



LAMPIRAN

Lampiran 1

Tabel nilai r pada taraf signifikan 1% dan 5%

df	Confidence level for one-tailed test			
	.05	.025	.01	.005
	Confidence level for two-tailed test			
	.10	.05	.02	.01
2	.900	.950	.980	.990
3	.805	.878	.934	.959
4	.729	.811	.882	.917
5	.669	.754	.833	.874
6	.622	.707	.789	.834
7	.582	.666	.750	.798
8	.549	.632	.716	.765
9	.521	.602	.685	.735
10	.497	.576	.658	.708
11	.476	.553	.634	.684
12	.458	.532	.612	.661
13	.441	.514	.592	.641
14	.426	.497	.574	.623
15	.412	.482	.558	.606
16	.400	.468	.542	.590
17	.389	.456	.528	.575
18	.378	.444	.516	.561
19	.369	.433	.503	.549
20	.360	.423	.492	.537
21	.352	.413	.482	.526
22	.344	.404	.472	.515
23	.337	.396	.462	.505
24	.330	.388	.453	.496
25	.323	.381	.445	.487
26	.317	.374	.437	.479
27	.311	.367	.430	.471
28	.306	.361	.423	.463
29	.301	.355	.416	.456
30	.296	.349	.409	.449
35	.275	.325	.381	.418
40	.257	.304	.358	.393
45	.243	.288	.338	.372
50	.231	.273	.322	.354
60	.211	.250	.295	.325
80	.183	.217	.256	.283
100	.164	.195	.230	.254

