

LAMPIRAN A

HASIL UJI MUTU FISIK MASSA TABLET

Mutu fisik yang diuji	F I	F II	F III	F IV	Persyaratan
Kadar air (%)	3,82 ± 0,13	3,44 ± 0,21	3,58 ± 0,34	3,24 ± 0,22	3-5% (Voigt, 1995)
Waktu alir (detik)	7,59 ± 0,12	6,85 ± 0,74	6,63 ± 0,54	7,78 ± 1,11	Tidak lebih dari 10 detik (Banker & Anderson, 1986)
Sudut diam (°)	34,25 ± 1,21	37,3 8 ± 0,88	30,53 ± 1,95	31,38 ± 0,97	30-40 = Cukup baik (Wells, 1993)
Indeks kompresibilitas (%)	18,33 ± 1,53	16 ± 3,46	17,67 ± 1,53	19,67 ± 1,53	18-21 = Baik (Wells, 1993)

LAMPIRAN B

HASIL UJI KESERAGAMAN KANDUNGAN TABLET SUBLINGUAL PROPRANOLOL HCL

Hasil Uji Keragaman Kandungan Tablet Formula A *Batch I*

Abs	C sampel	W sampel	C teoritis	Kadar (persen)
0.579	26.317	303.9	26.659	98.717
0.561	25.499	300.1	25.507	99.967
0.592	26.908	301.4	27.033	99.536
0.567	25.771	303.2	26.046	98.945
0.569	25.862	299.8	25.845	100.067
0.584	26.544	299.9	26.535	100.033
0.56	25.453	301.2	25.555	99.602
0.563	25.590	301.9	25.752	99.371
0.569	25.862	299.3	25.802	100.234
0.573	26.044	300.7	26.105	99.767
X				99.624
SD				0.498
KV				0.50

Hasil Uji Keragaman Kandungan Tablet Formula A *Batch II*

Abs	C sampel	W sampel	C teoritis	Kadar (persen)
0.56	25.453	300.9	25.530	99.701
0.561	25.499	301.2	25.601	99.602
0.573	26.044	300.9	26.122	99.701
0.567	25.771	299.3	25.711	100.234
0.578	26.271	300.7	26.333	99.767
0.572	25.999	300.9	26.077	99.701
0.569	25.862	300.1	25.871	99.967
0.566	25.726	299.7	25.700	100.100
0.578	26.271	303.2	26.552	98.945
0.559	25.408	299.8	25.391	100.067
X				99.778
SD				0.361
KV				0.36

Hasil Uji Keragaman Kandungan Tablet Formula A *Batch* III

Abs	C sampel	W sampel	C teoritis	Kadar (persen)
0.562	25.544	299.5	25.502	100.167
0.578	26.271	303.2	26.552	98.945
0.563	25.590	300.8	25.658	99.734
0.569	25.862	299.9	25.854	100.033
0.573	26.044	301.2	26.148	99.602
0.56	25.453	300.9	25.530	99.701
0.571	25.953	299.3	25.893	100.234
0.583	26.499	300.7	26.560	99.767
0.585	26.590	300.9	26.669	99.701
0.559	25.408	301.2	25.509	99.602
X				99.748
SD				0.363
KV				0.36

Hasil Uji Keragaman Kandungan Tablet Formula B *Batch* I

Abs	C sampel	W sampel	C teoritis	Kadar (persen)
0.622	28.271	300.3	28.300	99.900
0.634	28.817	300.9	28.903	99.701
0.61	27.726	301.2	27.837	99.602
0.588	26.726	299.9	26.717	100.033
0.615	27.953	299.6	27.916	100.134
0.579	26.317	300.7	26.378	99.767
0.589	26.771	300.9	26.852	99.701
0.57	25.908	301.2	26.011	99.602
0.581	26.408	299	26.320	100.334
0.593	26.953	300.3	26.980	99.900
X				99.867
SD				0.242
KV				0.24

Hasil Uji Keragaman Kandungan Tablet Formula B *Batch* II

Abs	C sampel	W sampel	C teoritis	Kadar (persen)
0.638	28.999	300.5	29.047	99.834
0.581	26.408	299.5	26.364	100.167
0.593	26.953	300.3	26.980	99.900
0.617	28.044	300.7	28.110	99.767
0.598	27.180	300.9	27.262	99.701
0.612	27.817	300.1	27.826	99.967
0.642	29.180	300.2	29.200	99.933
0.626	28.453	299.7	28.425	100.100
0.599	27.226	299.8	27.208	100.067
0.612	27.817	299.9	27.808	100.033
			X	99.947
			SD	0.150
			KV	0.15

Hasil Uji Keragaman Kandungan Tablet Formula B *Batch* III

Abs	C sampel	W sampel	C teoritis	Kadar (persen)
0.627	28.499	299.8	28.480	100.067
0.605	27.499	299.5	27.453	100.167
0.618	28.090	300.2	28.108	99.933
0.612	27.817	299.8	27.798	100.067
0.599	27.226	300.4	27.262	99.867
0.626	28.453	300	28.453	100.000
0.598	27.180	299.9	27.171	100.033
0.634	28.817	300.2	28.836	99.933
0.593	26.953	300.7	27.016	99.767
0.612	27.817	300.9	27.900	99.701
			X	99.954
			SD	0.15
			KV	0.15

