

LAMPIRAN A
PERHITUNGAN STATISTIK UNTUK MENGETAHUI
PERBEDAAN BERMAKNA ANTAR PERSAMAAN REGRESI

Data kurva baku Atenolol dalam larutan dapar fosfat isotonis pH 6,8
 pengujian 1

Konsentrasi ($\mu\text{g/mL}$)	Serapan (A)	X^2	Y^2	XY
1,01	0,029	1,0201	0,0008	0,0293
3,03	0,031	9,1809	0,0010	0,0939
5,05	0,045	25,5025	0,0020	0,2273
15,15	0,104	229,5225	0,0108	1,5756
25,25	0,159	637,5625	0,0253	4,0148
35,35	0,191	1249,6225	0,0365	6,7519
50,5	0,266	2550,25	0,0708	13,4330
65,65	0,35	4309,9225	0,1225	22,9775
80,8	0,424	6528,64	0,1798	34,2592
95,95	0,485	9206,4025	0,2352	46,5358
		$\Sigma = 24747,626$	$\Sigma = 0,6847$	$\Sigma = 129,8981$

Data kurva baku Atenolol dalam larutan dapar fosfat isotonis pH 6,8
 pengujian 2

Konsentrasi ($\mu\text{g/mL}$)	Serapan (A)	X^2	Y^2	XY
1,01	0,017	1,0201	0,0003	0,0172
3,03	0,021	9,1809	0,0004	0,0636
5,05	0,024	25,5025	0,0006	0,1212
15,15	0,077	229,5225	0,0059	1,1666
25,25	0,128	637,5625	0,0164	3,2320
35,35	0,176	1249,6225	0,0310	6,2216
50,5	0,252	2550,25	0,0635	12,7260
65,65	0,321	4309,9225	0,1030	21,0737
80,8	0,391	6528,64	0,1529	31,5928
95,95	0,462	9206,4025	0,2134	44,3289
		$\Sigma = 24747,626$	$\Sigma = 0,5875$	$\Sigma = 120,5435$

Data kurva baku Atenolol dalam larutan dapar fosfat isotonis pH 6,8
pengujian 3

Konsentrasi ($\mu\text{g/mL}$)	Serapan (A)	X^2	Y^2	XY
1,01	0,024	1,0201	0,0006	0,0242
3,03	0,034	9,1809	0,0012	0,1030
5,05	0,051	25,5025	0,0026	0,2576
15,15	0,089	229,5225	0,0079	1,3484
25,25	0,142	637,5625	0,0202	3,5855
35,35	0,191	1249,6225	0,0365	6,7519
50,5	0,258	2550,25	0,0666	13,0290
65,65	0,338	4309,9225	0,1142	22,1897
80,8	0,41	6528,64	0,1681	33,1280
95,95	0,482	9206,4025	0,2323	46,2479
		$\Sigma = 24747,626$	$\Sigma = 0,6501$	$\Sigma = 126,6651$

	ΣX^2	ΣXY	ΣY^2	N	SSi	RDF
Regresi I	24747,626	129,8981	0,6847	10	0,6794	9
Regresi II	24747,626	120,5435	0,5875	10	0,5826	9
Regresi III	24747,626	126,6651	0,6501	10	0,6450	9
	74242,878	377,1067	1,9223		1,9070	

$$\begin{aligned} \text{SSc} &= \Sigma Y_c^2 - [(\Sigma XY_c) / \Sigma X_c] \\ &= 1,9223 - [377,1067 / 74242,878] \\ &= 1,9172 \end{aligned}$$

$$\begin{aligned} \text{SSp} &= \text{SS1} + \text{SS2} + \text{SS3} \\ &= 0,6794 + 0,5826 + 0,6450 \\ &= 1,907 \end{aligned}$$

$$\begin{aligned} F &= (\text{SSc} - \text{SSp} / k - 1) / (\text{SSp} / 27) \\ &= ((1,9172 - 1,907) / (3 - 1)) / (1,907 / 27) \\ &= 0,0722 \end{aligned}$$

$$F_{\text{tabel}} = 3,35$$

$$F_{\text{hitung}} (0,0722) < F_{\text{tabel}} (3,35)$$

LAMPIRAN B
PERHITUNGAN AKURASI DAN PRESISI

Data Akurasi

Replikasi	Kadar (%)	Serapan (A)	C sampel (ppm)	C teoritis (ppm)	%Perolehan kembali
1	80	0,083	15,974	16,080	99,34
	100	0,102	19,961	20,200	98,82
	120	0,121	23,947	24,000	99,78
2	80	0,084	16,184	16,020	101,03
	100	0,104	20,381	20,200	100,89
	120	0,124	24,577	24,240	101,39
3	80	0,083	15,974	16,180	98,73
	100	0,105	20,171	20,280	99,46
	120	0,124	24,577	24,400	100,72

Data Presisi

Konsentrasi	Replikasi	Serapan (A)	C sampel (ppm)	C teoritis (ppm)	% perolehan kembali
Kadar 100%	1	0,102	19,961	20,200	98,82
	2	0,104	20,381	20,280	100,50
	3	0,104	20,381	20,200	100,89
	4	0,103	20,171	20,280	99,46
	5	0,102	19,961	20,080	99,41
	6	0,105	20,590	20,320	101,33
				Rata-rata	100,07
				SD	0,98
				KV	0,97

Contoh perhitungan :

