2,78	2,70	2,62	2,53	2,48	2,41	2,37	2,32	2,28	2,26

V_2 = dk penyebut	V_1 = dk pembilang																						
	1	2	3	4	5	6	7	8	9	10	11	12	14	16	20	24	30	40	50	75	100	200	500	∞
24	4,26	3,40	3,01	2,78	2,62	2,51	2,43	2,36	2,30	2,26	2,22	2,18	2,13	2,09	2,02	1,98	1,94	1,89	1,86	1,82	1,80	1,76	1,74	1,73
	7,82	5,61	4,72	4,22	3,90	3,67	3,50	3,36	3,25	3,17	3,09	3,03	2,93	2,85	2,74	2,66	2,58	2,49	2,44	2,36	2,33	2,27	2,23	2,21
25	4,24	3,38	2,99	2,76	2,60	2,49	2,41	2,34	2,28	2,24	2,20	2,16	2,11	2,06	2,00	1,96	1,92	1,87	1,84	1,80	1,77	1,74	1,72	1,71
	7,77	5,57	4,68	4,18	3,86	3,63	3,46	3,32	3,21	3,13	3,05	2,99	2,89	2,81	2,70	2,62	2,54	2,45	2,40	2,32	2,29	2,23	2,19	2,17
26	4,22	3,37	2,89	2,74	2,59	2,47	2,39	2,32	2,27	2,22	2,18	2,15	2,10	2,05	1,99	1,95	1,90	1,85	1,82	1,78	1,76	1,72	1,70	1,69
	7,72	5,53	4,64	4,14	3,82	3,59	3,42	3,29	3,17	3,09	3,02	2,96	2,86	2,77	2,66	2,58	2,50	2,41	2,36	2,28	2,25	2,19	2,15	2,13
27	4,21	3,35	2,96	2,73	2,57	2,46	2,37	2,30	2,25	2,20	2,16	2,13	2,08	2,03	1,97	1,93	1,88	1,84	1,80	1,76	1,74	1,71	1,68	1,67
	7,68	5,49	4,60	4,11	3,79	3,56	3,39	3,26	3,14	3,06	2,98	2,93	2,83	2,74	2,63	2,55	2,47	2,38	2,33	2,25	2,21	2,16	2,12	2,10
28	4,20	3,34	2,95	2,71	2,56	2,44	2,36	2,29	3,24	2,19	2,15	2,12	2,06	2,02	1,96	1,91	1,87	1,81	1,78	1,75	,72	1,69	1,67	1,65
	7,64	5,45	4,57	4,07	3,76	3,53	3,36	3,23	3,11	3,03	2,95	2,90	2,80	2,71	2,60	2,52	2,44	2,35	2,30	2,22	2,18	2,13	2,09	2,06
29	4,18	3,33	2,93	2,70	2,54	2,43	2,35	2,28	2,22	2,18	2,14	2,10	2,05	2,00	1,94	1,90	1,85	1,80	1,77	1,73	1,71	1,68	1,65	1,64
	7,60	5,52	4,54	4,04	3,73	3,50	3,33	3,20	3,08	3,00	2,92	2,87	2,77	2,68	2,57	2,49	2,41	2,32	2,27	2,19	2,15	2,10	2,06	2,03
30	4,17	3,32	2,92	2,69	2,53	2,42	2,34	2,27	2,21	2,16	2,12	2,09	2,04	1,99	1,93	1,89	1,84	1,79	1,76	1,72	1,69	1,66	1,64	1,62