Hasil Uji Keragaman Kandungan Tablet Formula C *Batch* I

Abs	C sampel	W sampel	C teoritis	Kadar (persen)
0.616	27.999	298.1	27.821	100.637
0.597	27.135	299.1	27.054	100.301
0.639	29.044	300.1	29.054	99.967
0.603	27.408	298.8	27.298	100.402
0.623	28.317	299.5	28.270	100.167
0.596	27.090	300.7	27.153	99.767
0.611	27.771	300.0	27.771	100.000
0.627	28.499	299.5	28.451	100.167
0.601	27.317	300.7	27.381	99.767
0.589	26.771	300.2	26.789	99.933
X				100.111
SD				0.280
KV				0.28

Hasil Uji Keragaman Kandungan Tablet Formula C *Batch* II

Abs	C sampel	W sampel	C teoritis	Kadar (persen)
0.593	26.953	298.9	26.854	100.368
0.596	27.090	300.1	27.099	99.967
0.611	27.771	299.2	27.697	100.267
0.627	28.499	299.7	28.470	100.100
0.615	27.953	300.3	27.981	99.900
0.593	26.953	299.9	26.944	100.033
0.614	27.908	300.2	27.926	99.933
0.588	26.726	299.8	26.708	100.067
0.597	27.135	299.5	27.090	100.167
0.629	28.590	300.7	28.656	99.767
X				100.057
SD				0.179
KV				0.18

Hasil Uji Keragaman Kandungan Tablet Formula C *Batch* III

Abs	C sampel	W sampel	C teoritis	Kadar (persen)
0.619	28.135	299.5	28.088	100.167
0.611	27.771	300	27.771	100.000
0.627	28.499	300.5	28.546	99.834
0.601	27.317	299.8	27.299	100.067
0.589	26.771	299.9	26.762	100.033
0.575	26.135	298.8	26.030	100.402
0.596	27.090	299.5	27.044	100.167
0.627	28.499	300.2	28.518	99.933
0.581	26.408	300.8	26.478	99.734
0.593	26.953	300.3	26.980	99.900
X				100.024
SD				0.191
KV				0.19

Hasil Uji Keragaman Kandungan Tablet Formula D *Batch* I

Abs	C sampel	W sampel	C teoritis	Kadar (persen)
0.634	28.817	300.5	28.865	99.834
0.611	27.771	300.9	27.855	99.701
0.627	28.499	301.2	28.613	99.602
0.601	27.317	299.9	27.308	100.033
0.611	27.771	300.2	27.790	99.933
0.627	28.499	299.5	28.451	100.167
0.657	29.862	300.1	29.872	99.967
0.619	28.135	300.2	28.154	99.933
0.669	30.408	300.2	30.428	99.933
0.648	29.453	299.8	29.434	100.067
X				99.917
SD				0.168
KV				0.17

Hasil Uji Keragaman Kandungan Tablet Formula D *Batch* II

Abs	C sampel	W sampel	C teoritis	Kadar (persen)
0.631	28.680	299.6	28.642	100.134
0.601	27.317	300.1	27.326	99.967
0.611	27.771	300.1	27.781	99.967
0.627	28.499	298.8	28.385	100.402
0.611	27.771	299.5	27.725	100.167
0.627	28.499	300.7	28.565	99.767
0.622	28.271	300.2	28.290	99.933
0.649	29.499	300.3	29.528	99.900
0.648	29.453	300.9	29.542	99.701
0.631	28.680	301.2	28.795	99.602
X				99.954
SD				0.237
KV				0.24

Hasil Uji Keragaman Kandungan Tablet Formula D *Batch* III

Abs	C sampel	W sampel	C teoritis	Kadar (persen)
0.637	28.953	301.0	29.050	99.668
0.627	28.499	300.9	28.584	99.701
0.637	28.953	300.1	28.963	99.967
0.619	28.135	299.8	28.116	100.067
0.639	29.044	299.9	29.034	100.033
0.648	29.453	300.2	29.473	99.933
0.631	28.680	300.1	28.690	99.967
0.601	27.317	298.8	27.208	100.402
0.611	27.771	300.1	27.781	99.967
0.629	28.590	299.9	28.580	100.033
X				99.974
SD				0.202
KV				0.20

LAMPIRAN C

HASIL UJI KEKERASAN TABLET SUBLINGUAL PROPANOLOL HCL

BATCH I

No	Kekerasan tablet Propranolol HCl (kgf)			
	Formula I	Formula II	Formula III	Formula IV
1	6,5	10	6,3	7,8
2	6,8	8,3	6,3	5,1
3	6,6	8,2	7,3	6,1
4	6,1	8,8	6,1	5
5	6,4	9,2	6,2	7,6
6	6	5,8	7,5	7,8
7	6,2	6,4	6,6	7,4
8	5,7	6	6,7	7
9	6,7	8,1	7,1	6,8
10	6,2	7,7	6,4	4,6
Rata-rata	6,32	7,85	6,65	6,52
SD	0,3425	1,3938	0,4905	1,2345
KV	5,4199	17,7559	7,3754	18,9341