Dari hasil serapan dimasukkan kedalam persamaan kurva baku terpilih yaitu :

$$y = 0,0069 + 4,7662 \cdot 10^{-3}x$$

Dimana :

y = Serapan

x = Konsentrasi teramati

Kemudian hitung % perolehan kembali dengan rumus :

$$\frac{C_{\text{sampel}}}{C_{\text{teoritis}}} \times 100\%$$

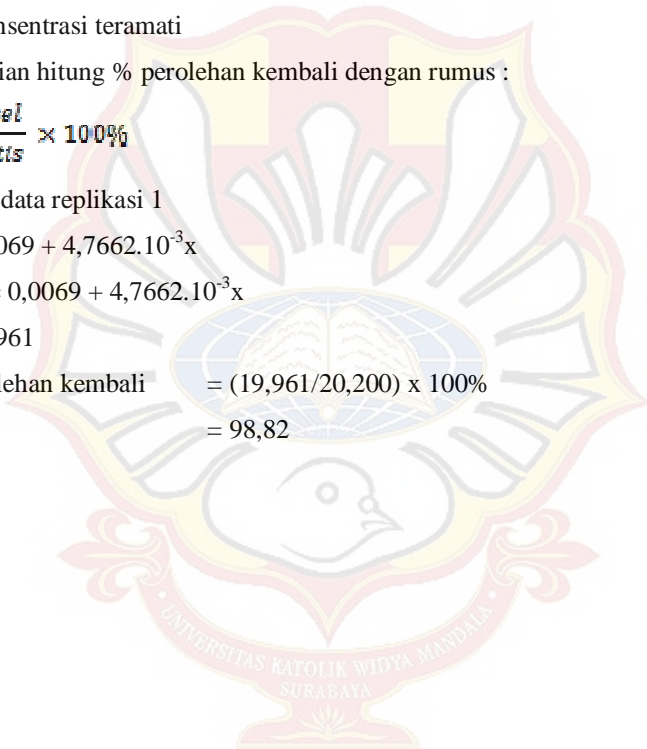
Misal : data replikasi 1

$$y = 0,0069 + 4,7662 \cdot 10^{-3}x$$

$$0,102 = 0,0069 + 4,7662 \cdot 10^{-3}x$$

$$x = 19,961$$

$$\begin{aligned} \text{\% perolehan kembali} &= (19,961/20,200) \times 100\% \\ &= 98,82 \end{aligned}$$



LAMPIRAN C

Perhitungan Hasil Uji Penetapan Kadar Film Atenolol

Formula	Replikasi	Serapan (A)	C (ppm)	C (mg/cm ²)	C teoritis	Kadar (%)	Rata2 Kadar	SD	KV	Penimbangan (mg)
F1	1	0,105	20,590	1,030	1,002	102,797	103,488	1,849	1,787	91,7
	2	0,104	20,381	1,019	0,998	102,084				91,4
	3	0,107	21,010	1,050	0,995	105,583				91,1
F2	1	0,105	20,590	1,030	1,004	102,573	101,342	1,816	1,792	91,9
	2	0,101	19,751	0,988	0,995	99,257				91,1
	3	0,104	20,381	1,019	0,997	102,195				91,3
F3	1	0,102	19,961	0,998	1,002	99,655	101,624	1,732	1,704	91,7
	2	0,104	20,381	1,019	0,996	102,307				91,2
	3	0,105	20,590	1,030	1,000	102,909				91,6
F4	1	0,101	19,751	0,988	0,999	98,823	100,885	1,794	1,778	91,5
	2	0,104	20,381	1,019	1,002	101,750				91,7
	3	0,104	20,381	1,019	0,998	102,084				91,4

$$C(\text{ppm}) = (\text{Serapan} - a) / b$$

$$= (0,105 - 0,006863439) / 0,00476615$$

$$= 20,590$$

Nilai a dan b berasal dari perhitungan regresi linear pada hari ke-2.

