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LAMPIRAN

Lampiran 1. CoA Larutan Ethanol p.a



Certificate of Analysis

1.00983.2500 Ethanol absolute for analysis EMSURE® ACS,ISO,Reag. Ph Eur
Batch K52687883

	Spec. Values		Batch Values	
Purity (GC)	≥ 99.9	%	99.9	%
Identity (IR)	conforms		conforms	
Appearance	conforms		conforms	
Color	≤ 10	Hazen	< 5	Hazen
Solubility in water	conforms		conforms	
Acidity or alkalinity	≤ 30	ppm	≤ 30	ppm
Titration acid	≤ 0.0002	meq/g	0.0001	meq/g
Titration base	≤ 0.0002	meq/g	< 0.0002	meq/g
Density (d 20 °C/20 °C)	0.790 - 0.793		0.791	
UV absorption	conforms		conforms	
Aldehydes (as Acetaldehyd)	≤ 0.001	%	≤ 0.001	%
Fusel oils	conforms		conforms	
Substances reducing potassium permanganate (as O)	≤ 0.0002	%	≤ 0.0002	%
Substances reducing permanganate (ACS)	conforms		conforms	
Carbonyl compounds (as CO)	≤ 0.003	%	≤ 0.003	%
Readily carbonizable substances	conforms		conforms	
Acetone, Isopropyl Alcohol (ACS)	conforms		conforms	
Acetone (GC)	≤ 0.001	%	< 0.001	%
Ethylmethylketone (GC)	≤ 0.02	%	< 0.01	%
Isoamyl alcohol (GC)	≤ 0.05	%	< 0.01	%
2-Propanol (GC)	≤ 0.01	%	< 0.01	%
Higher alcohols (GC)	≤ 0.01	%	< 0.01	%
Volatile impurities (GC) (Acetaldehyde and Acetal)	≤ 10	ppm	< 10	ppm
Volatile impurities (GC) (Benzene)	≤ 2	ppm	< 1	ppm
Volatile impurities (GC) (Methanol)	≤ 100	ppm	< 50	ppm
Volatile impurities (GC) (Total of other impurities)	≤ 300	ppm	< 100	ppm
Volatile impurities (GC) (disregard limit)	≤ 9	ppm	9	ppm
Chloride (Cl)	≤ 0.3	ppm	< 0.1	ppm
Nitrate (NO ₃)	≤ 0.3	ppm	< 0.1	ppm
Phosphate (PO ₄)	≤ 0.3	ppm	< 0.1	ppm
Sulfate (SO ₄)	≤ 0.3	ppm	< 0.1	ppm
Ag (Silver)	≤ 0.000002	%	≤ 0.000002	%
Al (Aluminium)	≤ 0.00005	%	≤ 0.00005	%
As (Arsenic)	≤ 0.000002	%	≤ 0.000002	%
Au (Gold)	≤ 0.000002	%	≤ 0.000002	%
Ba (Barium)	≤ 0.00001	%	≤ 0.00001	%
Be (Beryllium)	≤ 0.000002	%	≤ 0.000002	%
Bi (Bismuth)	≤ 0.000002	%	≤ 0.000002	%
Ca (Calcium)	≤ 0.00005	%	≤ 0.00005	%

Certificate of Analysis

1.00983.2500 Ethanol absolute for analysis EMSURE® ACS,ISO,Reag. Ph Eur
Batch K52687883

Cd (Cadmium)	≤ 0.000005	%	≤ 0.000005	%
Co (Cobalt)	≤ 0.000002	%	≤ 0.000002	%
Cr (Chromium)	≤ 0.000002	%	≤ 0.000002	%
Cu (Copper)	≤ 0.000002	%	≤ 0.000002	%
Fe (Iron)	≤ 0.00001	%	≤ 0.00001	%
Ga (Gallium)	≤ 0.000002	%	≤ 0.000002	%
In (Indium)	≤ 0.000002	%	≤ 0.000002	%
Li (Lithium)	≤ 0.000002	%	≤ 0.000002	%
Mg (Magnesium)	≤ 0.00001	%	≤ 0.00001	%
Mn (Manganese)	≤ 0.000002	%	≤ 0.000002	%
Mo (Molybdenum)	≤ 0.000002	%	≤ 0.000002	%
Ni (Nickel)	≤ 0.000002	%	≤ 0.000002	%
Pb (Lead)	≤ 0.00001	%	≤ 0.00001	%
Pt (Platinum)	≤ 0.000002	%	≤ 0.000002	%
Sb (Antimony)	≤ 0.000002	%	≤ 0.000002	%
Sn (Tin)	≤ 0.00001	%	≤ 0.00001	%
Ti (Titanium)	≤ 0.000002	%	≤ 0.000002	%
Tl (Thallium)	≤ 0.000002	%	≤ 0.000002	%
V (Vanadium)	≤ 0.000002	%	≤ 0.000002	%
Zn (Zinc)	≤ 0.00001	%	≤ 0.00001	%
Zr (Zirconium)	≤ 0.000002	%	≤ 0.000002	%
Evaporation residue	≤ 0.0005	%	0.0001	%
Water	≤ 0.1	%	< 0.1	%

Date of release (DD.MM.YYYY) 03.08.2020
Minimum shelf life (DD.MM.YYYY) 30.06.2025

Jeannette David
Responsible laboratory manager quality control

This document has been produced electronically and is valid without a signature.