BATCH II

No	Kekerasan tablet Propranolol HCl (kgf)			
	Formula I	Formula II	Formula III	Formula IV
1	5,6	5	4,6	5,7
2	5,2	5,9	6,4	6,5
3	6,6	7,6	4,1	5,3
4	4,6	6,9	4,9	6,1
5	4	5,6	5,5	5
6	5,7	5,7	5,4	6,6
7	5,1	5,3	4,4	6,4
8	4,7	6,5	5,8	5,6
9	5,8	6,3	5,2	4,4
10	5,6	6,2	5,5	6,4
Rata-rata	5,29	6,1	5,18	5,8
SD	0,7355	0,7746	0,6925	0,7333
KV	13,9041	12,6983	13,3687	12,6437

BATCH III

No	Kekerasan tablet Propranolol HCl (kgf)			
	Formula I	Formula II	Formula III	Formula IV
1	5,3	5,5	5,2	5,2
2	4,5	5,6	6,1	5,8
3	6,9	5,6	5,8	4,5
4	5,2	5,6	6,1	4,1
5	6,7	6,2	5,4	5,1
6	4,7	4,9	5,2	5,5
7	6,1	5,8	5	5,3
8	4,5	6,4	5,7	4,8
9	5,2	6,1	6,8	5,1
10	6,4	5,3	6,5	4,7
Rata-rata	5,55	5,7	5,78	5,01
SD	0,9071	0,4447	0,5959	0,4977
KV	16,3436	7,8021	10,3099	9,9334

LAMPIRAN D

HASIL UJI KERAPUHAN TABLET SUBLINGUAL PROPRANOLOL HCL

Formula	Replikasi	Berat awal (gram)	Berat akhir (gram)	Kerapuhan (%)	X±SD	KV (%)
I	1	6,09	6,07	0,3284	0,330 ± 0,004	1,2032
	2	6,1	6,08	0,3279		
	3	5,97	5,95	0,3350		
II	1	6,05	6,04	0,1653	0,167 ± 0,001	0,83336
	2	5,95	5,94	0,1681		
	3	6	5,99	0,1667		
III	1	5,94	5,92	0,3367	0,330 ± 0,008	2,42656
	2	6,03	6,01	0,3317		
	3	6,23	6,21	0,3210		
IV	1	6,15	6,13	0,3252	0,328 ± 0,002	0,73904
	2	6,06	6,04	0,3300		
	3	6,11	6,09	0,3273		

LAMPIRAN E

HASIL UJI WAKTU HANCUR TABLET SUBLINGUAL PROPANOLOL HCL

Replikasi	Waktu Hancur (menit)			
	Formula I	Formula II	Formula III	Formula IV
1	12	5	30	11
2	12	3	29	11
3	10	3	30	9
$\bar{x} \pm SD$	11,33 $\pm$ 1,15	3,67 $\pm$ 1,15	29,67 $\pm$ 0,58	10,33 $\pm$ 1,15

LAMPIRAN F

HASIL UJI PENETAPAN KADAR PROPANOLOL HCL DALAM TABLET

Formula	Replikasi	Absorbansi	Csampil (µg/ml)	Cteoritis (µg/ml)	Kadar (%)	$\bar{x} \pm SD$	SD rel (%)
A	1	0,574	26,090	300,9	26,168	99,86	0,27
	2	0,56	25,453	300,9	25,530	±	
	3	0,562	25,544	299,5	25,502	0,27	
B	1	0,622	28,271	300,3	28,300	100,05	0,31
	2	0,638	28,999	300,5	29,047	±	
	3	0,627	28,499	298,8	28,385	0,31	
C	1	0,616	27,999	300,1	28,008	99,96	0,32
	2	0,565	25,680	301,1	25,775	±	
	3	0,619	28,135	299,2	28,060	0,32	
D	1	0,634	28,817	302,5	29,057	99,75	0,51
	2	0,631	28,680	299,6	28,642	±	
	3	0,637	28,953	300,2	28,972	0,51	

LAMPIRAN G

HASIL UJI DISOLUSI TABLET SUBLINGUAL PROPRANOLOL HCL

FORMULA A

Replikasi	A	C sampel	FP	C Sesungguhnya	Wt	% obat terlepas
I	0,5746	11,130	2,5	27,825	13,913	34,78
II	0,5731	11,055	2,5	27,638	13,819	34,55
III	0,5767	11,235	2,5	28,088	14,044	35,11

FORMULA B

Replikasi	A	C sampel	FP	C Sesungguhnya	Wt	% obat terlepas
I	0,935	29,150	2,5	72,875	36,438	91,09
II	0,965	30,650	2,5	76,625	38,313	95,78
III	0,8999	27,395	2,5	68,488	34,244	85,61

FORMULA C

Replikasi	A	C sampel	FP	C Sesungguhnya	Wt	% obat terlepas
I	0,3865	1,725	2,5	4,313	2,156	5,39
II	0,3863	1,715	2,5	4,288	2,144	5,36
III	0,3882	1,810	2,5	4,525	2,263	5,66