Cteoritis = Penimbangan / Luas sediaan

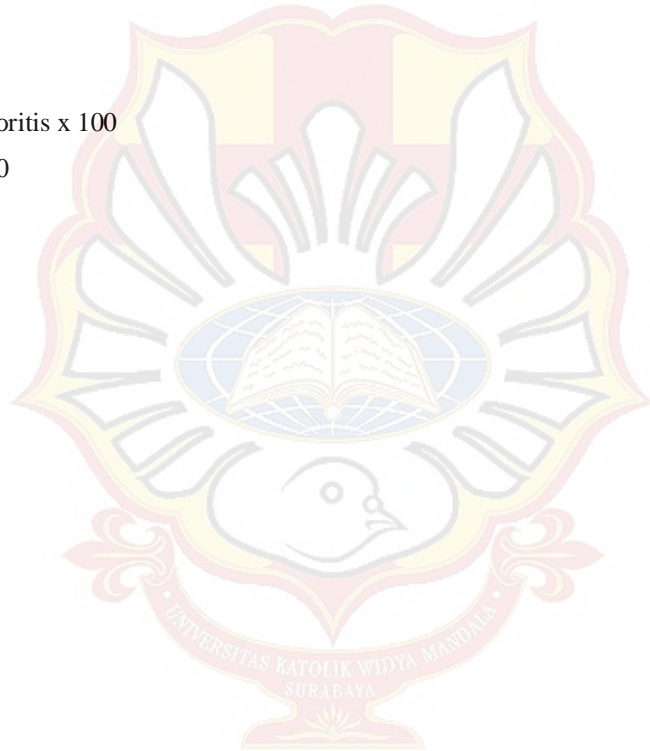
$$= 91,7 / 91,5624$$

$$= 1,002$$

% Kadar = $C(\text{mg}/\text{cm}^2) / C \text{ teoritis} \times 100$

$$= 1,030 / 1,002 \times 100$$

$$= 102,797 \%$$



LAMPIRAN D

Perhitungan Hasil Uji Homogenitas Film Atenolol

F	R	Absorbansi (A)			Konsentrasi (mg/cm ²)			C teoritis	Kadar (%)			Kadar rata-rata (%)	SD	KV
		Titik 1	Titik 2	Titik 3	Titik 1	Titik 2	Titik 3		Titik 1	Titik 2	Titik 3			
F1	1	0,105	0,103	0,105	1,030	1,009	1,030	1,002	102,797	100,702	102,797	102,099	1,210	1,185
	2	0,104	0,105	0,107	1,019	1,030	1,050	0,998	102,084	103,135	105,236	103,485	1,605	1,551
	3	0,107	0,108	0,105	1,050	1,061	1,030	0,995	105,583	106,637	103,474	105,231	1,611	1,531
F2	1	0,105	0,102	0,103	1,030	0,998	1,009	1,004	102,573	99,438	100,483	100,831	1,597	1,583
	2	0,101	0,103	0,100	0,988	1,009	0,977	0,995	99,257	101,365	98,202	99,608	1,611	1,617
	3	0,104	0,106	0,106	1,019	1,040	1,040	0,997	102,195	104,300	104,300	103,598	1,215	1,173
F3	1	0,102	0,101	0,104	0,998	0,988	1,019	1,002	99,655	98,607	101,750	100,004	1,600	1,600
	2	0,104	0,105	0,102	1,019	1,030	0,998	0,996	102,307	103,361	100,201	101,956	1,609	1,578
	3	0,105	0,103	0,106	1,030	1,009	1,040	1,000	102,909	100,812	103,958	102,560	1,602	1,562
F4	1	0,101	0,100	0,103	0,988	0,977	1,009	0,999	98,823	97,773	100,922	99,173	1,604	1,617
	2	0,104	0,102	0,101	1,019	0,998	0,988	1,002	101,750	99,655	98,607	100,004	1,600	1,600
	3	0,104	0,102	0,105	1,019	0,998	1,030	0,998	102,084	99,982	103,135	101,733	1,605	1,578

Keterangan :

F = Formula

R = Replikasi

Titik 1,2 dan 3 = Pengambilan sediaan pada tiga titik/tempat yang berbeda

LAMPIRAN E

Perhitungan Hasil Uji Indeks Pengembangan

Formula 1			
Replikasi	W1 (gram)	W2 (gram)	Indeks Pengembangan
1	0,0583	0,1403	1,406
2	0,0571	0,1386	1,427
3	0,0580	0,1398	1,410
Rata-rata \pm SD			1.415 \pm 0.011

Formula 2			
Replikasi	W1 (gram)	W2 (gram)	Indeks Pengembangan
1	0,0805	0,2452	2,046
2	0,0958	0,2814	1,914
3	0,1009	0,2995	1,968
Rata-rata \pm SD			1.976 \pm 0.066

Formula 3			
Replikasi	W1 (gram)	W2 (gram)	Indeks Pengembangan
1	0,0530	0,1941	2,662
2	0,0802	0,2871	2,579
3	0,0688	0,2604	2,785
Rata-rata \pm SD			2,675 \pm 0,104

Formula 4			
Replikasi	W1 (gram)	W2 (gram)	Indeks Pengembangan
1	0,1172	0,4652	1,271
2	0,1069	0,4489	1,166
3	0,1093	0,4501	1,369
Rata-rata \pm SD			3.096 \pm 0.117

Keterangan :

W1 = Berat awal sediaan film

W2 = Berat sediaan film setelah mengembang

LAMPIRAN F

Perhitungan Hasil Uji Lama Merekat

Formula	Replikasi (menit)			Rata-rata \pm SD
	1	2	3	
F1	110	105	118	111,000 \pm 6,557
F2	179	169	133	173,667 \pm 5,033
F3	239	230	210	226,333 \pm 14,844
F4	250	261	255	255,333 \pm 5,508



LAMPIRAN G
DATA HASIL UJI PELEPASAN ATENOLOL
PELEPASAN FORMULA 1

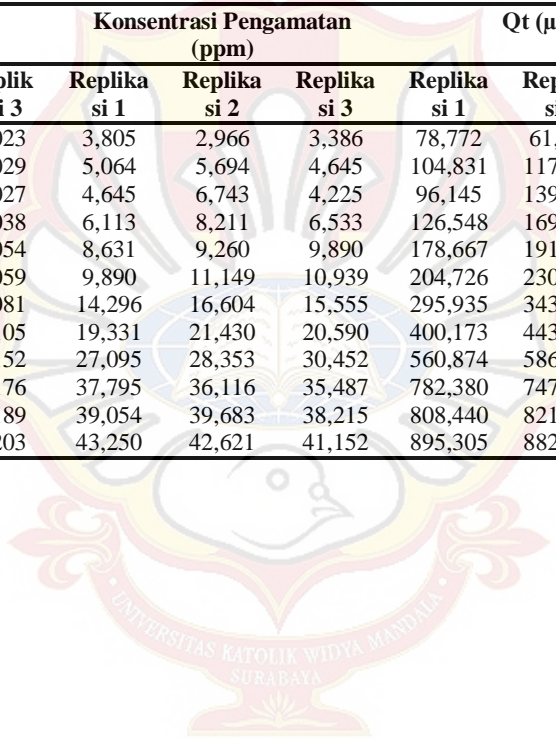
t (jam)	Serapan (A)			Konsentrasi Pengamatan (ppm)			Qt ($\mu\text{g}/\text{cm}^2$)			Qt rata-rata	SD
	Replika si 1	Replika si 2	Replika si 3	Replika si 1	Replika si 2	Replika si 3	Replika si 1	Replika si 2	Replika si 3		
0,083	0,028	0,025	0,021	4,435	3,805	2,966	91,802	78,772	61,399	77,324	15,253
0,167	0,035	0,031	0,03	5,903	5,064	4,854	122,204	104,831	100,488	109,175	11,491
0,250	0,036	0,026	0,029	6,113	4,015	4,645	126,548	83,115	96,145	101,936	22,288
0,333	0,034	0,054	0,047	5,694	9,890	8,421	117,861	204,726	174,324	165,637	44,079
0,417	0,06	0,056	0,065	11,149	10,309	12,198	230,786	213,413	252,502	232,234	19,585
0,500	0,065	0,074	0,061	12,198	14,086	11,359	252,502	291,592	235,129	259,741	28,919
1,000	0,102	0,094	0,101	19,961	18,282	19,751	413,203	378,457	408,860	400,173	18,932
2,000	0,170	0,158	0,154	34,228	31,710	30,871	708,545	656,426	639,053	668,008	36,165
3,000	0,189	0,174	0,180	38,215	35,067	36,326	791,067	725,918	751,977	756,321	32,791
4,000	0,195	0,189	0,191	39,473	38,215	38,634	817,126	791,067	799,753	802,649	13,269
5,000	0,229	0,211	0,218	46,607	42,830	44,299	964,797	886,619	917,021	922,812	39,410
6,000	0,232	0,224	0,229	47,237	45,558	46,607	977,827	943,081	964,797	961,902	17,553