Lampiran 2. Formula *Sunscreen Blue Light A*

Sunscreen Blue Light A

DRAFT

Cust: Bu Ismi

No.	Inci Name	Range %	Cas No	Fungsi
1	Sodium Acrylates Copolymer		25549-84-2	Emollient
2	Lecithin		8002-43-5	Emulsifying
3	Aqua		7732-18-5	Base
4	PARSOL MAX	2.5	103597-45-1	UV Filter
5	Decyl Glucoside		54549-25-6	Emulsifying
6	Propylene Glycol		57-55-6	Humectant
7	Xanthan Gum		11138-66-2	Thickener
8	Aqua		7732-18-5	Base
9	Glycerin		56-81-5	*Moisturising
10	Diglycerin		59113-36-9/ 25618-55-5	Humectant
11	Propanediol		504-63-2	Moisturising
12	Aqua		7732-18-5	Solvent
13	Titanium Dioxide	1.3	13463-67-7	Sunscreen Agent
14	Aluminum Hydroxide		21645-51-2	Opacifying
15	Triethoxycaprylylsilane		2943-75-1	Binding
16	Caprylic/Capric Triglycerides		65381-09-1	Skin Conditioning
17	Dimethicone		63148-62-9	Antistatic Agent
18	Isononyl Isononanoate		59219-71-5	Antistatic Agent
19	Squalane		111-01-3	Moisturising
20	Titan Liquid			
	C12-15 Alkyl Benzoate	3	68411-27-8	emulsifying
	Titanium Dioxide	1.6	13463-67-7	Sunscreen Agent
	Stearic Acid	0.2	57-11-4	emulsifying
	Aluminum Hydroxide	0.15	21645-51-2	ph adjuster
21	Cyclomethicone		69430-24-6	Antistatic Agent
22	Isononyl Isononanoate		59219-71-5	Antistatic Agent
23	Dimethicone		63148-62-9	Antistatic Agent
24	Cyclopentasiloxane		541-02-6	Emollient
25	Caprylyl Dimethicone Ethoxy Glucoside		85554-71-4	Emulsifying
26	PARSOL MCX	3.5	5466-77-3	Sunscreen Agent
27	Methylsilanol Mannuronate		102397-69-3	Skin Conditioning
28	Saccharide Isomerate		50-99-7	Moisturizer
29	Aqua		7732-18-5	base
30	Citric acid		77-92-9	ph adjuster
31	Phenoxyethanol		122-99-6	Preservative
32	Benzyl Alcohol		100-51-6	Preservative
33	Ethylhexylglycerin		70445-33-9	Skin Conditioning
34	Tocopherol		10191-41-0	Antioxidant
35	Aqua		7732-18-5	Base
36	Phragmites Kharka Extract		-	Soothing
37	Poria Cocos Extract		168456-52-9	Soothing

Lampiran 3. Formula *Sunscreen Blue Light B*

Sunscreen Blue Light B

DRAFT

Cust: Bu Ismi

No.	Inci Name	Range %	Cas No	Fungsi
1	Sodium Acrylates Copolymer		25549-84-2	Emollient
2	Lecithin		8002-43-5	Emulsifying
3	Aqua		7732-18-5	Base
4	PARSOL MAX	2	103597-45-1	UV Filter
5	Decyl Glucoside		54549-25-6	Emulsifying
6	Propylene Glycol		57-55-6	Humectant
7	Xanthan Gum		11138-66-2	Thickener
8	Aqua		7732-18-5	Base
9	Glycerin		56-81-5	*Moisturising
10	Diglycerin		59113-36-9/ 25618-55-7	Humectant
11	Propanediol		504-63-2	Moisturising
12	Aqua		7732-18-5	Solvent
13	Titanium Dioxide	1.3	13463-67-7	Sunscreen Agent
14	Aluminum Hydroxide		21645-51-2	Opacifying
15	Triethoxycaprylylsilane		2943-75-1	Binding
16	Caprylic/Capric Triglycerides		65381-09-1	Skin Conditioning
17	Dimethicone		63148-62-9	Antistatic Agent
18	Isononyl Isononanoate		59219-71-5	Antistatic Agent
19	Squalane		111-01-3	Moisturising
20	Titan Liquid			
	C12-15 Alkyl Benzoate	3	68411-27-8	emulsifying
	Titanium Dioxide	1.6	13463-67-7	Sunscreen Agent
	Stearic Acid	0.2	57-11-4	emulsifying
	Aluminum Hydroxide	0.15	21645-51-2	ph adjuster
21	Cyclomethicone		69430-24-6	Antistatic Agent
22	Isononyl Isononanoate		59219-71-5	Antistatic Agent
23	Dimethicone		63148-62-9	Antistatic Agent
24	Cyclopentasiloxane		541-02-6	Emollient
25	Caprylyl Dimethicone Ethoxy Glucoside		85554-71-4	Emulsifying
26	PARSOL MCX	3.5	5466-77-3	Sunscreen Agent
27	Methylsilanol Mannuronate		102397-69-3	Skin Conditioning
28	Saccharide Isomerate		50-99-7	Moisturizer
29	Aqua		7732-18-5	base
30	Citric acid		77-92-9	ph adjuster
31	Phenoxyethanol		122-99-6	Preservative
32	Benzyl Alcohol		100-51-6	Preservative
33	Ethylhexylglycerin		70445-33-9	Skin Conditioning
34	Tocopherol		10191-41-0	Antioxidant
35	Aqua		7732-18-5	Base
36	Phragmites Kharka Extract		-	Soothing
37	Poria Cocos Extract		168456-52-9	Soothing

