LAMPIRAN

Lampiran A. Perhitungan uji kesesuaian sistem triklosan

Replikasi	RT	Luas Area (xi)	$(xi-x)^2$	Lempeng Teoritis	Resolusi	*TF*	K'
1	8.923	802379	9752088.028	6178.070	16.720	1.034	1.863
2	8.940	803760	3033983.361	6151.431	16.658	1.034	1.734
3	8.924	810280	22830876.69	6151.122	16.596	1.027	1.733
4	8.929	802067	11798080.03	6171.799	16.641	1.036	1.745
5	8.959	809832	18750343.36	6174.897	16.602	1.028	1.748
6	8.963	804693	654211.3611	6220.128	16.603	1.027	1.742
Rata-rata	8.939	805501.8333	11136597.14	6174.575	16.637	1.031	2
Jumlah	53.638	4833011	66819582.83				
SD	0.017637082	3655.6691					
%SBR	0.197290154	0.453837465					
Syarat	<2%	< 2%		>2500	>1.5	< 1.5	2--8
Keterangan	MS	MS		MS	MS	MS	MS

Simpangan baku (SD) luas area $= \sqrt{\frac{\Sigma (xi-x)2}{n-1}}$

$= \sqrt{\frac{66819582,83}{6-1}}$

$= 3655,669\ \mu v$

%Simpangan baku relatif luas area $= \frac{SD}{x} \times 100\%$

$= \frac{3655,669}{805501,8333} \times 100\%$

$= 0,453837465\ \%$

Lampiran B. Perhitungan uji linearitas

No	Konsentrasi (ppm)	Luas Area					
Standar	xi	Y	$(xi - \bar{x})$	$(xi - \bar{x})^2$	$(yi - \bar{y})$	$(yi - \bar{y})^2$	$(xi - \bar{x})(yi - \bar{y})$
1	10	355957	-30	900	-850538.2857	723415375441.50	25516149
2	20	582987	-20	400	-623508.2857	388762582336.55	12470166
3	30	872985	-10	100	-333510.2857	111229110667.70	3335103
4	40	1210526	0	0	4030.714286	16246657.65	0
5	50	1510957	10	100	304461.7143	92696935466	3044617
6	60	1827763	20	400	621267.7143	385973572813.80	12425354
7	70	2084292	30	900	877796.7143	770527071610.80	26333901
Jumlah	280	8445467	0	2800	0	2472620894993.78	83125290
Rata-rata	40	1206495,286	0	400	0	353231556427.68	11875041

$$b = \sum_i^N \frac{\{(xi-x)\,(yi-\bar{y})\}}{\sum_i^N (xi-x)^2} = \frac{83125290}{2800} = 29688$$

$$a = \bar{y} - bx = 1206495{,}286 - (29688 \times 40) = 18991$$

$$r = \frac{\sum_i^N \{(xi-x)\,(yi-\bar{y})}{\sqrt{(\sum_i^N (xi-x)^2)\,(\sum_i^N (yi-\bar{y})^2}} = \frac{83125290}{\sqrt{(2800)(2472620894993.78)}} = 0{,}998$$

Lampiran C. Perhitungan batas deteksi dan batas kuantisasi

$$S(y/x) = \sqrt{\frac{\sum(y-y')^2}{n-2}} = \sqrt{\frac{4830240934}{7-2}} = 31081{,}31572$$

$$BD = \frac{3\,(sy/x)}{b} = \frac{3 \times 31081{,}31572}{29688} = 3{,}1408 \text{ ppm}$$

$$BK = \frac{10\,(sy/x)}{b} = \frac{10 \times 31081{,}31572}{29688} = 10{,}0469 \text{ ppm}$$

$$Sx_0 = \frac{S_y}{b} = \frac{31081{,}31572}{29688} = 1{,}04693195$$

$$Vx_0 = \frac{Sx_0}{\bar{x}} = \frac{1{,}04693195}{40} \text{ x } 100\% = 2{,}61\%$$