65

$$\begin{aligned}
 Q_t &= (65 \times C_{\text{pengamatan}}) / 3,14 \\
 &= (65 \times 4,435) / 3,14 \\
 &= 91,802
 \end{aligned}$$

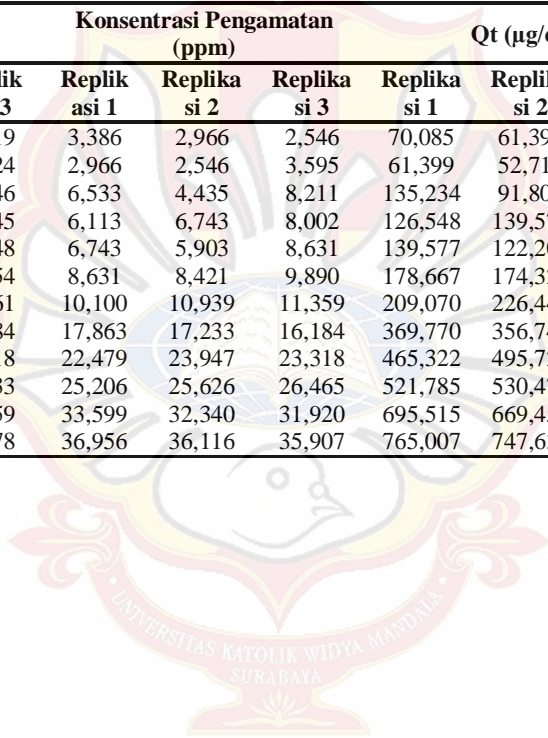
Pelepasan Formula 2

t (jam)	Serapan (A)			Konsentrasi Pengamatan (ppm)			Qt ($\mu\text{g}/\text{cm}^2$)			Qt rata-rata	SD
	Replika si 1	Replika si 2	Replik asi 3	Replika si 1	Replika si 2	Replika si 3	Replika si 1	Replika si 2	Replika si 3		
0,083	0,025	0,021	0,023	3,805	2,966	3,386	78,772	61,399	70,085	70,085	8,687
0,167	0,031	0,034	0,029	5,064	5,694	4,645	104,831	117,861	96,145	106,279	10,930
0,250	0,029	0,039	0,027	4,645	6,743	4,225	96,145	139,577	87,458	107,727	27,923
0,333	0,036	0,046	0,038	6,113	8,211	6,533	126,548	169,980	135,234	143,921	22,982
0,417	0,048	0,051	0,054	8,631	9,260	9,890	178,667	191,697	204,726	191,697	13,030
0,500	0,054	0,060	0,059	9,890	11,149	10,939	204,726	230,786	226,443	220,652	13,962
1,000	0,075	0,086	0,081	14,296	16,604	15,555	295,935	343,711	321,994	320,547	23,921
2,000	0,099	0,109	0,105	19,331	21,430	20,590	400,173	443,606	426,233	423,337	21,861
3,000	0,136	0,142	0,152	27,095	28,353	30,452	560,874	586,933	630,366	592,724	35,106
4,000	0,187	0,179	0,176	37,795	36,116	35,487	782,380	747,634	734,604	754,873	24,697
5,000	0,193	0,196	0,189	39,054	39,683	38,215	808,440	821,470	791,067	806,992	15,253
6,000	0,213	0,210	0,203	43,250	42,621	41,152	895,305	882,275	851,872	876,484	22,288