Lampiran 2

Tabel nilai $F_{(0,05)}$

		Degrees of freedom for numerator variance (mean square)								
df	df	1	2	3	4	5	6	7	8	9
		1	2	3	4	5	6	7	8	9
2	.05	18.51	19.00	19.16	19.25	19.30	19.33	19.36	19.37	19.38
	.01	98.49	99.01	99.17	99.25	99.30	99.33	99.34	99.36	99.38
3	.05	10.13	9.55	9.28	9.12	9.01	8.94	8.88	8.84	8.81
	.01	34.12	30.81	29.46	28.71	28.24	27.91	27.67	27.49	27.34
4	.05	7.71	6.94	6.59	6.39	6.26	6.16	6.09	6.04	6.00
	.01	21.20	18.00	16.69	15.98	15.57	15.21	14.98	14.80	14.64
5	.05	6.61	5.79	5.41	5.19	5.05	4.95	4.88	4.82	4.78
	.01	16.26	13.27	12.06	11.39	10.97	10.67	10.45	10.27	10.13
6	.05	5.99	5.14	4.76	4.53	4.39	4.28	4.21	4.15	4.10
	.01	13.74	10.92	9.78	9.15	8.73	8.47	8.26	8.10	7.98
7	.05	5.59	4.74	4.35	4.12	3.97	3.87	3.79	3.73	3.68
	.01	12.25	9.55	8.43	7.83	7.44	7.19	7.00	6.84	6.71
8	.05	5.32	4.46	4.07	3.84	3.69	3.58	3.50	3.44	3.39
	.01	11.26	8.65	7.59	7.01	6.63	6.37	6.19	6.03	5.91
9	.05	5.12	4.26	3.86	3.63	3.48	3.37	3.29	3.23	3.18
	.01	10.56	8.04	6.99	6.42	6.06	5.80	5.62	5.47	5.35
10	.05	4.96	4.10	3.71	3.48	3.33	3.22	3.14	3.07	3.02
	.01	10.04	7.56	6.53	5.98	5.64	5.39	5.21	5.06	4.93
11	.05	4.84	3.98	3.59	3.36	3.20	3.09	3.01	2.95	2.90
	.01	9.65	7.20	6.22	5.67	5.32	5.07	4.88	4.74	4.63
12	.05	4.73	3.88	3.49	3.26	3.11	3.00	2.92	2.85	2.80
	.01	9.37	6.93	5.95	5.41	5.06	4.82	4.65	4.50	4.39
13	.05	4.67	3.80	3.41	3.18	3.02	2.92	2.84	2.77	2.72
	.01	9.07	6.70	5.74	5.20	4.86	4.62	4.44	4.30	4.19
14	.05	4.60	3.74	3.34	3.11	2.96	2.85	2.77	2.70	2.65
	.01	8.86	6.51	5.56	5.03	4.69	4.46	4.28	4.14	4.03
15	.05	4.54	3.68	3.29	3.06	2.90	2.79	2.70	2.64	2.59
	.01	8.68	6.36	5.42	4.89	4.56	4.32	4.14	4.00	3.89
16	.05	4.49	3.63	3.24	3.01	2.85	2.74	2.66	2.59	2.54
	.01	8.53	6.23	5.29	4.77	4.44	4.20	4.03	3.89	3.78
17	.05	4.45	3.59	3.20	2.96	2.81	2.70	2.62	2.55	2.50
	.01	8.40	6.11	5.18	4.67	4.34	4.10	3.93	3.79	3.68
18	.05	4.41	3.55	3.16	2.93	2.77	2.66	2.58	2.51	2.46
	.01	8.28	6.01	5.09	4.58	4.25	4.01	3.85	3.71	3.60
19	.05	4.38	3.52	3.13	2.90	2.74	2.63	2.55	2.48	2.43
	.01	8.16	5.93	5.01	4.50	4.17	3.94	3.77	3.63	3.52
20	.05	4.35	3.49	3.10	2.87	2.71	2.60	2.52	2.45	2.40
	.01	8.10	5.85	4.94	4.43	4.10	3.87	3.71	3.56	3.45
21	.05	4.32	3.47	3.07	2.84	2.68	2.57	2.49	2.42	2.37
	.01	8.02	5.78	4.87	4.37	4.04	3.81	3.65	3.51	3.40
22	.05	4.30	3.44	3.05	2.82	2.66	2.55	2.47	2.40	2.35
	.01	7.94	5.72	4.82	4.31	3.98	3.76	3.59	3.45	3.35
23	.05	4.28	3.42	3.03	2.80	2.64	2.53	2.45	2.38	2.32
	.01	7.88	5.66	4.76	4.26	3.94	3.71	3.54	3.41	3.30
24	.05	4.26	3.40	3.01	2.78	2.62	2.51	2.43	2.36	2.30
	.01	7.82	5.61	4.72	4.22	3.90	3.67	3.50	3.36	3.25
25	.05	4.24	3.38	2.99	2.76	2.60	2.49	2.41	2.34	2.28
	.01	7.77	5.57	4.68	4.18	3.86	3.63	3.46	3.32	3.21
26	.05	4.22	3.37	2.97	2.74	2.58	2.47	2.39	2.32	2.27
	.01	7.72	5.53	4.64	4.14	3.82	3.59	3.42	3.29	3.17
27	.05	4.21	3.35	2.96	2.73	2.57	2.46	2.37	2.30	2.25
	.01	7.68	5.49	4.60	4.11	3.79	3.56	3.39	3.26	3.14
28	.05	4.20	3.34	2.95	2.72	2.56	2.44	2.36	2.29	2.24
	.01	7.64	5.45	4.57	4.07	3.76	3.53	3.36	3.23	3.11
29	.05	4.18	3.33	2.93	2.70	2.54	2.43	2.35	2.28	2.22
	.01	7.60	5.42	4.54	4.04	3.73	3.50	3.32	3.20	3.08
30	.05	4.17	3.32	2.92	2.69	2.53	2.42	2.34	2.27	2.21
	.01	7.56	5.39	4.51	4.02	3.70	3.47	3.30	3.17	3.06
32	.05	4.15	3.30	2.90	2.67	2.51	2.40	2.32	2.25	2.19
	.01	7.50	5.34	4.46	3.97	3.66	3.42	3.25	3.12	3.01
36	.05	4.11	3.26	2.86	2.63	2.48	2.36	2.28	2.21	2.15
	.01	7.39	5.25	4.38	3.89	3.58	3.35	3.18	3.04	2.94
40	.05	4.08	3.23	2.83	2.60	2.45	2.34	2.26	2.19	2.12
	.01	7.31	5.18	4.31	3.82	3.51	3.29	3.12	2.99	2.88
46	.05	4.05	3.20	2.80	2.57	2.42	2.30	2.22	2.14	2.09
	.01	7.21	5.10	4.24	3.75	3.44	3.22	3.05	2.92	2.82
50	.05	4.03	3.18	2.78	2.55	2.40	2.28	2.20	2.13	2.06
	.01	7.08	4.98	4.13	3.64	3.34	3.12	2.95	2.82	2.72
100	.05	3.94	3.09	2.70	2.46	2.30	2.18	2.10	2.03	1.97
	.01	6.90	4.92	3.98	3.51	3.20	2.96	2.82	2.69	2.59
∞	.05	3.84	3.00	2.60	2.37	2.21	2.09	2.01	1.94	1.88
	.01	6.76	4.80	3.78	3.32	3.02	2.78	2.64	2.51	2.41