Lampiran D. Perhitungan uji presisi

$$\%SBR = \frac{SD}{x} \times 100\%$$

$$= \frac{0{,}3161}{26{,}9039} \times 100\%$$

$$= 1{,}1749\%$$

Lampiran E. Perhitungan uji akurasi

Rentang Spesifik (%)	Replikasi	Luas Area	Konsentrasi (ppm)		% Recovery	Rata-rata
			Teoritis	Pengukuran		
80	1	722181	24	23,686	98.69	100,22 ±1,39
	2	735589	24	24,138	100.57	
	3	741526	24	24,338	101.41	
100	1	916852	30	30,243	100.81	101,37 ±0,94
	2	931511	30	30,737	102.46	
	3	917215	30	30,255	100.85	
120	1	1091458	36	36,125	100.35	99,96 ±0,58
	2	1090226	36	36,083	100.23	
	3	1080206	36	35,746	99.29	

$$\%recovery = \frac{\text{kadar pengukuran}}{\text{kadar teoritis}} \times 100\% = \frac{23,686}{24} \times 100\% = 98,69\ \%$$

$$\%recovery = \frac{\text{kadar pengukuran}}{\text{kadar teoritis}} \times 100\% = \frac{24,138}{24} \times 100\% = 100,57\ \%$$

$$\%recovery = \frac{\text{kadar pengukuran}}{\text{kadar teoritis}} \times 100\% = \frac{24,338}{24} \times 100\% = 101,41\ \%$$

$$\%recovery = \frac{\text{kadar pengukuran}}{\text{kadar teoritis}} \times 100\% = \frac{30,243}{30} \times 100\% = 100,81\%$$

$$\%recovery = \frac{\text{kadar pengukuran}}{\text{kadar teoritis}} \times 100\% = \frac{30,737}{30} \times 100\% = 102,46\%$$

$$\%recovery = \frac{\text{kadar pengukuran}}{\text{kadar teoritis}} \times 100\% = \frac{30,255}{30} \times 100\% = 100,85\%$$

$$\%recovery = \frac{\text{kadar pengukuran}}{\text{kadar teoritis}} \times 100\% = \frac{36,125}{36} \times 100\% = 100,35\%$$

$$\%recovery = \frac{\text{kadar pengukuran}}{\text{kadar teoritis}} \times 100\% = \frac{36,083}{36} \times 100\% = 100,23\%$$

$$\%recovery = \frac{\text{kadar pengukuran}}{\text{kadar teoritis}} \times 100\% = \frac{35,746}{36} \times 100\% = 99,29\%$$