FORMULA D

Replikasi	A	C sampel	FP	C Sesungguhnya	Wt	% obat terlepas
I	0,7269	18,745	2,5	46,863	23,431	58,58
II	0,7261	18,705	2,5	46,763	23,381	58,45
III	0,7275	18,775	2,5	46,938	23,469	58,67

LAMPIRAN H

CONTOH PERHITUNGAN

Contoh perhitungan sudut diam:

Formula A:

$$W \text{ persegi panjang} = 2,69 \text{ gram}$$

$$W \text{ lingkaran} = 0,52 \text{ gram}$$

$$\text{Luas persegi panjang} = 350,96 \text{ cm}^2$$

$$\text{Luas lingkaran} = \frac{0,52}{2,69} \times 350,96 = 67,84 \text{ cm}^2$$

$$L = \pi \cdot r^2$$

$$r^2 = \frac{L}{\pi}$$
$$= \frac{67,84}{3,14}$$

$$r = 4,65 \text{ cm}$$

$$\text{tg } \alpha = \frac{t}{r} = \frac{3,32}{4,65}$$

$$\alpha = 35,5^\circ$$

Contoh perhitungan indeks kompresibilitas:

Formula A :

$$\text{Berat gelas} = 132,39 \text{ g } (W_1)$$

$$\text{Berat gelas + granul} = 197,38 \text{ g } (W_2)$$

$$V_1 = 100 \text{ ml}$$

$$V_2 = 82 \text{ mL}$$

$$B_j \text{ nyata} = \frac{(W_2 - W_1)}{V_1} = \frac{197,38 - 132,39}{100} = 0,6499$$

$$B_j \text{ mampat} = \frac{(W_2 - W_1)}{V_2} = \frac{(197,38 - 132,39)}{82} = 0,7926$$

$$\% \text{ kompresibilitas} = \left(1 - \frac{B_j \text{ nyata}}{B_j \text{ mampat}} \right) \times 100\% = 18,0\%$$

Contoh perhitungan akurasi & presisi:

%	Bahan Aktif (mg)	Matrik (mg)	Aquadest (mL)	Pipet (mL)	Aquadest (mL)	Kons. (µg/mL)
100%	40	260	50	0,3	10	24

$$\text{Absorbansi} = 0,644 \rightarrow y = 0,022x + 0,00003$$

$$\text{Konsentrasi sebenarnya} = 29,27 \text{ ppm}$$

$$\text{Konsentrasi teoritis} = 29,31 \text{ ppm}$$

$$\% \text{ perolehan kembali} = (\text{konsentrasi sebenarnya} / \text{konsentrasi teoritis}) \times$$

$$100\%$$

$$= (29,27/29,31) \times 100\%$$

$$= 100,13 \%$$

$$\text{Untuk menghitung \% KV} = \frac{SD}{\bar{X}} \times 100\%$$

$$= \frac{0,07}{100,06} \times 100\%$$

$$= 0,07 \%$$

Contoh perhitungan % obat terlepas:

$$\% \text{ obat terlepas} = \frac{W_t}{\text{dosis}} \times 100\%$$

Formula A replikasi 1 pada t = 15 menit

$$\% \text{ obat terlepas} = \frac{13,913}{40} \times 100\% = 34,78\%$$



LAMPIRAN I

SERTIFIKAT ANALISIS BAHAN

PROPRANOLOL HCL



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No.Pemeriksaan : 80977/BB/08 - 03
 Tgl.Permohonan : 28 November 2010
 Tgl.Pemeriksaan : 04 Desember 2010
 C.A : Ada

14 DEC 2010

Periksa laporan HPL No : 80977/BB/08 - 02

HASIL PEMERIKSAAN BAHAN BAKU

NAMA BAHAN BAKU	PROPRANOLOL HCL (1000302)	TGL.PEMBUATAN	: 13 Mei 2008
	PROPRANOLOL HCL	DALUARSA	: 31 Mei 2013
MEREK/PRODUSEN	: Societa Italiana Medicine Scandicci Italy	PEMASOK	: PT. Menjangan Sakti
JUMLAH KEMASAN	: 3 Vat @ 25 kg = 75 kg		
JUMBUH CONTOH	: 2 x 10 g (1 - 2)	No.BATCH	: 28.051

Pemeriksaan	Hasil	Syarat	Metode
Pemerian	1 - 2 = Serbuk kristal halus berwarna putih	Serbuk berwarna putih atau hampir putih	BP. 2003
Identifikasi	1 - 2 = Benar	-	BP. 2003
Kejernihan dan warna larutan(2 gram dalam 20 ml Methanol)	Memenuhi Pengujian	-	MPK0007
Susut pengeringan (10 [°] C konstan)	0,08%	Max.0,5 %	BP. 2003
Kadar	99,73%	-	BP. 2003
Kadar terhadap zat kering	99,81%	99,0 % - 101,0 %	BP. 2003

Kesimpulan : DILULUSKAN/DECEK
 Catatan : Bagian Pergudangan
 Diperiksa ulang
 Tgl. 04 Jun 2011

Apoteker Penanggung Jawab PM

Dra. Tia Mutjaningsih

Jakarta, 02 Desember 2010
 Asisten Pengawasan Mutu

Drs. Hadi Kardoko

XANTHAN GUM

Satixane™ CX 800

80 mesh xanthan gum

PROPERTIES

DISPERSION

To disperse the product without lumps:

- premix the powder with the other dry ingredients,
 - or, disperse it in a non-solvent medium (oil, alcohol),
- and pour the preparation into the liquid whilst stirring. Continue stirring to obtain a complete dispersion.