	7,56	5,39	4,51	4,02	3,70	3,47	3,30	3,17	3,06	2,98	2,90	2,84	2,74	2,66	2,55	2,47	2,38	2,29	2,24	2,16	2,13	2,07	2,03	2,01
32	4,15	3,30	2,90	2,67	2,51	2,40	2,32	2,25	2,19	2,14	2,10	2,07	2,02	1,97	1,91	1,86	1,82	1,76	1,74	1,69	1,67	1,64	1,61	1,59
	7,50	5,34	4,46	3,97	3,66	3,42	3,25	3,12	3,01	2,94	2,86	2,80	2,70	2,62	2,51	2,42	2,34	2,25	2,20	2,12	2,08	2,02	1,98	1,96
34	4,13	3,28	2,88	2,65	2,49	2,38	2,30	2,23	2,17	2,12	2,08	2,05	2,00	1,95	1,89	1,84	1,80	1,74	1,71	1,67	1,64	1,61	1,59	1,57
	7,44	5,29	4,42	3,93	3,61	3,38	3,21	3,08	2,97	2,89	2,82	2,76	2,66	2,58	2,47	2,38	2,30	2,21	2,15	2,08	2,04	1,98	1,94	1,91
36	4,11	3,26	2,80	2,63	2,48	2,36	2,28	2,21	2,15	2,10	2,06	2,03	1,89	1,93	1,87	1,82	1,78	1,72	1,69	1,65	1,62	1,59	1,56	1,55
	7,39	5,25	4,38	3,89	3,58	3,35	3,18	3,04	2,94	2,86	2,78	2,72	2,62	2,54	2,43	2,35	2,26	2,17	2,12	2,04	2,00	1,94	1,90	1,87
38	4,10	3,25	2,85	2,62	2,46	2,35	2,26	2,19	2,14	2,09	2,05	2,02	1,96	1,92	1,85	1,80	1,76	1,71	1,67	1,63	1,60	1,57	1,54	1,53
	7,35	5,21	4,34	3,86	3,54	3,32	3,15	3,02	2,91	2,82	2,75	3,69	2,59	2,51	2,40	2,32	2,22	2,14	2,08	2,00	1,97	1,90	1,86	1,84
40	4,08	3,23	2,84	2,61	2,45	2,34	2,25	2,18	2,12	2,07	2,04	2,00	1,95	1,90	1,84	1,79	1,74	1,69	1,66	1,61	1,59	1,55	1,53	1,51
	7,31	5,18	4,31	3,83	3,51	3,29	3,12	2,99	2,88	2,80	2,73	2,66	2,56	2,49	2,37	2,29	2,20	2,11	2,05	1,97	1,94	1,88	1,84	1,81
42	4,07	3,22	2,83	2,59	2,44	2,32	2,24	2,17	2,11	2,06	2,02	1,99	1,94	1,89	1,82	1,78	1,73	1,68	1,64	1,60	1,57	1,54	1,51	1,49
	7,27	5,15	4,29	3,80	3,49	3,26	3,10	2,96	2,86	2,77	2,70	2,64	2,54	2,46	2,35	2,26	2,17	2,08	2,02	1,94	1,91	1,85	1,80	1,78
44	4,06	3,21	2,82	2,58	2,43	2,31	2,23	2,16	2,10	2,05	2,01	1,98	1,92	1,88	1,81	1,76	1,72	1,66	1,63	1,58	1,56	1,52	1,50	1,48
	7,24	5,12	4,26	3,78	3,46	3,24	3,07	2,94	2,84	2,75	2,68	2,62	2,52	2,44	2,32	2,24	2,15	2,06	2,00	1,92	1,88	1,82	1,78	1,75