Lampiran 4. Formula *Sunscreen Blue Light C*

Sunscreen Blue Light C

DRAFT

Cust: Bu Ismi

No.	Inci Name	Range %	Cas No	Fungsi
1	Sodium Acrylates Copolymer		25549-84-2	Emollient
2	Lecithin		8002-43-5	Emulsifying
3	Aqua		7732-18-5	Base
4	PARSOL MAX	1.5	103597-45-1	UV Filter
5	Decyl Glucoside		54549-25-6	Emulsifying
6	Propylene Glycol		57-55-6	Humectant
7	Xanthan Gum		11138-66-2	Thickener
8	Aqua		7732-18-5	Base
9	Glycerin		56-81-5	*Moisturising
10	Diglycerin		59113-36-9/ 25618-55-7	Humectant
11	Propanediol		504-63-2	Moisturising
12	Aqua		7732-18-5	Solvent
13	Titanium Dioxide	1.3	13463-67-7	Sunscreen Agent
14	Aluminum Hydroxide		21645-51-2	Opacifying
15	Triethoxycaprylylsilane		2943-75-1	Binding
16	Caprylic/Capric Triglycerides		65381-09-1	Skin Conditioning
17	Dimethicone		63148-62-9	Antistatic Agent
18	Isononyl Isononanoate		59219-71-5	Antistatic Agent
19	Squalane		111-01-3	Moisturising
20	Titan Liquid			
	C12-15 Alkyl Benzoate	3	68411-27-8	emulsifying
	Titanium Dioxide	1.6	13463-67-7	Sunscreen Agent
	Stearic Acid	0.2	57-11-4	emulsifying
	Aluminum Hydroxide	0.15	21645-51-2	ph adjuster
21	Cyclomethicone		69430-24-6	Antistatic Agent
22	Isononyl Isononanoate		59219-71-5	Antistatic Agent
23	Dimethicone		63148-62-9	Antistatic Agent
24	Cyclopentasiloxane		541-02-6	Emollient
25	Caprylyl Dimethicone Ethoxy Glucoside		85554-71-4	Emulsifying
26	PARSOL MCX	3.5	5466-77-3	Sunscreen Agent
27	Methylsilanol Mannuronate		102397-69-3	Skin Conditioning
28	Saccharide Isomerate		50-99-7	Moisturizer
29	Aqua		7732-18-5	base
30	Citric acid		77-92-9	ph adjuster
31	Phenoxyethanol		122-99-6	Preservative
32	Benzyl Alcohol		100-51-6	Preservative
33	Ethylhexylglycerin		70445-33-9	Skin Conditioning
34	Tocopherol		10191-41-0	Antioxidant
35	Aqua		7732-18-5	Base
36	Phragmites Kharka Extract		-	Soothing
37	Poria Cocos Extract		168456-52-9	Soothing

Lampiran 5. Bahan atau *ingredients* gel tabir surya kontrol positif SKIN AQUA UV Moisture Gel SPF 30 PA++

Ingredients : *Ethylhexyl Methoxycinnamate*, Parsol Max (*Methylene Bis-Benzotriazolyl Tetramethyl Butylphenol*), *Cyclopentasiloxane*, *Glycerin*, *Ethylhexyl Triazone*, *Polysorbate 60*, *Diethylamino Hydroxybenzoyl Hexyl Benzoate*, *Betaine*, *Phenoxyethanol*, *Ammonium Acryloyldimethyltaurate/VP Copolymer*, *Acrylates/C10-30 Alkyl Acrylate Crosspolymer*, *Hydrogenated Lecithin*, *Triethanolamine*, *Panthenol*, *Disodium EDTA*, *Methylparaben*, *Propylparaben*, *Sodium Hyaluronate*, *Dipotassium Glycrrhizate*, *Sodium Acetylated Hyaluronate*, *Arginine*, *Hydrolyzed Collagen*, *Tetrahexyldecyl Ascorbate*, *Tocopheryl Acetate*, and *Water*.