Lampiran 3

Tabel nilai Q (0,05)

Error df	1	3	4	5	6	7	8	9	10
1	17.97	16.91	16.21	15.64	15.11	14.61	14.12	13.64	13.17
2	16.01	15.00	14.35	13.82	13.32	12.83	12.35	11.87	11.40
3	14.56	13.59	12.98	12.48	11.99	11.51	11.03	10.55	10.07
4	13.73	12.79	12.21	11.73	11.25	10.77	10.29	9.81	9.33
5	13.14	12.23	11.67	11.20	10.72	10.24	9.76	9.28	8.80
6	12.68	11.79	11.24	10.77	10.29	9.81	9.33	8.85	8.37
7	12.31	11.44	10.90	10.43	9.95	9.47	8.99	8.51	8.03
8	12.00	11.14	10.61	10.14	9.66	9.18	8.70	8.22	7.74
9	11.75	10.90	10.37	9.90	9.42	8.94	8.46	7.98	7.50
10	11.54	10.70	10.17	9.70	9.22	8.74	8.26	7.78	7.30
11	11.36	10.53	10.00	9.53	9.05	8.57	8.09	7.61	7.13
12	11.21	10.38	9.85	9.38	8.90	8.42	7.94	7.46	6.98
13	11.08	10.25	9.72	9.25	8.77	8.29	7.81	7.33	6.85
14	10.96	10.13	9.60	9.13	8.65	8.17	7.69	7.21	6.73
15	10.85	10.02	9.49	9.02	8.54	8.06	7.58	7.10	6.62
16	10.75	9.92	9.39	8.92	8.44	7.96	7.48	7.00	6.52
17	10.66	9.83	9.30	8.83	8.35	7.87	7.39	6.91	6.43
18	10.58	9.75	9.22	8.75	8.27	7.79	7.31	6.83	6.35
19	10.51	9.68	9.15	8.68	8.20	7.72	7.24	6.76	6.28
20	10.44	9.61	9.08	8.61	8.13	7.65	7.17	6.69	6.21
24	10.28	9.45	8.92	8.45	7.97	7.49	7.01	6.53	6.05
30	10.13	9.30	8.77	8.30	7.82	7.34	6.86	6.38	5.90
40	9.97	9.14	8.61	8.14	7.66	7.18	6.70	6.22	5.74
60	9.80	8.97	8.44	7.97	7.49	7.01	6.53	6.05	5.57
120	9.62	8.79	8.26	7.79	7.31	6.83	6.35	5.87	5.39
∞	9.45	8.62	8.09	7.62	7.14	6.66	6.18	5.70	5.22

Error df	11	12	13	14	15	16	17	18	19	20
1	17.97	16.91	16.21	15.64	15.11	14.61	14.12	13.64	13.17	12.70
2	16.01	15.00	14.35	13.82	13.32	12.83	12.35	11.87	11.40	10.92
3	14.56	13.59	12.98	12.48	11.99	11.51	11.03	10.55	10.07	9.59
4	13.73	12.79	12.21	11.73	11.25	10.77	10.29	9.81	9.33	8.85
5	13.14	12.23	11.67	11.20	10.72	10.24	9.76	9.28	8.80	8.32
6	12.68	11.79	11.24	10.77	10.29	9.81	9.33	8.85	8.37	7.89
7	12.31	11.44	10.90	10.43	9.95	9.47	8.99	8.51	8.03	7.55
8	12.00	11.14	10.61	10.14	9.66	9.18	8.70	8.22	7.74	7.26
9	11.75	10.90	10.37	9.90	9.42	8.94	8.46	7.98	7.50	7.02
10	11.54	10.70	10.17	9.70	9.22	8.74	8.26	7.78	7.30	6.82
11	11.36	10.53	10.00	9.53	9.05	8.57	8.09	7.61	7.13	6.65
12	11.21	10.38	9.85	9.38	8.90	8.42	7.94	7.46	6.98	6.50
13	11.08	10.25	9.72	9.25	8.77	8.29	7.81	7.33	6.85	6.37
14	10.96	10.13	9.60	9.13	8.65	8.17	7.69	7.21	6.73	6.25
15	10.85	10.02	9.49	9.02	8.54	8.06	7.58	7.10	6.62	6.14
16	10.75	9.92	9.39	8.92	8.44	7.96	7.48	7.00	6.52	6.04
17	10.66	9.83	9.30	8.83	8.35	7.87	7.39	6.91	6.43	5.95
18	10.58	9.75	9.22	8.75	8.27	7.79	7.31	6.83	6.35	5.87
19	10.51	9.68	9.15	8.68	8.20	7.72	7.24	6.76	6.28	5.80
20	10.44	9.61	9.08	8.61	8.13	7.65	7.17	6.69	6.21	5.73
24	10.28	9.45	8.92	8.45	7.97	7.49	7.01	6.53	6.05	5.57
30	10.13	9.30	8.77	8.30	7.82	7.34	6.86	6.38	5.90	5.42
40	9.97	9.14	8.61	8.14	7.66	7.18	6.70	6.22	5.74	5.26
60	9.80	8.97	8.44	7.97	7.49	7.01	6.53	6.05	5.57	5.09
120	9.62	8.79	8.26	7.79	7.31	6.83	6.35	5.87	5.39	4.91
∞	9.45	8.62	8.09	7.62	7.14	6.66	6.18	5.70	5.22	4.74