LAMPIRAN L

HASIL UJI STATISTIK KEKERASAN TABLET ANTAR FORMULA TABLET HISAP EKSTRAK DAUN SIRIH MERAH

F	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Min	Max
					Lower Bound	Upper Bound		
I	3	8,5033	,19140	,11050	8,0279	8,9788	8,29	8,66
II	3	9,7100	,77382	,44677	7,7877	11,6323	9,07	10,57
III	3	12,6900	,12767	,07371	12,3728	13,0072	12,58	12,83
IV	3	8,1800	,19000	,10970	7,7080	8,6520	7,97	8,34
Total	12	9,7708	1,89169	,54608	8,5689	10,9728	7,97	12,83

ANOVA
KEKERASAN

Source of Variation	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	37.988	3	12.663	73.637	.000
Within Groups	1.376	8	.172		
Total	39.363	11			

Hipotesa pengujian :

F hitung > F tabel (0,05) sehingga H ditolak dan ada perbedaan yang bermakna antar formula.

KEKERASAN
HSD

(I) F	(J) F	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
I	II	-1,20667*	,33858	.007	-1,9874	-,4259
	III	-4,18667*	,33858	.000	-4,9674	-3,4059
	IV	,32333	,33858	.368	-,4574	1,1041
II	I	1,20667*	,33858	.007	,4259	1,9874
	III	-2,98000*	,33858	.000	-3,7608	-2,1992
	IV	1,53000*	,33858	.002	,7492	2,3108
III	I	4,18667*	,33858	.000	3,4059	4,9674
	II	2,98000*	,33858	.000	2,1992	3,7608
	IV	4,51000*	,33858	.000	3,7292	5,2908
IV	I	-,32333	,33858	.368	-1,1041	,4574
	II	-1,53000*	,33858	.002	-2,3108	-,7492
	III	-4,51000*	,33858	.000	-5,2908	-3,7292

Keterangan :

Simbol* : Perbedaannya signifikan, karena selisihnya > HSD (5%)

Tanpa simbol : Perbedaannya tidak signifikan, karena selisihnya < HSD (5%)

LAMPIRAN M

HASIL UJI STATISTIK KERAPUHAN TABLET ANTAR FORMULA TABLET HISAP EKSTRAK DAUN SIRIH MERAH

F	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Min	Max
					Lower Bound	Upper Bound		
I	3	,121200	,0007000	,0004041	,119461	,122939	,1204	,1217
II	3	,120667	,0018230	,0010525	,116138	,125195	,1187	,1223
III	3	,062067	,0010970	,0006333	,059342	,064792	,0612	,0633
IV	3	,180267	,0020429	,0011795	,175192	,185341	,1788	,1826
Total	12	,121050	,0436680	,0126059	,093305	,148795	,0612	,1826

ANOVA
KERAPUHAN

Source of Variation	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.021	3	.007	3040.617	.000
Within Groups	.000	8	.000		
Total	.021	11			

Hipotesa pengujian :

F hitung > F tabel (0,05) sehingga H ditolak dan ada perbedaan yang bermakna antar formula.

KERAPUHAN
HSD

(I) F	(J) F	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
I	II	,0005333	,0012376	.678	-,002321	,003387
	III	,0591333*	,0012376	.000	,056279	,061987
	IV	-,0590667*	,0012376	.000	-,061921	-,056213
II	I	-,0005333	,0012376	.678	-,003387	,002321
	III	,0586000*	,0012376	.000	,055746	,061454
	IV	-,0596000*	,0012376	.000	-,062454	-,056746
III	I	-,0591333*	,0012376	.000	-,061987	-,056279
	II	-,0586000*	,0012376	.000	-,061454	-,055746
	IV	-,1182000*	,0012376	.000	-,121054	-,115346
IV	I	,0590667*	,0012376	.000	,056213	,061921
	II	,0596000*	,0012376	.000	,056746	,062454
	III	,1182000*	,0012376	.000	,115346	,121054

Keterangan :

Simbol* : Perbedaannya signifikan, karena selisihnya > HSD (5%)

Tanpa simbol : Perbedaannya tidak signifikan, karena selisihnya < HSD (5%)

LAMPIRAN N

HASIL UJI STATISTIK WAKTU HANCUR TABLET ANTAR FORMULA TABLET HISAP EKSTRAK DAUN SIRIH MERAH

F	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Min	Max
					Lower Bound	Upper Bound		
I	3	21,8567	,42253	,24395	20,8070	22,9063	21,37	22,13
II	3	21,5600	,94409	,54507	19,2148	23,9052	20,47	22,12
III	3	27,1133	,51423	,29689	25,8359	28,3908	26,52	27,43
IV	3	16,1533	,11150	,06438	15,8763	16,4303	16,07	16,28
Total	12	21,6708	4,07905	1,17752	19,0791	24,2625	16,07	27,43

ANOVA
WAKTU HANCUR

Source of Variation	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	180.331	3	60.110	178.541	.000
Within Groups	2.693	8	.337		
Total	183.025	11			

Hipotesa pengujian :