Lampiran F. Perhitungan kadar sampel

Y = 29688x + 18991

1100013 = 29688x + 18991

X = 36,41 µg/ml

C = x × V

= 36,41 µg/ml × 10 ml

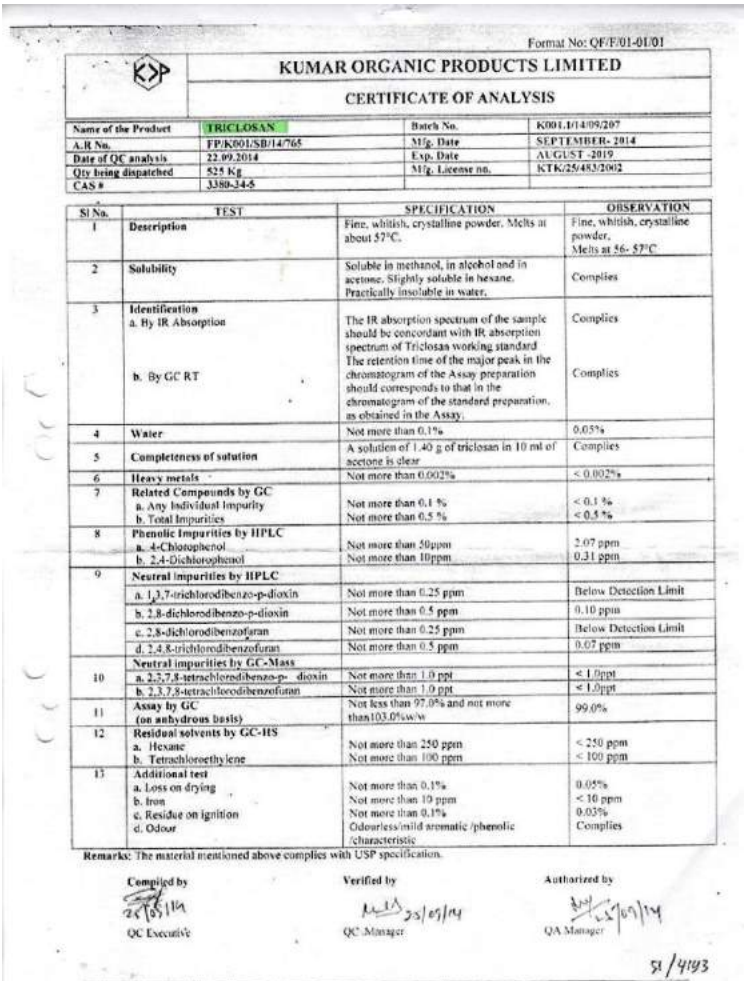
= 364,13 µg

= 0,36 mg

% Kadar $= \frac{0{,}36\ \text{mg}}{1000\ \text{mg}} \times 100\%$

= 0,04 %

Lampiran G. *Certificate of analysis* triklosan



Format No: QF/F/01-01/01

KUMAR ORGANIC PRODUCTS LIMITED

CERTIFICATE OF ANALYSIS

Name of the Product	TRICLOSAN	Batch No.	K001.I/14/09/207
A.R No.	FP/K001/SB/14/765	Mfg. Date	SEPTEMBER- 2014
Date of QC analysis	22.09.2014	Exp. Date	AUGUST -2019
Qty being dispatched	525 Kg	Mfg. License no.	KTK/25/483/2002
CAS #	3380-34-5		

Sl No.	TEST	SPECIFICATION	OBSERVATION
1	Description	Fine, whitish, crystalline powder. Melts at about 57°C.	Fine, whitish, crystalline powder. Melts at 56- 57°C
2	Solubility	Soluble in methanol, in alcohol and in acetone. Slightly soluble in hexane. Practically insoluble in water.	Complies
3	Identification a. By IR Absorption b. By GC RT	The IR absorption spectrum of the sample should be concordant with IR absorption spectrum of Triclosan working standard The retention time of the major peak in the chromatogram of the Assay preparation should corresponds to that in the chromatogram of the standard preparation, as obtained in the Assay.	Complies Complies
4	Water	Not more than 0.1%	0.05%
5	Completeness of solution	A solution of 1.40 g of triclosan in 10 ml of acetone is clear	Complies
6	Heavy metals	Not more than 0.002%	< 0.002%
7	Related Compounds by GC a. Any Individual Impurity b. Total Impurities	Not more than 0.1 % Not more than 0.5 %	< 0.1 % < 0.5 %
8	Phenolic Impurities by HPLC a. 4-Chlorophenol b. 2,4-Dichlorophenol	Not more than 50ppm Not more than 10ppm	2.07 ppm 0.31 ppm
9	Neutral Impurities by HPLC		
	a. 1,3,7-trichlorodibenzo-p-dioxin	Not more than 0.25 ppm	Below Detection Limit
	b. 2,8-dichlorodibenzo-p-dioxin	Not more than 0.5 ppm	0.10 ppm
	c. 2,8-dichlorodibenzofuran	Not more than 0.25 ppm	Below Detection Limit
	d. 2,4,8-trichlorodibenzofuran	Not more than 0.5 ppm	0.07 ppm
10	Neutral impurities by GC-Mass a. 2,3,7,8-tetrachlorodibenzo-p- dioxin	Not more than 1.0 ppt	< 1.0ppt
	b. 2,3,7,8-tetrachlorodibenzofuran	Not more than 1.0 ppt	< 1.0ppt
11	Assay by GC (on anhydrous basis)	Not less than 97.0% and not more than103.0%w/w	99.0%
12	Residual solvents by GC-HS a. Hexane b. Tetrachloroethylene	Not more than 250 ppm Not more than 100 ppm	< 250 ppm < 100 ppm
13	Additional test a. Loss on drying b. Iron c. Residue on ignition d. Odour	Not more than 0.1% Not more than 10 ppm Not more than 0.1% Odourless/mild aromatic /phenolic /characteristic	0.05% < 10 ppm 0.03% Complies