DISSOLUTION

The dissolution of the product depends on the medium and the process: it is improved by heat-treatment (time, temperature), shear-stress (propeller, exchanger, homogenizer). A complete dissolution can be obtained in cold conditions.

MEDIA / USES

The product can be used in aqueous, dairy, or fruit media, with various total solids contents. The maximum dosage is about 1.5 %, according to the medium and the required final texture.

DESCRIPTION

Satixane™ CX 800 is a food Additive used as a texturant. It is a cold soluble thickener which provides high viscosity and pseudoplasticity at low concentration. Its solution shows very high resistance to acid and heat treatment as well as excellent salt tolerance and an exceptional suspension properties. With their unique rheological properties, Satixane™ CX 800 is well suited to the manufacture of food, pharmaceutical and cosmetic products.

Xanthan gum Satixane™ CX 800 conforms to the definition and specifications from JECFA (FAO/WHO), FDA (21 CFR) and European Community (Directive 90/77/EEC as amended). However, we recommend that the user ensures that this product is in compliance with the local regulations in force, particularly in the country where the product is to be consumed.

The product consists of:

- XANTHAN GUM

E 415

CHARACTERISTICS

Rheology:	Viscosity in a 1 % aqueous solution (+ 1 % KCl): 1200-1700 cps	
pH:	6.0 to 8.0 - measured in a 1 % aqueous solution	
Aspect, Flavour:	White to cream colored powder, of neutral odour and flavour.	
Particle size:	95 % less than 80 mesh (ASTM screen #70)	
Loss on drying:	Not more than 14 %	
Bacteriological:	Total plate count	: Not more than 2000 CFU/gram
	Yeasts and Molds	: Not more than 200 CFU/gram
	Pathogenic bacteria	
	(E. coli in 6 grams)	
	Salmonella in 10 grams	: Negative by tests

PACKAGING AND STORAGE

25 Kg net cartons lined with a polyethylene bag. Store away from heat and moisture. The product, when stored in the previously mentioned conditions and in its original unopened packaging, will maintain its initial properties for at least 2 years.

M - PN 3724 - 14/12/06 - 01

LAMPIRAN J

TABEL UJI R

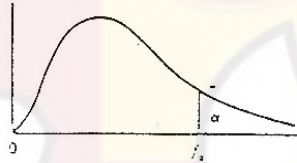
DEGREES OF FREEDOM (DF)	5 PERCENT	1 PERCENT	DEGREES OF FREEDOM (DF)	5 PERCENT	1 PERCENT
1	.997	1.000	24	.388	.496
2	.950	.990	25	.381	.487
3	.878	.959	26	.374	.478
4	.811	.917	27	.367	.470
5	.754	.874	28	.361	.463
6	.707	.834	29	.355	.456
7	.666	.798	30	.349	.449
8	.632	.765	35	.325	.418
9	.602	.735	40	.304	.393
10	.576	.708	48	.288	.372
11	.553	.684	50	.273	.354
12	.532	.661	60	.250	.325
13	.514	.641	70	.232	.302
14	.497	.623	80	.217	.283
15	.482	.606	90	.205	.267
16	.468	.590	100	.195	.254
17	.456	.575	125	.174	.228
18	.444	.561	150	.159	.208
19	.433	.549	200	.138	.181
20	.423	.537	300	.113	.148
21	.413	.526	400	.098	.128
22	.404	.515	500	.088	.115
23	.396	.505	1000	.062	.081

Dikutip dari: Soedigdo & Soedigdo (1977)