F hitung > F tabel (0,05) sehingga H ditolak dan ada perbedaan yang bermakna antar formula

WAKTU HANCUR
HSD

(I) F	(J) F	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
I	II	,29667	,47376	.549	-,7958	1,3892
	III	-5,25667*	,47376	.000	-6,3492	-4,1642
	IV	5,70333*	,47376	.000	4,6108	6,7958
II	I	-,29667	,47376	.549	-1,3892	,7958
	III	-5,55333*	,47376	.000	-6,6458	-4,4608
	IV	5,40667*	,47376	.000	4,3142	6,4992
III	I	5,25667*	,47376	.000	4,1642	6,3492
	II	5,55333*	,47376	.000	4,4608	6,6458
	IV	10,96000*	,47376	.000	9,8675	12,0525
IV	I	-5,70333*	,47376	.000	-6,7958	-4,6108
	II	-5,40667*	,47376	.000	-6,4992	-4,3142
	III	-10,96000*	,47376	.000	-12,0525	-9,8675

Keterangan :

Simbol* : Perbedaannya signifikan, karena selisihnya > HSD (5%)

Tanpa simbol : Perbedaannya tidak signifikan, karena selisihnya < HSD (5%)

LAMPIRAN O

HASIL ANOVA UJI KEKERASAN PADA PROGRAM *DESIGN EXPERT*

Response 1 Kekerasan

ANOVA for selected factorial model

Analysis of variance table [Partial sum of squares - Type III]

Source	Sum of Squares	df	Mean Square	F Value	p-value Prob > F	
Model	37.80	3	12.60	72.82	< 0.0001	significant
A-Macam Pengikat	5.37	1	5.37	31.06	0.0005	
B-Macam Pengisi	8.09	1	8.09	46.73	0.0001	
AB	24.34	1	24.34	140.68	< 0.0001	
Pure Error	1.38	8	0.17			
Cor Total	39.18	11				

The Model F-value of 72.82 implies the model is significant. There is only a 0.01% chance that a "Model F-Value" this large could occur due to noise.

Values of "Prob > F" less than 0.0500 indicate model terms are significant.In this case A, B, AB are significant model terms. Values greater than 0.1000 indicate the model terms are not significant. If there are many insignificant model terms (not counting those required to support hierarchy), model reduction may improve your model.

Std. Dev.	0.42	R-Squared	0.9647
Mean	9.78	Adj R-Squared	0.9514
C.V. %	4.25	Pred R-Squared	0.9205
PRESS	3.11	Adeq Precision	18.697

The "Pred R-Squared" of 0.9205 is in reasonable agreement with the "Adj R-Squared" of 0.9514.

"Adeq Precision" measures the signal to noise ratio. A ratio greater than 4 is desirable. Your ratio of 18.697 indicates an adequate signal. This model can be used to navigate the design space.

Factor	Coefficient Estimate	df	Standard Error	95% CI Low	95% CI High	VIF
Intercept	9.78	1	0.12	9.50	10.05	
A-Macam Pengikat	0.67	1	0.12	0.39	0.95	1.00
B-Macam Pengisi	-0.82	1	0.12	-1.10	-0.54	1.00
AB	-1.42	1	0.12	-1.70	-1.15	1.00

Final Equation in Terms of Coded Factors:

Kekerasan =

+9.78

+0.67 * A

-0.82 * B

-1.42 * A * B

Final Equation in Terms of Actual Factors:

Kekerasan =

+9.77583
+0.66917 * Macam Pengikat
-0.82083 * Macam Pengisi
-1.42417 * Macam Pengikat * Macam Pengisi

The Diagnostics Case Statistics Report has been moved to the Diagnostics Node. In the Diagnostics Node, Select Case Statistics from the View Menu. Proceed to Diagnostic Plots (the next icon in progression). Be sure to look at the:

1) Normal probability plot of the studentized residuals to check for normality of residuals.
2) Studentized residuals versus predicted values to check for constant error.
3) Externally Studentized Residuals to look for outliers, i.e., influential values.
4) Box-Cox plot for power transformations.

If all the model statistics and diagnostic plots are OK, finish up with the Model Graphs icon.