Claim:

1. SPF 30 untuk perlindungan 30x lebih lama terhadap sinar UV-B yang menyebabkan kulit merah karena terbakar sinar matahari.
2. PA++ untuk perlindungan terhadap UV-A yang menyebabkan penuaan dini dan kulit menjadi lebih gelap.
3. Improved Hyaluronic Acid (AcHA) dan Collagen untuk melembabkan dan melembutkan kulit.
4. Tidak menggunakan zat pewarna dan parfum.
5. Untuk dipakai setiap hari, di bagian wajah dan badan, tidak lengket.
6. Dapat digunakan sebagai dasar make up

Ingredients :

Water, Ethylhexyl Methoxycinnamate, Methylene Bis-Benzotriazolyl Tetramethyl Butylphenol, Cyclopentasiloxane, Glycerin, Ethylhexyl Triazone, Polysorbate 60, Diethylamino Hydroxybenzoyl Hexyl Benzoate, Betaine, Phenoxyethanol, Ammonium Acryloyldimethyltaurate/VP Copolymer, Acrylates/C10-30 Alkyl Acrylate Crosspolymer, Hydrogenated Lecithin, Triethanolamine, Panthenol, Disodium EDTA, Methylparaben, Propylparaben, Sodium Hyaluronate, Dipotassium Glycrrhizate, Sodium Acetylated Hyaluronate, Arginine, Hydrolyzed Collagen, Tetrahexyldecyl Ascorbate, Tocopheryl Acetate.

Brand:

Skin Aqua adalah merupakan salah satu brand dibawah naungan Rohto yang khusus membuat produk-produk UV protection. Merawat dan melindungi wajahmu setiap hari. Formula Skin Aqua ringan seperti air. Kulit lebih lembab, lembut dan terlindungi dari sinar UV-A dan UV-B matahari

Lampiran 6. Hasil data absorbansi kontrol positif dengan 3x replikasi secara berturut-turut

Spectrum Data Print Report

06/06/2022 09:41:45 PM

Wavelengthnm.	RawData...	RawData...	RawData...
290.00	1.0051	1.0049	1.0031
295.00	1.0895	1.0919	1.0929
300.00	1.1630	1.1637	1.1623
305.00	1.2130	1.2131	1.2127
310.00	1.2937	1.2930	1.2927
315.00	1.1889	1.1890	1.1884
320.00	1.0170	1.0159	1.0145

Lampiran 7. Hasil data absorbansi Sampel *Sunscreen Blue Light A* dengan 3x replikasi secara berturut-turut

Spectrum Data Print Report

06/06/2022 10:56:15 PM

Wavelengthnm.	RawData...	RawData...	RawData...
290.00	0.6566	0.6560	0.6563
295.00	0.6850	0.6855	0.6856
300.00	0.7010	0.7008	0.7005
305.00	0.7125	0.7127	0.7124
310.00	0.7255	0.7240	0.7245
315.00	0.7180	0.7175	0.7177
320.00	0.6754	0.6756	0.6755

Lampiran 8. Hasil data absorbansi Sampel *Sunscreen Blue Light B* dengan 3x replikasi secara berturut-turut

Spectrum Data Print Report

06/06/2022 11:02:25 PM

Wavelengthnm.	RawData...	RawData...	RawData...
290.00	0.5450	0.5455	0.5451
295.00	0.5649	0.5630	0.5635
300.00	0.5755	0.5749	0.5753
305.00	0.6021	0.6025	0.6023
310.00	0.6245	0.6252	0.6250
315.00	0.6350	0.6345	0.6348
320.00	0.5384	0.5380	0.5385

Lampiran 9. Hasil data absorbansi Sampel *Sunscreen Blue Light C* dengan 3x replikasi secara berturut-turut

Spectrum Data Print Report

06/06/2022 11:15:05 PM




Wavelengthnm.	RawData...	RawData...	RawData...
290.00	0.4857	0.4855	0.4854
295.00	0.4975	0.4970	0.4973
300.00	0.5359	0.5363	0.5355
305.00	0.5445	0.5449	0.5450
310.00	0.5602	0.5605	0.5603
315.00	0.5297	0.5295	0.5298
320.00	0.4875	0.4882	0.4880

Lampiran 10. Foto sediaan kontrol positif tabir surya SKIN AQUA dan sediaan sampel *sunscreen blue light A, B dan C*