LAMPIRAN K

TABEL F

Tabel 7 Nilai kritis distribusi F



$$f_{\alpha, \beta_1, \beta_2}$$

ν_2	ν_1								
	1	2	3	4	5	6	7	8	9
1	161,4	199,5	215,7	224,6	230,2	234,0	236,8	238,9	240,5
2	18,51	19,00	19,16	19,25	19,30	19,33	19,35	19,37	19,38
3	10,13	9,55	9,28	9,12	9,01	8,94	8,89	8,85	8,81
4	7,71	6,94	6,59	6,39	6,26	6,16	6,09	6,04	6,00
5	6,61	5,79	5,41	5,19	5,05	4,95	4,88	4,82	4,77
6	5,99	5,14	4,76	4,53	4,39	4,28	4,21	4,15	4,10
7	5,59	4,74	4,35	4,12	3,97	3,87	3,79	3,73	3,68
8	5,32	4,46	4,07	3,84	3,69	3,58	3,50	3,44	3,39
9	5,12	4,26	3,86	3,63	3,48	3,37	3,29	3,23	3,18
10	4,96	4,10	3,71	3,48	3,33	3,22	3,14	3,07	3,02
11	4,84	3,98	3,59	3,36	3,20	3,09	3,01	2,95	2,90
12	4,75	3,89	3,49	3,26	3,11	3,00	2,91	2,85	2,80
13	4,67	3,81	3,41	3,18	3,03	2,92	2,83	2,77	2,71
14	4,60	3,74	3,34	3,11	2,96	2,85	2,76	2,70	2,65
15	4,54	3,68	3,29	3,06	2,90	2,79	2,71	2,64	2,59
16	4,49	3,63	3,24	3,01	2,85	2,74	2,66	2,59	2,54
17	4,45	3,59	3,20	2,96	2,81	2,70	2,61	2,55	2,49
18	4,41	3,55	3,16	2,93	2,77	2,66	2,58	2,51	2,46
19	4,38	3,52	3,13	2,90	2,74	2,63	2,54	2,48	2,42
20	4,35	3,49	3,10	2,87	2,71	2,60	2,51	2,45	2,39
21	4,32	3,47	3,07	2,84	2,68	2,57	2,49	2,42	2,37
22	4,30	3,44	3,05	2,82	2,66	2,55	2,46	2,40	2,34
23	4,28	3,42	3,03	2,80	2,64	2,53	2,44	2,37	2,32
24	4,26	3,40	3,01	2,78	2,62	2,51	2,42	2,36	2,30
25	4,24	3,39	2,99	2,76	2,60	2,49	2,40	2,34	2,28
26	4,23	3,37	2,98	2,74	2,59	2,47	2,39	2,32	2,27
27	4,21	3,35	2,96	2,73	2,57	2,46	2,37	2,31	2,25
28	4,20	3,34	2,95	2,71	2,56	2,45	2,36	2,29	2,24
29	4,18	3,33	2,93	2,70	2,55	2,43	2,35	2,28	2,22
30	4,17	3,32	2,92	2,69	2,53	2,42	2,33	2,27	2,21
40	4,08	3,23	2,84	2,61	2,45	2,34	2,25	2,18	2,12
60	4,00	3,15	2,76	2,53	2,37	2,25	2,17	2,10	2,04
120	3,92	3,07	2,68	2,45	2,29	2,17	2,09	2,02	1,96
∞	3,84	3,00	2,60	2,37	2,21	2,10	2,01	1,94	1,88

† Disalin dari Tabel 18 *Biometrika Tables for Statisticians*, Jilid I seizin E. S. Pearson dan Biometrika Trustees.

LAMPIRAN L
UJI F KURVA BAKU PENETAPAN KADAR

Uji Kesamaan Regresi

REPLIKASI I

KONSENTRASI	ABSORBANSI	X ²	Y ²	XY
12	0,252	144	0,0635	3,0240
16	0,32	256	0,1024	5,1200
20	0,415	400	0,1722	8,3000
24	0,489	576	0,2391	11,7360
28	0,567	784	0,3215	15,8760
32	0,649	1024	0,4212	20,7680
36	0,729	1296	0,5314	26,2440
		4784	2,3486	105,7080

REPLIKASI II

KONSENTRASI	ABSORBANSI	X ²	Y ²	XY
12	0,276	144	0,0762	3,3120
16	0,356	256	0,1267	5,6960
20	0,427	400	0,1823	8,5400
24	0,485	576	0,2352	11,6400
28	0,571	784	0,3260	15,9880
32	0,652	1024	0,4251	20,8640
36	0,734	1296	0,5388	26,4240
		6088	2,9967	134,7740

REPLIKASI III

KONSENTRASI	ABSORBANSI	X ²	Y ²	XY
12,024	0,265	144,5766	0,0702	3,1864
16,032	0,356	257,0250	0,1267	5,7074
20,04	0,441	401,6016	0,1945	8,8376
24,048	0,509	578,3063	0,2591	12,2404
28,056	0,586	787,1391	0,3434	16,4408
32,064	0,663	1028,1001	0,4396	21,2584
36,072	0,754	1301,1892	0,5685	27,1983
		4497,9379	2,0020	94,8694

	$S X^2$	SXY	$S Y^2$	N	SSi	RDF
Regresi I	4784	105,7080	2,3486	7	2,3265	6
Regresi II	4480	92,4640	1,9104	7	1,8897	6
Regresi III	4497,9379	94,8694	2,0020	7	1,9809	6
	16984,3764	376,7139	8,3915		8,3250	18

$$S_{sc} = 8,3694$$

$$F = 0,0799 < F_{0.05}(2,18) 3,55$$

LAMPIRAN M
UJI F KURVA BAKU DISOLUSI

Uji Kesamaan Regresi

REPLIKASI I

KONSENTRASI	ABSORBANSI	X^2	Y^2	XY
10,04	0,4	100,8016	0,16	4,0160
25,1	0,969	630,01	0,9390	24,3219
40,16	1,251	1612,8256	1,5650	50,2402
55,22	1,487	3049,2484	2,2112	82,1121
70,28	1,772	4939,2784	3,1400	124,5362
85,34	2,085	7282,9156	4,3472	177,9339
100,4	2,329	10080,1600	5,4242	233,8316
		27695,2396	17,7866	696,9919