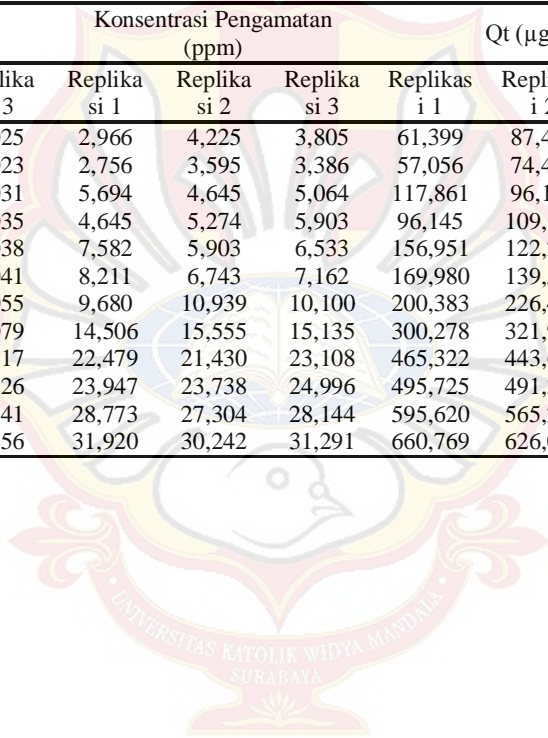
Pelepasan Formula 3

t (jam)	Serapan (A)			Konsentrasi Pengamatan (ppm)			Qt ($\mu\text{g}/\text{cm}^2$)			Qt rata- rata	SD
	Replika si 1	Replika si 2	Replik asi 3	Replik asi 1	Replika si 2	Replika si 3	Replika si 1	Replika si 2	Replik asi 3		
0,083	0,023	0,021	0,019	3,386	2,966	2,546	70,085	61,399	52,712	61,399	8,687
0,167	0,021	0,019	0,024	2,966	2,546	3,595	61,399	52,712	74,429	62,847	10,930
0,250	0,038	0,028	0,046	6,533	4,435	8,211	135,234	91,802	169,980	132,339	39,170
0,333	0,036	0,039	0,045	6,113	6,743	8,002	126,548	139,577	165,637	143,921	19,903
0,417	0,039	0,035	0,048	6,743	5,903	8,631	139,577	122,204	178,667	146,816	28,919
0,500	0,048	0,047	0,054	8,631	8,421	9,890	178,667	174,324	204,726	185,906	16,443
1,000	0,055	0,059	0,061	10,100	10,939	11,359	209,070	226,443	235,129	223,547	13,269
2,000	0,092	0,089	0,084	17,863	17,233	16,184	369,770	356,741	335,024	353,845	17,553
3,000	0,114	0,121	0,118	22,479	23,947	23,318	465,322	495,725	482,695	481,247	15,253
4,000	0,127	0,129	0,133	25,206	25,626	26,465	521,785	530,471	547,844	533,367	13,269
5,000	0,167	0,161	0,159	33,599	32,340	31,920	695,515	669,455	660,769	675,246	18,082
6,000	0,183	0,179	0,178	36,956	36,116	35,907	765,007	747,634	743,291	751,977	11,491



Pelepasan Formula 4

t (jam)	Serapan (A)			Konsentrasi Pengamatan (ppm)			Qt ($\mu\text{g}/\text{cm}^2$)			Qt rata-rata	SD
	Replika si 1	Replika si 2	Replika si 3	Replika si 1	Replika si 2	Replika si 3	Replikas i 1	Replikas i 2	Replikas i 3		
0,083	0,021	0,027	0,025	2,966	4,225	3,805	61,399	87,458	78,772	75,876	13,269
0,167	0,020	0,024	0,023	2,756	3,595	3,386	57,056	74,429	70,085	67,190	9,041
0,250	0,034	0,029	0,031	5,694	4,645	5,064	117,861	96,145	104,831	106,279	10,930
0,333	0,029	0,032	0,035	4,645	5,274	5,903	96,145	109,175	122,204	109,175	13,030
0,417	0,043	0,035	0,038	7,582	5,903	6,533	156,951	122,204	135,234	138,130	17,553
0,500	0,046	0,039	0,041	8,211	6,743	7,162	169,980	139,577	148,264	152,607	15,660
1,000	0,053	0,059	0,055	9,680	10,939	10,100	200,383	226,443	209,070	211,965	13,269
2,000	0,076	0,081	0,079	14,506	15,555	15,135	300,278	321,994	313,308	311,860	10,930
3,000	0,114	0,109	0,117	22,479	21,430	23,108	465,322	443,606	478,352	462,427	17,553
4,000	0,121	0,120	0,126	23,947	23,738	24,996	495,725	491,382	517,441	501,516	13,962
5,000	0,144	0,137	0,141	28,773	27,304	28,144	595,620	565,217	582,590	581,142	15,253
6,000	0,159	0,151	0,156	31,920	30,242	31,291	660,769	626,023	647,739	644,844	17,553



LAMPIRAN H

HASIL UJI ANOVA INDEKS PENGEMBANGAN DENGAN *DESIGN EXPERT*®

Response 1 Indeks pengembangan 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	4.99	3	1.66	230.25	< 0.0001
significant					
A-Natrium Alginat	4.25	1	4.25	588.55	< 0.0001
B-Gliserin	0.72	1	0.72	100.10	< 0.0001
AB	0.015	1	0.015	2.08	0.1868
Pure Error	0.058	8	7.220E-003		
Cor Total	5.05	11			

The Model F-value of 230.25 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.

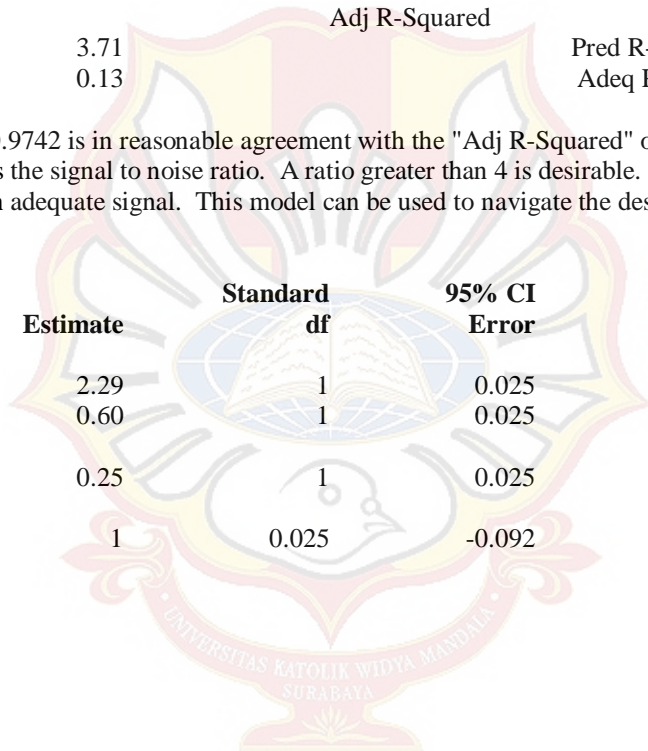
Values greater than 0.1000 indicate the model terms are not significant.