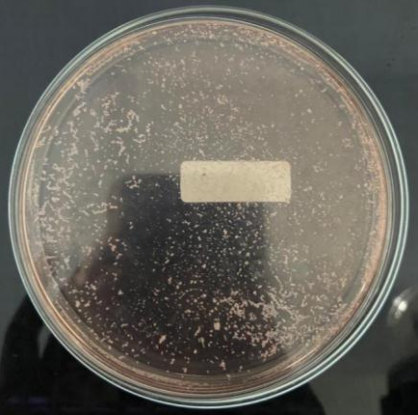
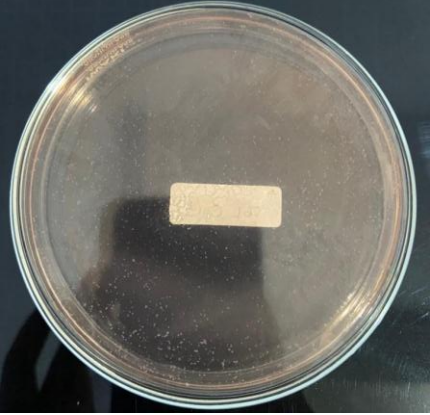
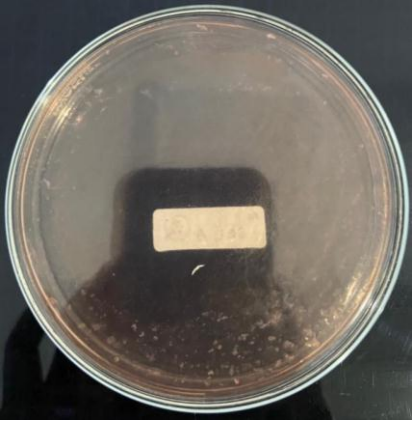
No.	Gambar	Keterangan
1.		Sediaan kontrol positif
2.		Sediaan sampel <i>sunscreen blue light A, B dan C</i>

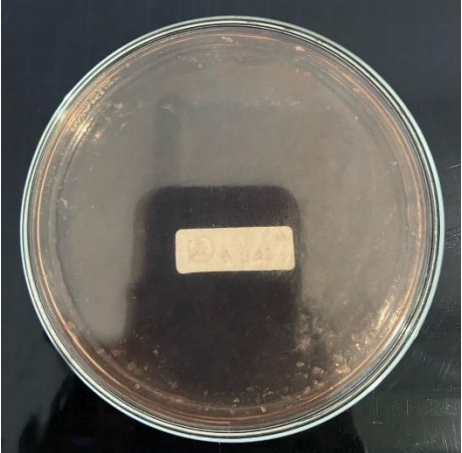
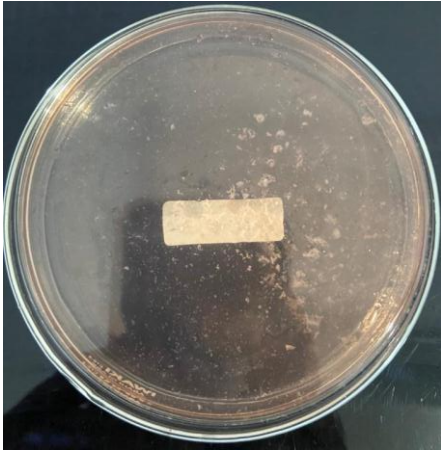
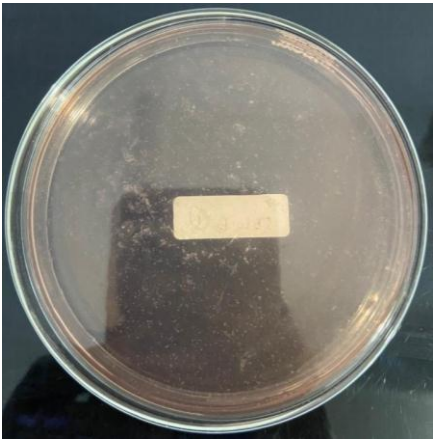
Lampiran 11. Foto alat inkubator, oven, mini LAF (*Laminar Air Flow*), autoclave, spektrofotometer UV-Vis, ultrasonikator

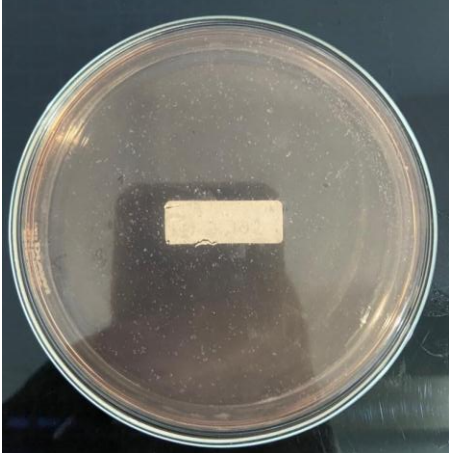
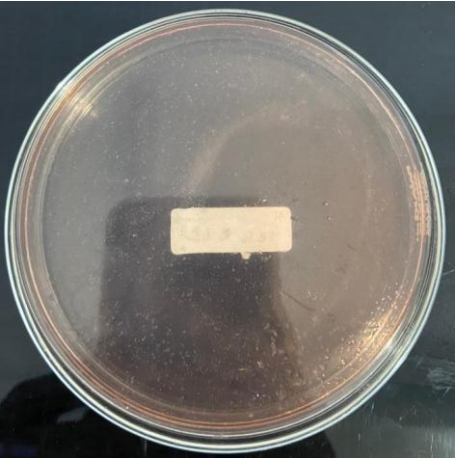
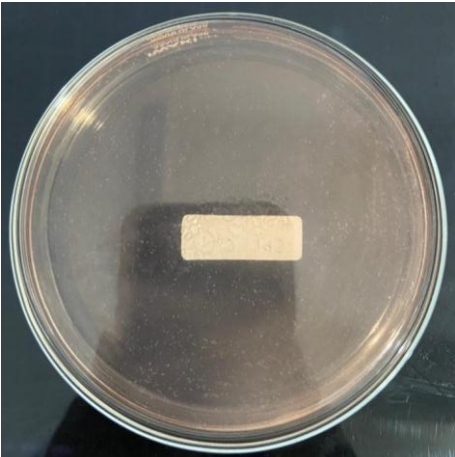
No.	Gambar	Keterangan
1.		Inkubator
2.		Oven
3.		Mini LAF (<i>Laminar Air Flow</i>)