REPLIKASI II

KONSENTRASI	ABSORBANSI	X^2	Y^2	XY
10,02	0,41	100,4004	0,1681	4,1082
25,05	1,024	627,5025	1,0486	25,6512
40,08	1,31	1606,4064	1,7161	52,5048
55,11	1,58	3037,1121	2,4964	87,0738
70,14	1,871	4919,6196	3,5006	131,2319
85,17	2,193	7253,9289	4,8092	186,7778
100,2	2,469	10040,0400	6,0960	247,3938
		27585,0099	19,8350	734,7416

REPLIKASI III

KONSENTRASI	ABSORBANSI	X^2	Y^2	XY
10,02	0,421	100,4004	0,1772	4,2184
25,05	1,002	627,5025	1,0040	25,1001
40,08	1,298	1606,4064	1,6848	52,0238
55,11	1,586	3037,1121	2,5154	87,4045
70,14	1,873	4919,6196	3,5081	131,3722
85,17	2,197	7253,9289	4,8268	187,1185
100,2	2,459	10040,0400	6,0467	246,3918
		27585,0099	19,7631	733,6293

	$S X^2$	SXY	$S Y^2$	N	SSi	RDF
Regresi I	27695,2396	696,9919	17,7866	7	17,7614	6
Regresi II	27585,0099	734,7416	19,8350	7	19,8084	6
Regresi III	27585,0099	733,6293	19,7631	7	19,7365	6
	82865,2594	2165,3627	57,3847		57,3063	18

$$Ssc = 57,3585$$

$$F = 0,0082 < F_{0.05}(2,18) 3.49$$

LAMPIRAN N
PERHITUNGAN ANAVA KEKERASAN

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	1.34	3	0.45	0.66	0.6005	not significant
<i>A-Xanthan gum</i>	<i>0.41</i>	<i>1</i>	<i>0.41</i>	<i>0.60</i>	<i>0.4607</i>	
<i>B-Gelatin</i>	<i>0.29</i>	<i>1</i>	<i>0.29</i>	<i>0.43</i>	<i>0.5304</i>	
<i>AB0.64</i>	<i>1</i>	<i>0.64</i>	<i>0.94</i>	<i>0.3599</i>		
Pure Error	5.42	8	0.68			
Cor Total	6.76	11				

The "Model F-value" of 0.66 implies the model is not significant relative to the noise. There is a 60.05 % 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 there are no 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.	0.82		R-Squared	0.1979
Mean	5.98	Adj R-Squared	-0.1029	
C.V. %	13.77		Pred R-Squared	-0.8047
PRESS	12.20		Adeq Precision	1.746

A negative "Pred R-Squared" implies that the overall mean is a better predictor of your response than the current model.

"Adeq Precision" measures the signal to noise ratio. A ratio of 1.75 indicates an inadequate signal and we should not use this model to navigate the design space.

88

Coefficient Factor VIF	Standard Estimate	95% CI df	95% CI Error	Low	High
Intercept	5.98	1	0.24	5.43	6.53
A-Xanthan gum 1.00	0.18	1	0.24	-0.36	0.73
B-Gelatin 1.00	-0.16	1	0.24	-0.70	0.39
AB-0.23	1	0.24	-0.78	0.32	1.00

Final Equation in Terms of Coded Factors:

$$\begin{aligned} \text{kekerasan} &= \\ &+5.98 \\ &+0.18 \quad * A \\ &-0.16 \quad * B \\ &-0.23 \quad * A * B \end{aligned}$$

Final Equation in Terms of Actual Factors:

$$\begin{aligned} \text{kekerasan} &= \\ &+5.41729 \\ &+0.26521 \quad * \text{Xanthan gum} \\ &+0.095208 \quad * \text{Gelatin} \\ &-0.057708 \quad * \text{Xanthan gum} * \text{Gelatin} \end{aligned}$$

LAMPIRAN O

PERHITUNGAN ANAVA KERAPUHAN

Response	2	kerapuhan			
ANOVA for selected factorial model					
Analysis of variance table [Partial sum of squares - Type III]					
	Sum of		Mean	F	p-value
Source	Squares	df	Square	Value	Prob > F
Model	0.059	3	0.020	903.15	< 0.0001 significant
<i>A-Xanthan gum</i>	0.021	1	0.021	942.11	< 0.0001
<i>B-Gelatin</i>	0.019	1	0.019	876.70	< 0.0001
<i>AB0.020</i>	1	0.020	890.63	< 0.0001	
Pure Error	1.756E-004	8	2.195E-005		
Cor Total	0.060	11			

The Model F-value of 903.15 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.	4.685E-003		R-Squared	0.9971
Mean	0.29	Adj R-Squared	0.9960	
C.V. %	1.62	Pred R-Squared	0.9934	
PRESS	3.950E-004	Adeq Precision	60.537	

The "Pred R-Squared" of 0.9934 is in reasonable agreement with the "Adj R-Squared" of 0.9960.