LAMPIRAN P

HASIL ANOVA UJI KERAPUHAN PADA DESIGN EXPERT

Response 2 Kerapuhan

ANOVA for selected factorial model

Analysis of variance table [Partial sum of squares - Type III]

Source	Sum of Squares	df	Mean Square	F Value		
Model	0.021	3	6.986E-003	3040.62	<0.0001	significant
A-Macam Pengikat	1.633E-007	1	1.633E-007	0.071	0.7965	
B-Macam Pengisi	0.010	1	0.010	4519.73	<0.0001	
AB	0.011	1	0.011	4602.05	<0.0001	
Pure Error	1.838E-005	8	2.298E-006			
Cor Total	0.021	11				

The Model F-value of 3040.62 implies the model is significant. There is only a 0.01% chance that a "Model F-Value" this large could occur due to noise.

Values of "Prob > F" less than 0.0500 indicate model terms are significant. In this case B, AB are significant model terms. Values greater than 0.1000 indicate the model terms are not significant.

If there are many insignificant model terms (not counting those required to support hierarchy), model reduction may improve your model.

Std. Dev.	1.516E-003	R-Squared	0.9991
Mean	0.12	Adj R-Squared	0.9988
C.V. %	1.25	Pred R-Squared	0.9980
PRESS	4.136E-005	Adeq Precision	135.067

The "Pred R-Squared" of 0.9980 is in reasonable agreement with the "Adj R-Squared" of 0.9988. "Adeq Precision" measures the signal to noise ratio. A ratio greater than 4 is desirable. Your ratio of 135.067 indicates an adequate signal. This model can be used to navigate the design space.

Factor	Coefficient Estimate	df	Standard Error	95% CI Low	95% CI High	VIF
Intercept	0.12	1	4.376E-004	0.12	0.12	
A-Macam Pengikat	1.167E-004	1	4.376E-004	-8.923E-004	1.126E-003	1.00
B-Macam Pengisi	0.029	1	4.376E-004	0.028	0.030	1.00
AB	0.030	1	4.376E-004	0.029	0.031	1.00

Final Equation in Terms of Coded Factors:

Kerapuhan =

+0.12
+1.167E-004 * A
+0.029 * B
+0.030 * A * B

Final Equation in Terms of Actual Factors:

Kerapuhan =

+0.12105
+1.16667E-004 *Macam Pengikat
+0.029417 *Macam Pengisi
+0.029683 *Macam Pengikat *Macam Pengisi

The Diagnostics Case Statistics Report has been moved to the Diagnostics Node. In the Diagnostics Node, Select Case Statistics from the View Menu. Proceed to Diagnostic Plots (the next icon in progression). Be sure to look at the :

1) Normal probability plot of the studentized residuals to check for normality of residuals.
2) Studentized residuals versus predicted values to check for constant error.
3) Externally Studentized Residuals to look for outliers, i.e., influential values.
4) Box-Cox plot for power transformations.

If all the model statistics and diagnostic plots are OK, finish up with the Model Graphs icon.

LAMPIRAN Q

HASIL ANOVA UJI WAKTU HANCUR DESIGN EXPERT

Response 3 Waktu Hancur

ANOVA for selected factorial model

Analysis of variance table [Partial sum of squares - Type III]

Source	Sum of Squares	df	Mean Square	F Value	p-value Prob > F	
Model	180.33	3	60.11	178.54	< 0.0001	significant
A-Macam Pengikat	0.017	1	0.017	0.050	0.8285	
B-Macam Pengisi	95.03	1	95.03	282.27	< 0.0001	
AB	85.28	1	85.28	253.30	< 0.0001	
Pure Error	2.69	8	0.34			
Cor Total	183.02	11				

The Model F-value of 178.54 implies the model is significant. There is only a 0.01% chance that a "Model F-Value" this large could occur due to noise.

Values of "Prob > F" less than 0.0500 indicate model terms are significant. In this case B, AB are significant model terms. Values greater than 0.1000 indicate the model terms are not significant.

If there are many insignificant model terms (not counting those required to support hierarchy), model reduction may improve your model.