4.	 A stainless steel autoclave with a black lid, a pressure gauge, and a control panel with two blue knobs and a digital display. It is sitting on a white surface.	Autoklav
5.	 A white and black UV-Vis spectrophotometer with a large black top panel and a white base. The top panel has a glowing screen and several buttons.	Spektrofotometer UV-Vis
6.	 A blue Elmasonic S 30 H ultrasonic cleaner. The front panel features two large rotary dials for time (labeled 'min') and temperature (labeled '°C'), along with several smaller buttons and a digital display. The brand name 'Elma' and model 'S 30 H Elmasonic' are visible at the top.	Ultrasonikator

Lampiran 12. Foto hasil uji cemaran mikroba *S. aureus*

No.	Gambar	Keterangan
1.		<i>Sunscreen blue light A</i> Replikasi 1
2.		<i>Sunscreen blue light A</i> Replikasi 2
3.		<i>Sunscreen blue light A</i> Replikasi 3

4.		<p><i>Sunscreen blue light B</i> Replikasi 1</p>
5.		<p><i>Sunscreen blue light B</i> Replikasi 2</p>
6.		<p><i>Sunscreen blue light B</i> Replikasi 3</p>

7.		<i>Sunscreen blue light C</i> Replikasi 1
8.		<i>Sunscreen blue light C</i> Replikasi 2
9.		<i>Sunscreen blue light C</i> Replikasi 3

Lampiran 13. Hasil penimbangan sediaan untuk uji nilai SPF

No.	Sediaan	Replikasi	Nilai Timbangan
1	Kontrol Positif	1	0,5015
		2	0,5010
		3	0,5017
Rata-rata			0,5014
2	<i>Sunscreen Blue Light A</i>	1	0,5020
		2	0,5013
		3	0,5011
Rata-rata			0,5015
3	<i>Sunscreen Blue Light B</i>	1	0,5014
		2	0,5007
		3	0,5016
Rata-rata			0,5012
4	<i>Sunscreen Blue Light C</i>	1	0,5002
		2	0,5006
		3	0,5011
Rata-rata			0,5006

Lampiran 14. Hasil perhitungan nilai SPF kontrol positif berdasarkan metode Mansur

1. Perhitungan rata-rata absorbansi sediaan kontrol positif

No	Replikasi	Absorbansi						
		290	295	300	305	310	315	320
1	I	1,0051	1,0895	1,1630	1,2130	1,2937	1,1889	1,0170
2	II	1,0049	1,0919	1,1637	1,2131	1,2930	1,1890	1,0159
3	III	1,0031	1,0929	1,1623	1,2127	1,2927	1,1884	1,0145
Nilai rata-rata		1,0044	1,0914	1,1630	1,2129	1,2931	1,1888	1,0158

2. Perhitungan Nilai CF kontrol positif

KONTROL POSITIF (SEDIAAN GEL SKINAQUA SPF 30)

λ	EE x I	Abs	EE x I x Abs	CF	\sum EE x I x Abs	FP	SPF
290	0,0150	1,0044	0,015066		1,19512676	50	30
295	0,0817	1,0914	0,08916738				
300	0,2874	1,1630	0,3342462				
305	0,3278	1,2129	0,39758862				
310	0,1864	1,2931	0,24103384				
315	0,0839	1,1888	0,09974032				
320	0,0180	1,0158	0,0182844				
			1,19512676				

$$\begin{array}{l}
 \text{SPF} \\
 30 \\
 \text{CF} = 25,10194
 \end{array}
 \quad
 \begin{array}{l}
 \text{CF} \\
 \text{CF}
 \end{array}
 \quad
 \begin{array}{l}
 \sum \text{EE} (\lambda) \times \text{I} (\lambda) \times \text{Abs} (\lambda) \\
 1,19512676
 \end{array}$$

3. Perhitungan nilai SPF sampel A Replikasi I
SAMPEL A REPLIKASI I

λ	EE x I	Abs	EE x I x Abs	CF	\sum EE x I x Abs	FP	SPF
290	0,0150	0,6566	0,009849	25,1019	0,708469	50	30
295	0,0817	0,6850	0,0559645				
300	0,2874	0,7010	0,2014674				
305	0,3278	0,7125	0,2335575				
310	0,1864	0,7255	0,1352332				
315	0,0839	0,7180	0,0602402				
320	0,0180	0,6754	0,0121572				
			0,708469				

$$\text{SPF} = \frac{\text{CF} \times \sum \text{EE}(\lambda) \times \text{I}(\lambda) \times \text{Abs}(\lambda)}{\sum \text{EE}(\lambda) \times \text{I}(\lambda) \times \text{Abs}(\lambda)}$$