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

Std. Dev.	0.085	R-Squared	0.9886
Mean2.29		Adj R-Squared	0.9843
C.V. %	3.71	Pred R-Squared	0.9742
PRESS	0.13	Adeq Precision	34.265

The "Pred R-Squared" of 0.9742 is in reasonable agreement with the "Adj R-Squared" of 0.9843. "Adeq Precision" measures the signal to noise ratio. A ratio greater than 4 is desirable. Your ratio of 34.265 indicates an adequate signal. This model can be used to navigate the design space.

Factor	Coefficient	Standard Estimate	df	95% CI Error	95% CI	
	VIF				Low	High
Intercept		2.29	1	0.025	2.23	2.35
A-Natrium Alginat		0.60	1	0.025	0.54	0.65
B-Gliserin		0.25	1	0.025	0.19	0.30
AB-0.035		1	0.025	-0.092	0.021	1.00



Final Equation in Terms of Coded Factors:

$$\begin{aligned} \text{Indeks Pengembangan} &= \\ +2.29 & \\ +0.60 & \quad * A \\ +0.25 & \quad * B \\ -0.035 & \quad * A * B \end{aligned}$$

Final Equation in Terms of Actual Factors:

$$\begin{aligned} \text{Indeks Pengembangan} &= \\ +2.29025 & \\ +0.59508 & \quad * \text{Natrium Alginat} \\ +0.24542 & \quad * \text{Gliserin} \\ -0.035417 & \quad * \text{Natrium Alginat} * \text{Gliserin} \end{aligned}$$

71

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 I

Hasil Uji Anova Lama Merekat dengan *Design expert*®

Response 2 Lama merekات

ANOVA for selected factorial model

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

Source	Sum of Squares	df	Mean F Square	p-value Value	Prob > F
Model	38092.25	3	12697.4257.78	< 0.0001	significant
A-Natrium Alginat	33180.08	1	33180.08	150.99	< 0.0001
B-gliserin	4602.08	1	4602.0820.94	0.0018	
AB	310.08	1	310.08	1.41	0.2689
Pure Error	1758.00	8	219.75		
Cor Total	39850.25	11			

The Model F-value of 57.78 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.	14.82	R-Squared	0.9559
Mean	188.25	Adj R-Squared	0.9393
C.V. %	7.87	Pred R-Squared	0.9007
PRESS	3955.50	Adeq Precision	16.864

The "Pred R-Squared" of 0.9007 is in reasonable agreement with the "Adj R-Squared" of 0.9393.

"Adeq Precision" measures the signal to noise ratio. A ratio greater than 4 is desirable. Your ratio of 16.864 indicates an adequate signal. This model can be used to navigate the design space.

Factor	Coefficient		Standard Error	95% CI		VIF
	Estimate	df		Low	High	
Intercept	188.25	1	4.28	178.38	198.12	
A-Natrium Alginat	52.58	1	4.28	42.72	62.45	1.00
B-gliserin	19.58	1	4.28	9.72	29.45	1.00
AB	-5.08	1	4.28	-14.95	4.78	1.00

Final Equation in Terms of Coded Factors:

$$\begin{aligned}
 &\text{lama merekat} = \\
 &+188.25 \\
 &+52.58 * A \\
 &+19.58 * B \\
 &-5.08 * A * B
 \end{aligned}$$

Final Equation in Terms of Actual Factors:

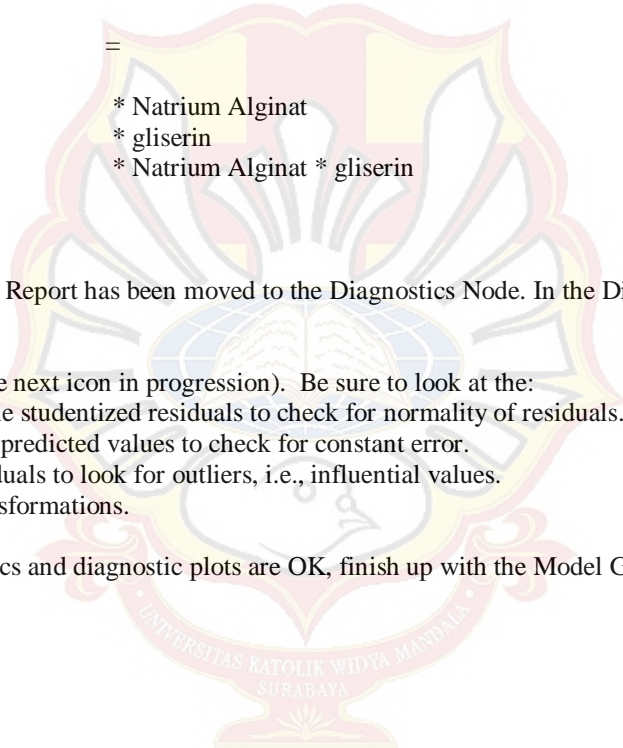
$$\begin{aligned} &\text{lama merekat} \\ &+188.25000 \\ &+52.58333 \\ &+19.58333 \\ &-5.08333 \end{aligned} = \begin{aligned} & \\ &* \text{Natrium Alginat} \\ &* \text{gliserin} \\ &* \text{Natrium Alginat} * \text{gliserin} \end{aligned}$$

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 J

Hasil Uji Anova Pelepasan dengan *Design expert*®

Response 4 Pelepasan

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	5821.99	3	1940.66	115.13	< 0.0001	significant
A-Natrium Alginat	5121.20	1	5121.20	303.81	< 0.0001	
B-gliserin	697.69	1	697.69	41.39	0.0002	
AB	3.10	1	3.10	0.18	0.6793	
Pure Error	134.85	8	16.86			
Cor Total	5956.84	11				

The Model F-value of 115.13 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.	4.11	R-Squared	0.9774
Mean	127.58	Adj R-Squared	0.9689
C.V. %	3.22	Pred R-Squared	0.9491
PRESS	303.42	Adeq Precision	23.864

The "Pred R-Squared" of 0.9491 is in reasonable agreement with the "Adj R-Squared" of 0.9689.