Lampiran 4

Sertifikat analisis Aloe vera Gel TEX**Art. No. 20099**

Aloe vera Gel TEX is a natural juice (gel) from the fleshy leaves of the Aloe vera plant which grows in Texas.

Aloe vera Gel TEX has a moisturising effect probably caused by the amino acids and the carbohydrates contained in aloe vera gel.

In particular the anti-inflammatory effect of Aloe vera Gel is of importance in cosmetics. This effect is due to magnesium-lactate (inhibitor of histamine-decarboxylase which thereby prevents the formation of histamine). In addition, a newly found substance, Aloicin, inhibits the prostaglandin synthesis and acts as an anti-irritant.

Specifications

Specific Density (20°C)	:	0.890 - 1.020
Refraction Index (20°C)	:	1.320 - 1.350
pH-Value (20°C)	:	3 - 6
Extraction vehicle	:	Water
Preservation	:	Potassium Sorbate, Polyaminopropyl Biguanide
Microbiology	:	Bacteria: < 100 cfu/ml, Moulds: < 10 cfu/ml
INCI Name (*) = INCI EU	:	Aloe barbadensis Gel (Aloe barbadensis)
Colour / Odour	:	Almost colourless liquid with characteristic smell
Application	:	As additive in various cosmetic preparations - 5 - 10 % after-sun preparations baby-care products depilatory creams sensitive skin products
Storage	:	Dark and cool in closed containers for approx. 6 months

PE TRITUNGGAAL ANTILANGKAP

06/99

This data sheet replaces the earlier version of 03/93, 05/96, 03/99

Above mentioned specifications are based on our latest information. They do not release the buyer from performing a quality check. No totally binding promise regarding the suitability of the product for a specific use may be given. Freedom from patent restrictions must not be assumed.

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Lampiran 5

**Contoh perhitungan pengukuran konsentrasi pada uji homogenitas formula I
(replikasi 1)**

A	Konsentrasi (X) ppm	$(X - \bar{X})^2$
0,325	3079,60	10922,34
0,320	3030,30	3048,13
0,312	2951,42	560,27
0,303	2862,69	12633,76
0,312	2951,42	560,27
Total	$\bar{X}=2975,09$	$\Sigma=27724,78$

$$SD = \sqrt{\frac{\Sigma (X - \bar{X})^2}{n-1}} = \sqrt{\frac{27724,78}{4}} = 83,25$$

$$KV = \frac{SD}{\bar{X}} \times 100 \% = \frac{83,25}{2975,09} \times 100 \% = 2,80 \%$$

Contoh perhitungan nilai SPF

Contoh perhitungan nilai SPF dari sediaan krim tabir matahari dengan bahan aktif

Aloe vera Gel TEX adalah sebagai berikut (lihat tabel 4.18) :

1. Perhitungan serapan (A) 10 mg/l dengan cara :

Untuk penimbangan sampel 103,5 mg/10 ml (formula I replikasi 1) pada panjang gelombang 290,0 nm nilai serapan yang teramati pada spektrofotometer : 0,351.

$$\text{Maka nilai A 10 mg/l} = \frac{10 \text{ mg/l}}{10350 \text{ mg/l}} \times 0,351 = 3,39 \cdot 10^{-4}$$