SPF = $\frac{25,1019 \times 0,708469}{0,708469} = 17,78395$

4. Perhitungan nilai SPF sampel A Replikasi II
SAMPEL A REPLIKASI II

Λ	EE x I	Abs	EE x I x Abs	CF	\sum EE x I x Abs	FP	SPF
290	0,0150	0,6560	0,00984	25,1019	0,70819098	50	30
295	0,0817	0,6855	0,05600535				
300	0,2874	0,7008	0,20140992				
305	0,3278	0,7127	0,23362306				
310	0,1864	0,7240	0,1349536				
315	0,0839	0,7175	0,06019825				
320	0,0180	0,6756	0,0121608				
			0,70819098				

$$\text{SPF} = \frac{\text{CF} \times \sum \text{EE}(\lambda) \times \text{I}(\lambda) \times \text{Abs}(\lambda)}{\sum \text{EE}(\lambda) \times \text{I}(\lambda) \times \text{Abs}(\lambda)}$$

SPF = $\frac{25,1019 \times 0,70819098}{0,70819098} = 17,77697$

5. Perhitungan nilai SPF sampel A Replikasi III dan rata-rata dari ketiga replikasi

SAMPEL A REPLIKASI III

Λ	EE x I	Abs	EE x I x Abs	CF	\sum EE x I x Abs	FP	SPF
290	0,0150	0,6563	0,0098445	25,1019	0,70812727	50	30
295	0,0817	0,6856	0,05601352				
300	0,2874	0,7005	0,2013237				
305	0,3278	0,7124	0,23352472				
310	0,1864	0,7245	0,1350468				
315	0,0839	0,7177	0,06021503				
320	0,0180	0,6755	0,012159				
			0,70812727				

SPF	CF	\sum EE (λ) x I (λ) x Abs (λ)		
SPF	25,1019	0,70812727		
SPF =	17,77537			
R 1	17,7839			
R 2	17,7770	RATA - RATA	17,77876	<u>ULTRA</u>
R 3	17,7754			
		SD	0,00456	

6. Perhitungan nilai SPF sampel B Replikasi I

SAMPEL B REPLIKASI I

λ	EE x I	Abs	EE x I x Abs	CF	\sum EE x I x Abs	FP	SPF
290	0,0150	0,5450	0,008175	25,1019	0,59646891	50	30
295	0,0817	0,5649	0,04615233				
300	0,2874	0,5755	0,1653987				
305	0,3278	0,6021	0,19736838				
310	0,1864	0,6245	0,1164068				
315	0,0839	0,6350	0,0532765				
320	0,0180	0,5384	0,0096912				
			0,59646891				

SPF	CF	\sum EE (λ) x I (λ) x Abs (λ)	
SPF	25,1019	0,59646891	
SPF =	14,97253		

7. Perhitungan nilai SPF sampel B Replikasi II
SAMPEL B REPLIKASI II

Λ	EE x I	Abs	EE x I x Abs	CF	\sum EE x I x Abs	FP	SPF
290	0,0150	0,5455	0,0081825	25,1019	0,59636119	50	30
295	0,0817	0,5630	0,0459971				
300	0,2874	0,5749	0,16522626				
305	0,3278	0,6025	0,1974995				
310	0,1864	0,6252	0,11653728				
315	0,0839	0,6345	0,05323455				
320	0,0180	0,5380	0,009684				
			0,59636119				

$$\text{SPF} = \frac{\text{CF}}{\sum \text{EE}(\lambda) \times \text{I}(\lambda) \times \text{Abs}(\lambda)}$$

$$\text{SPF} = \frac{25,10}{0,59636119}$$

$$\text{SPF} = 14,96982$$

8. Perhitungan nilai rata-rata SPF sampel B Replikasi III dan rata-rata dari ketiga replikasi

SAMPEL B REPLIKASI III

λ	EE x I	Abs	EE x I x Abs	CF	\sum EE x I x Abs	FP	SPF
290	0,0150	0,5451	0,0081765	25,1019	0,59644233	50	30
295	0,0817	0,5635	0,04603795				
300	0,2874	0,5753	0,16534122				
305	0,3278	0,6023	0,19743394				
310	0,1864	0,6250	0,1165				
315	0,0839	0,6348	0,05325972				
320	0,0180	0,5385	0,009693				
			0,59644233				

$$\text{SPF} = \frac{\text{CF}}{\sum \text{EE}(\lambda) \times \text{I}(\lambda) \times \text{Abs}(\lambda)}$$