"Adeq Precision" measures the signal to noise ratio. A ratio greater than 4 is desirable. Your ratio of 23.864 indicates an adequate signal. This model can be used to navigate the design space.

Factor	Coefficient	df	Standard	95% CI		VIF
	Estimate		Error	Low	High	
Intercept	127.58	1	1.19	124.84	130.31	
A-Natrium Alginat	-20.66	1	1.19	-23.39	-17.93	1.00
B-gliserin	-7.63	1	1.19	-10.36	-4.89	1.00
AB	0.51	1	1.19	-2.22	3.24	1.00

Final Equation in Terms of Coded Factors:

$$\begin{aligned}
 &\text{pelepasan} \\
 &= +127.58 \\
 &-20.66 * A \\
 &-7.63 * B \\
 &+0.51 * A * B
 \end{aligned}$$

Final Equation in Terms of Actual Factors:

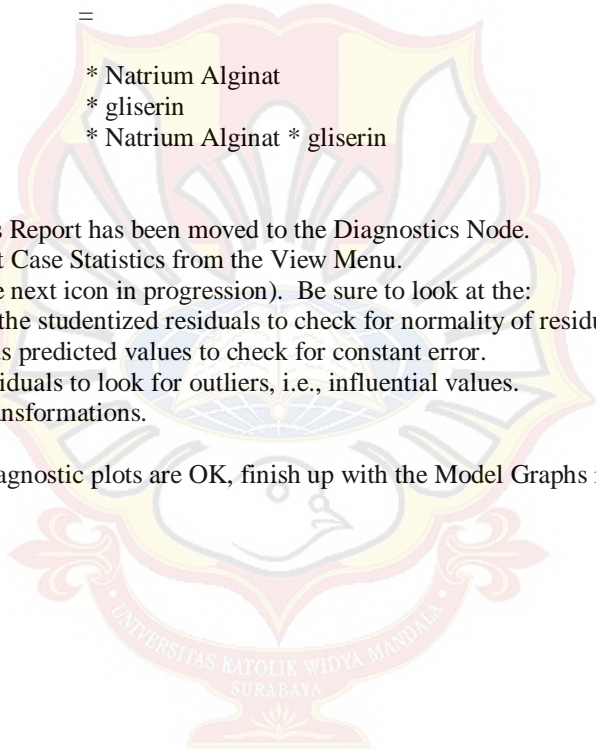
$$\begin{aligned} & \text{pelepasan} \\ & +127.57500 \\ & -20.65833 \\ & -7.62500 \\ & +0.50833 \end{aligned} = \begin{aligned} & * \text{Natrium Alginat} \\ & * \text{gliserin} \\ & * \text{Natrium Alginat} * \text{gliserin} \end{aligned}$$

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.
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- 4) Box-Cox plot for power transformations.

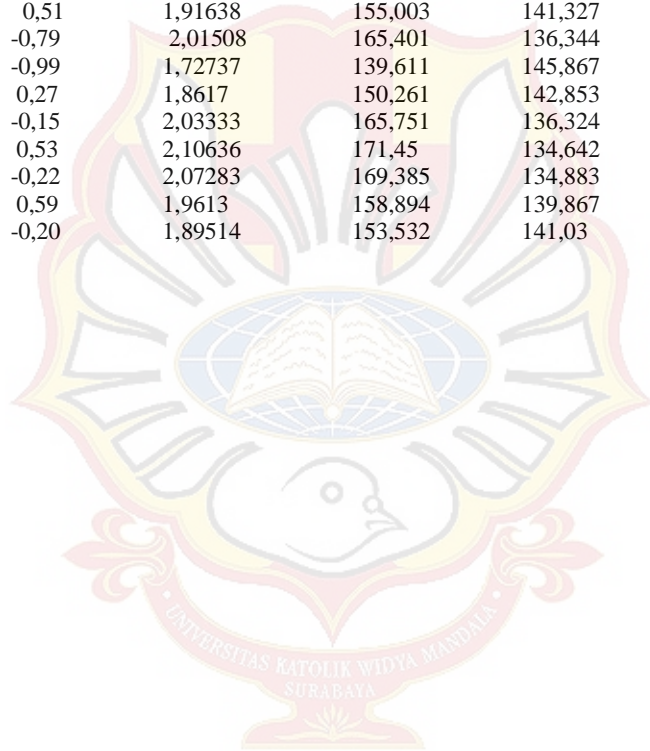
If all the model statistics and diagnostic plots are OK, finish up with the Model Graphs icon.