Std. Dev.	0.58	R-Squared	0.9853
Mean	21.67	Adj R-Squared	0.9798
C.V. %	2.68	Pred R-Squared	0.9669
PRESS	6.06	Adeq Precision	32.716

The "Pred R-Squared" of 0.9669 is in reasonable agreement with the "Adj R-Squared" of 0.9798.

"Adeq Precision" measures the signal to noise ratio. A ratio greater than 4 is desirable. Your ratio of 32.716 indicates an adequate signal. This model can be used to navigate the design space.

	Coefficient		**Standard**	**95% CI**	**95% CI**	
Factor	**Estimate**	**df**	**Error**	**Low**	**High**	**VIF**
Intercept	21.67	1	0.17	21.28	22.06	
A-Macam Pengikat	-0.038	1	0.17	-0.42	0.35	1.00
B-Macam Pengisi	-2.81	1	0.17	-3.20	-2.43	1.00
AB	-2.67	1	0.17	-3.05	-2.28	1.00

Final Equation in Terms of Coded Factors:

Waktu Hancur =

+21.67

-0.038 * A

-2.81 * B

-2.67 * A * B

Final Equation in Terms of Actual Factors:

Waktu Hancur =

+21.67083
-0.037500 * Macam Pengikat
-2.81417 * Macam Pengisi
-2.66583 * Macam Pengikat * Macam Pengisi

The Diagnostics Case Statistics Report has been moved to the Diagnostics Node. In the Diagnostics Node, Select Case Statistics from the View Menu. Proceed to Diagnostic Plots (the next icon in progression). Be sure to look at the :

1) Normal probability plot of the studentized residuals to check for normality of residuals.
2) Studentized residuals versus predicted values to check for constant error.
3) Externally Studentized Residuals to look for outliers, i.e., influential values.
4) Box-Cox plot for power transformations.

If all the model statistics and diagnostic plots are OK, finish up with the Model Graphs icon.

LAMPIRAN R

HASIL UJI STATISTIK HASIL PERCOBAAN DAN HASILTEORITIS PADA UJI KEKERASAN

Paired Samples Statistics

	Mean	N	Std. Deviation	Std. Error Mean
PERCOBAAN	9,775000	4	2,0500163	1,0250081
TEORITIS	9,770000	4	2,0551561	1,0275781

Paired Samples Correlations

	N	Correlation	Sig.
PERCOBAAN & TEORITIS	4	1.000	.000

Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
				95% Confidence Interval of the Difference				
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
Percobaan & teoritis	,0050	,0100	,0050	-,0109122	,0209122	1.00	3	.391

Hipotesa pengujian :

T hitung < T tabel (0,025) sehingga H diterima dan tidak ada perbedaan bermakna antar formula.

LAMPIRAN S

HASIL UJI STATISTIK HASIL PERCOBAAN DAN HASILTEORITIS PADA UJI KERAPUHAN

Paired Samples Statistics

	Mean	N	Std. Deviation	Std. Error Mean
PERCOBAAN	,121075[a]	4	,0482556	,0241278
TEORITIS	,121075[a]	4	,0482556	,0241278

Hipotesa pengujian :

Koefisien korelasi dan nilai t tidak dapat dihitung karena Standard Error dari perbedaannya adalah 0 yang berarti tidak ada perbedaan antara formula.

LAMPIRAN T

HASIL UJI STATISTIK HASIL PERCOBAAN DAN HASILTEORITIS PADA UJI WAKTU HANCUR

Paired Samples Statistics

	Mean	N	Std. Deviation	Std. Error Mean
PERCOBAAN	21,6675	4	4,47618	2,23809
TEORITIS	21,6700	4	4,47632	2,23816

Paired Samples Correlations

	N	Correlation	Sig.
PERCOBAAN & TEORITIS	4	1.000	.000

Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
PERCOBAAN - TEORITIS	-,00250	,00500	,00250	-,01046	,00546	-1.000	3	.391

Hipotesa pengujian :

T hitung < T tabel (0,025) sehingga H diterima dan tidak ada perbedaan bermakna antar formula.