$$\text{SPF} = \frac{25,10}{0,59644233}$$

$$\text{SPF} = 14,97186$$

R 1 14,9725

R 2 14,9698 **RATA - RATA** 14,9714 **MAKSIMAL**

R 3 14,9719

SD 0,00141

9. Perhitungan nilai SPF sampel C Replikasi I

SAMPEL C REPLIKASI I

λ	EE x I	Abs	EE x I x Abs	CF	\sum EE x I x Abs	FP	SPF
290	0,0150	0,4857	0,0072855	25,1019	0,53807412	50	30
295	0,0817	0,4975	0,04064575				
300	0,2874	0,5359	0,15401766				
305	0,3278	0,5445	0,1784871				
310	0,1864	0,5602	0,10442128				
315	0,0839	0,5297	0,04444183				
320	0,0180	0,4875	0,008775				
			0,53807412				

$$\begin{aligned} \text{SPF} &= \frac{\text{CF}}{\sum \text{EE}(\lambda) \times \text{I}(\lambda) \times \text{Abs}(\lambda)} \\ \text{SPF} &= \frac{25,1019}{0,53807412} \\ \text{SPF} &= 13,5067 \end{aligned}$$

10. Perhitungan nilai SPF sampel C Replikasi II

SAMPEL C REPLIKASI II

λ	EE x I	Abs	EE x I x Abs	CF	\sum EE x I x Abs	FP	SPF
290	0,0150	0,4855	0,0072825	25,1019	0,53832809	50	30
295	0,0817	0,4970	0,0406049				
300	0,2874	0,5363	0,15413262				
305	0,3278	0,5449	0,17861822				
310	0,1864	0,5605	0,1044772				
315	0,0839	0,5295	0,04442505				
320	0,0180	0,4882	0,0087876				
			0,53832809				

$$\begin{aligned} \text{SPF} &= \frac{\text{CF}}{\sum \text{EE}(\lambda) \times \text{I}(\lambda) \times \text{Abs}(\lambda)} \\ \text{SPF} &= \frac{25,1019}{0,53832809} \\ \text{SPF} &= 13,51308 \end{aligned}$$

11. Perhitungan nilai SPF sampel C Replikasi III dan rata-rata dari ketiga replikasi

SAMPEL C REPLIKASI III

λ	EE x I	Abs	EE x I x Abs	CF	\sum EE x I x Abs	FP	SPF
290	0,0150	0,4854	0,007281	25,1019	0,53813825	50	30
295	0,0817	0,4973	0,04062941				
300	0,2874	0,5355	0,1539027				
305	0,3278	0,5450	0,178651				
310	0,1864	0,5603	0,10443992				
315	0,0839	0,5298	0,04445022				
320	0,0180	0,4880	0,008784				
			0,53813825				

SPF	CF	\sum EE (λ) x I (λ) x Abs (λ)		
SPF	25,1019	0,53813825		
SPF =	13,50831			
R 1	13,5067			
R 2	13,5131	RATA – RATA	13,50937	<u>MAKSIMAL</u>
R 3	13,5083			
		SD	0,00332	

Lampiran 15. Hasil analisis statistik nilai SPF sediaan kontrol positif dan sampel *sunscreen blue light A, B dan C.*

Uji Kolmogorov-Smirnov

Tujuan : mengetahui kenormalan data sebagai syarat uji ANOVA

Kriteria uji : Sig. < 0,05 berarti H0 ditolak
Sig. > 0,05 H0 diterima

Hasil :

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		12
Normal Parameters ^{a,b}	Mean	.0000000
	Std. Deviation	2.96318408
Most Extreme Differences	Absolute	.280
	Positive	.191
	Negative	-.280
Kolmogorov-Smirnov Z		.968
Asymp. Sig. (2-tailed)		.305

a. Test distribution is Normal.

b. Calculated from data.

Kesimpulan : sig. > 0,05 (H0 diterima) maka data nilai SPF terdistribusi normal

Uji One Way ANOVA

Tujuan : Untuk mengetahui homogenitas adanya perbedaan yang bermakna dari nilai SPF setiap sampel.

Kriteria uji : Sig. < 0,05 berarti H0 ditolak
Sig. > 0,05 H0 diterima

Hasil :

Test of Homogeneity of Variances

nilaispf

Levene Statistic	df1	df2	Sig.
5.522	3	8	.024

ANOVA

nilaispf

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	506.549	3	168.850	19297107.235	.000
Within Groups	.000	8	.000		
Total	506.549	11			

Kesimpulan : sig < 0,05 (H0 ditolak) maka terdapat perbedaan kandungan zat aktif antar sampel

Uji Kruskal-Wallis

Tujuan : untuk mengetahui adanya perbedaan yang signifikan antara kelompok variabel independen dengan variabel dependennya.

Kriteria uji : Sig. < 0,05 berarti H0 ditolak

Sig. > 0,05 H0 diterima

Hasil :

	sampel	N	Mean Rank
Nilaispf	A	3	8.00
	B	3	5.00
	C	3	2.00
	Total	9	

	nilaispf
Chi-Square	7.200
df	2
Asymp. Sig.	.027

a. Kruskal Wallis Test

b. Grouping Variable:
sampel

Kesimpulan : sig < 0,05 (H0) ditolak maka terdapat perbedaan bermakna dari nilai SPF antar sampel