"Adeq Precision" measures the signal to noise ratio. A ratio greater than 4 is desirable. Your ratio of 60.537 indicates an adequate signal. This model can be used to navigate the design space.

Coefficient Factor VIF	Standard Estimate	95% CI df	95% CI Error	Low	High
Intercept	0.29	1	1.352E-003	0.29	0.29
A-Xanthan gum	-0.042	1	1.352E-003	-0.045	-0.038
1.00 B-Gelatin	0.040	1	1.352E-003	0.037	0.043
1.00 AB0.040	1	1.352E-003	0.037	0.043	1.00

Final Equation in Terms of Coded Factors:

$$\begin{aligned} \text{kerapuhan} &= \\ &+0.29 \\ &-0.042 \quad * A \\ &+0.040 \quad * B \\ &+0.040 \quad * A * B \end{aligned}$$

Final Equation in Terms of Actual Factors:

$$\begin{aligned} \text{kerapuhan} &= \\ &+0.38161 \\ &-0.051023 \quad * \text{Xanthan gum} \\ &-0.010248 \quad * \text{Gelatin} \\ &+0.010090 \quad * \text{Xanthan gum} * \text{Gelatin} \end{aligned}$$

LAMPIRAN P
PERHITUNGAN ANAVA WAKTU HANCUR

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	1117.58	3	372.53	343.87	< 0.0001	significant
<i>A-Xanthan gum</i>	546.75	1	546.75	504.69	< 0.0001	
<i>B-Gelatin</i>	468.75	1	468.75	432.69	< 0.0001	
<i>AB102.08</i>	1	102.08	94.23	< 0.0001		
Pure Error	8.67	8	1.08			
Cor Total	1126.25	11				

The Model F-value of 343.87 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.	1.04	Adj R-Squared	R-Squared	0.9923
Mean	13.75		0.9894	
C.V. %	7.57		Pred R-Squared	0.9827
PRESS	19.50		Adeq Precision	43.267

The "Pred R-Squared" of 0.9827 is in reasonable agreement with the "Adj R-Squared" of 0.9894.

"Adeq Precision" measures the signal to noise ratio. A ratio greater than 4 is desirable. Your ratio of 43.267 indicates an adequate signal. This model can be used to navigate the design space.

Coefficient Factor	Standard Estimate	95% CI df	95% CI Error	Low	High
VIF					
Intercept	13.75	1	0.30	13.06	14.44
A-Xanthan gum	-6.75	1	0.30	-7.44	-6.06
1.00					
B-Gelatin	6.25	1	0.30	5.56	6.94
1.00					
AB-2.92	1	0.30	-3.61	-2.22	1.00

Final Equation in Terms of Coded Factors:

$$\begin{aligned} \text{waktu hancur} &= \\ +13.75 & \\ -6.75 & * A \\ +6.25 & * B \\ -2.92 & * A * B \end{aligned}$$

Final Equation in Terms of Actual Factors:

$$\begin{aligned} \text{waktu hancur} &= \\ +7.93750 & \\ -1.18750 & * \text{Xanthan gum} \\ +5.31250 & * \text{Gelatin} \\ -0.72917 & * \text{Xanthan gum} * \text{Gelatin} \end{aligned}$$

LAMPIRAN Q
PERHITUNGAN ANAVA DISOLUSI

Response	4	disolusi			
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	11781.35	3	3927.12	603.52	.0001
A-Xanthan gum	8928.74	1	8928.74	1372.18	.0001
B-Gelatin	2846.23	1	2846.23	437.41	< 0.0001
AB6.38	1	6.38	0.98	0.3511	
Pure Error	52.06	8	6.51		
Cor Total	11833.41	11			

The Model F-value of 603.52 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 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.	2.55		R-Squared	0.9956
Mean	47.42	Adj R-Squared	0.9940	
C.V. %	5.38		Pred R-Squared	0.9901
PRESS	117.13		Adeq Precision	57.957

The "Pred R-Squared" of 0.9901 is in reasonable agreement with the "Adj R-Squared" of 0.9940.

"Adeq Precision" measures the signal to noise ratio. A ratio greater than 4 is desirable. Your ratio of 57.957 indicates an adequate signal. This model can be used to navigate the design space.

Coefficient Factor VIF	Standard Estimate	95% CI df	95% CI Error	Low	High
Intercept	47.42	1	0.74	45.72	49.12
A-Xanthan gum 1.00	27.28	1	0.74	25.58	28.98
B-Gelatin 1.00	-15.40	1	0.74	-17.10	-13.70
AB-0.73	1	0.74	-2.43	0.97	1.00

Final Equation in Terms of Coded Factors:

$$\begin{aligned} \text{disolusi} &= \\ +47.42 & \\ +27.28 & * A \\ -15.40 & * B \\ -0.73 & * A * B \end{aligned}$$

Final Equation in Terms of Actual Factors:

$$\begin{aligned} \text{disolusi} &= \\ +27.96354 & \\ +14.18562 & * \text{Xanthan gum} \\ -7.15354 & * \text{Gelatin} \\ -0.18229 & * \text{Xanthan gum} * \text{Gelatin} \end{aligned}$$