2. Luas daerah di bawah kurva antara rentang panjang gelombang yang diamati

dihitung dengan rumus :

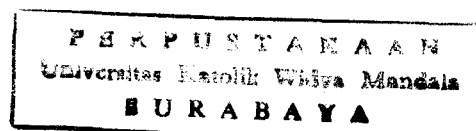
$$[AUC]_{\lambda_{p-2}}^{\lambda_p} = \frac{A_{p-2} + A_p}{2} (\alpha_p - \alpha_{p-2})$$

misalnya antara rentang panjang gelombang 290 nm-292,5 nm

$$[AUC]_{290}^{292,5} = \frac{3,39 \cdot 10^{-4} + 3,11 \cdot 10^{-4}}{2} (292,5 - 290)$$

Keseluruhan luas daerah di bawah kurva serapan diperoleh dengan cara menjumlahkan tiap luas daerah antara dua panjang gelombang yang berurutan, dari 290 nm hingga 320 nm.

$$\text{Jadi } \Sigma AUC = 80,60 \cdot 10^{-4}$$



2. Nilai SPF dihitung dengan rumus :

$$\text{Log SPF} = \frac{\sum \text{AUC}}{\lambda n - \lambda 1} \times 2$$

$$\log \text{ SPF} = \frac{80,60 \cdot 10^{-4}}{320-290} \times 2$$

$$\log \text{ SPF} = 5,37 \cdot 10^{-4}$$

$$\text{SPF} = 1,001238$$



Contoh perhitungan ukuran partikel

Contoh perhitungan ukuran partikel untuk formula I (15%) replikasi I

adalah :

$$n = 300$$

$$\begin{aligned}\text{Kelas} &= 1 + 3,3 \log n \\ &= 1 + 3,3 \log 300 \\ &= 9,17 \approx 9\end{aligned}$$

$$\begin{aligned}\text{Interval} &= \frac{d \text{ terbesar} - d \text{ terkecil}}{\text{Kelas}} \\ &= \frac{80 - 30}{9} \\ &= 5,55 \approx 5\end{aligned}$$

Kelas	D	Ln d	N	% n	% FKB	n.d	n.d ²	n.d ³
30-35	32.5	3.4812	33	11.00	11.00	1072.5	34856.25	1132828.13
36-41	38.5	3.6507	61	20.33	31.33	2348.5	90417.25	3481064.13
42-47	44.5	3.7955	0	0.00	31.33	0	0	0
48-53	50.5	3.9220	76	25.33	56.67	3838	193819	9787859.5
54-59	56.5	4.0342	0	0.00	56.67	0	0	0
60-65	62.5	4.1352	53	17.67	74.33	3312.5	207031.25	12939453.1
66-71	68.5	4.2268	40	13.33	87.67	2740	187690	12856765
72-77	74.5	4.3108	0	0.00	87.67	0	0	0
78-83	80.5	4.3883	37	12.33	100.00	2978.5	239769.25	19301424.6
			300			16290	953583	59499394.5

$$\begin{aligned}
 d_{vs} &= \frac{\sum n.d^3}{\sum n.d^2} \\
 &= \frac{59499394.5}{953583} \\
 &= 64,20 \mu m
 \end{aligned}$$

Lampiran 8

Perhitungan Anova nilai SPF krim tabir matahari

Replikasi	Formula I (15%)	Formula II (20%)	Formula III (25%)	Jumlah
1	1,001238	1,001573	1,001964	
2	1,001123	1,001123	1,002000	
3	1,001297	1,001590	1,001994	
N	3	3	3	9
Rata-rata	1,001219	1,001567	1,001986	
Total	3,003658	3,004701	3,005958	9,014317

$$\begin{aligned}
 JKT &= \{(1,001238)^2 + (1,001123)^2 + (1,001297)^2 + (1,001573)^2 + (1,001123)^2 + \\
 &\quad (1,001590)^2 + (1,001964)^2 + (1,002000)^2 + (1,001994)^2\} - (9,014317)^2 / 9 \\
 &= 9,028657676 - 9,028656775 \\
 &= 9,009.10^{-7}
 \end{aligned}$$

$$\begin{aligned}
 JKP &= \{(3,003658)^2 + (3,004701)^2 + (3,005958)^2\} / 3 - (9,014317)^2 / 9 \\
 &= 9,02865766 - 9,028656775 \\
 &= 8,85.10^{-7}
 \end{aligned}$$