LAMPIRAN K
Formula Optimum Berdasarkan Metode *Design expert*®

Solutions Number	Natrium Alginat	Gliserin	Indeks Pengembangan	Lama Merekat	Pelepasan	Desirability
1	-0,80	-0,80	1,59518	127,263	150,527	1,000 Selected
2	-0,69	-0,86	1,64455	131,838	148,787	1,000
3	-1,00	1,00	1,976	160,333	140,1	1,000
4	-0,63	0,72	2,1123	171,887	134,728	1,000
5	-0,24	-0,87	1,92659	157,546	139,267	1,000
6	-0,32	-0,53	1,96661	160,435	138,218	1,000
7	-0,44	-0,10	2,00317	163,008	137,419	1,000
8	-0,65	0,17	1,94742	157,813	139,714	1,000
9	-0,77	0,29	1,91081	154,548	141,172	1,000
10	-0,95	0,54	1,87904	151,776	142,709	1,000
11	-0,53	0,34	2,06626	168,094	135,783	1,000
12	-0,51	-0,06	1,97077	160,089	138,587	1,000
13	-0,33	-0,31	2,01434	164,327	136,799	1,000
14	-0,74	0,30	1,93448	156,611	140,36	1,000
15	-0,28	-0,51	1,99397	162,865	137,301	1,000
16	-0,87	-0,08	1,75297	140,805	146,113	1,000
17	-0,79	0,49	1,95416	158,278	139,961	1,000
18	-0,90	-0,75	1,54677	122,808	152,232	1,000
19	-0,27	-0,75	1,93609	158,124	139,054	1,000
20	-0,36	-0,87	1,84777	150,364	141,925	1,000
21	-0,89	0,15	1,80039	144,911	144,813	1,000
22	-0,16	-0,91	1,96978	161,568	137,785	1,000
23	-0,80	0,71	2,00722	162,861	138,454	1,000
24	-0,24	-0,60	1,99791	63,399	137,087	1,000

25	-0,09	-0,80	2,0366	167,362	135,615	1,000
26	-0,86	0,51	1,91638	155,003	141,327	1,000
27	-0,13	-0,79	2,01508	165,401	136,344	1,000
28	-0,51	-0,99	1,72737	139,611	145,867	1,000
29	-0,84	0,27	1,8617	150,261	142,853	1,000
30	-0,37	-0,15	2,03333	165,751	136,324	1,000
31	-0,54	0,53	2,10636	171,45	134,642	1,000
32	-0,27	-0,22	2,07283	169,385	134,883	1,000
33	-0,82	0,59	1,9613	158,894	139,867	1,000
34	-0,57	-0,20	1,89514	153,532	141,03	1,000



LAMPIRAN L
Point Prediction dengan *Design expert*®

Factor	Name	Level	Low Level	High Level	Std. Dev.	Coding
A	Natrium Alginat	0.000	-1.00	1.00	0.000	Actual
B	Gliserin	0.000	-1.00	1.00	0.000	Actual

Response	Prediction	Std Dev	SE Mean	99% of Population						
				95% CI low	95% CI high	SE Pred	95% PI low	95% PI high	95% TI low	95% TI high
IP	2,29025	0,0849721	0,0245293	2,23369	2,34681	0,0884417	2,0863	2,4942	1,87014	2,71036
LM	188,25	14,824	4,27931	178,382	198,118	15,4293	152,67	223,83	114,959	261,541
P	127,575	4,10569	1,18521	124,842	130,308	4,27333	117,721	137,429	107,276	147,874

Keterangan :

IP = Indeks Pengembangan

LM = Lama Merekat

P = Pelepasan

LAMPIRAN M

Tabel Uji r

DEGREES OF FREEDOM (DF)	5 PERCENT	1 PERCENT	DEGREES OF FREEDOM (DF)	5 PERCENT	1 PERCENT
1	.997	.1000	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

LAMPIRAN N

Tabel Uji F

Tabel Distribusi F

Denominators for Degrees of Freedom	Numerator Degrees of Freedom								
	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	18.81	19.00	19.16	19.25	19.30	19.33	19.35	19.37	19.38
3	10.73	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

(Sumber: John E., 1992)

LAMPIRAN O
Hasil Uji Anova Penetapan Kadar

Anova : Single Factor

SUMMARY

<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>
Column 1	3	310.4637	103.4879	3.419211
Column 2	3	304.0254	101.3418	3.296778
Column 3	3	304.8715	101.6238	2.998791
Column 4	3	302.6559	100.8853	3.218669

ANOVA

<i>Source of Variation</i>	<i>SS</i>	<i>Df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	11.76536	3	3.921786	1.212913	0.365909	4.066181
Within Groups	25.8669	8	3.233362			
Total	37.63226	11				

LAMPIRAN P
Sertifikat Analisis Atenolol

calao

Wijaya

Certificate of Analysis

CAS NO. 29122-68-7 - HS NO. 2924.29.90.90

Product:	ATENOLOL	
Batch No.:	AM20110038 ✓	Mfg. date: March 2010 ✓
Quantity:	100 KG	Exp. date: February 2015 ✓
Test	Specifications	Results
Appearance	A white or almost white powder	Conform
Solubility	Sparsely soluble in water, soluble in ethanol, slightly soluble in methylene chloride.	Conform
Identification	Identification A, B, D a) Melting Point: 152°C to 155°C b) By UV: 1.15 TO 1.20 d) T.L.C. to compy	154 °C. Conform Conform
Appearance of solution	1.0% w/v solution in water should be clear & not more intensely coloured than degree 6 of the range of reference solutions of the most appropriate colour.	Conform
Optical rotation	+ 0.10° to - 0.10°	+ 0.007°
Chlorides	NMT 0.1%	< 0.1%
Loss on drying	NMT 0.5% w/w	0.21%
Sulfated ash	NMT 0.1% w/w	0.09%
Assay (On dry basis)	99.0 - 101.0% w/w	99.9%
Related substances	Any individual impurity: NMT 0.25% Total impurity: NMT 0.5%	0.05% 0.15%
Additional tests		
Bulk density (*)		
1) Untapped	Infractive	0.37 gm/ml
2) Tapped (By 50 strokes)		0.59 gm/ml
The product is conform to PIEP		
(*) Bulk density determined as per in-house treatment		

APPROVED

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Cap. Soc. € 360.000 i.v. - Reg. Imp. Milano 128110 - R.E.A. Milano 974688 - P. IVA/NT 07 02822040125

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