Remarks: The material mentioned above complies with USP specification.

Compiled by	Verified by	Authorized by
25/09/14	25/09/14	25/09/14
QC Executive	QC Manager	QA Manager

51/4193
1/2378

Usha Krishna Tower Plot-35,Road No.36,5 , Jigani Industrial Area, Bangalore-560105, Karnataka, India
Tel. +91-80-27825196/27825376/27825733 Fax. +91-80-27825439, Email:Sales@kumarorganic.net
Website:http://www.kumarorganic.net

Lampiran H. Alat yang Digunakan

KCKT shimadzu prominence LC-20AT

Spektrofotometri UV

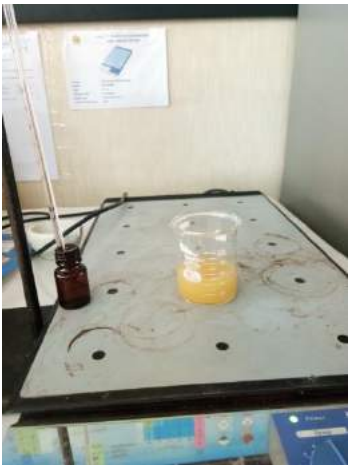
Sonikator

Timbangan neraca analitik

Lampiran I. Foto Kegiatan

Proses sonikasi

Proses penimbangan



Proses pembuatan sampel simulasi *hand soap*

Lampiran J. Hasil kromatogram sampel *hand soap* N-1

==== POLITEKNIK KESEHATAN BANDUNG ====
UNIT LABORATORIUM - LABORATORIUM TERPADU

Acquired by	: Arma Noprianti
Sample Name	: Sampel
Sample ID	: Sampel N-1
Injection Volume	: 20
Data File Name	: Sampel N-1.lcd
Method File Name	: OKA 28022019.lcm
Batch File Name	: 20190408.lcb
Report File Name	: Default.lcr
Data Acquired	: 8 April 2019

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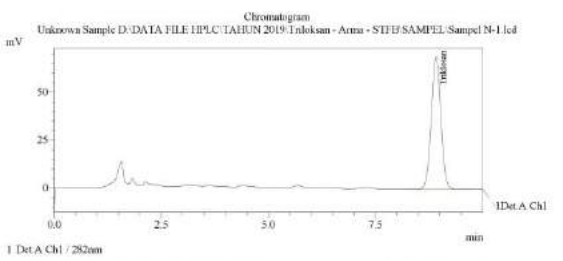

D:\DATA FILE HPLC\TAHUN 2019\Triloksan - Arma - STFB\SAMPEL\Sampel N-1.lcd

Detector A

Name	Ret. Time	Area	Theoretical Plate#	Resolution	Tailing Factor	HETP	K
Triloksan	8.911	1100013	7039.954	0.000	1.037	21.307	0.000

Lampiran K. Hasil kromatogram sampel *hand soap* N-2

==== POLITEKNIK KESEHATAN BANDUNG ====
UNIT LABORATORIUM - LABORATORIUM TERPADU

Acquired by	: Arma Noprianti
Sample Name	: Sampel
Sample ID	: Sampel N-2
Injection Volume	: 20
Data File Name	: Sampel N-2.lcd
Method File Name	: OKA 28022019.lcm
Batch File Name	: 20190409.lcb
Report File Name	: Default.lcr
Data Acquired	: 8 April 2019

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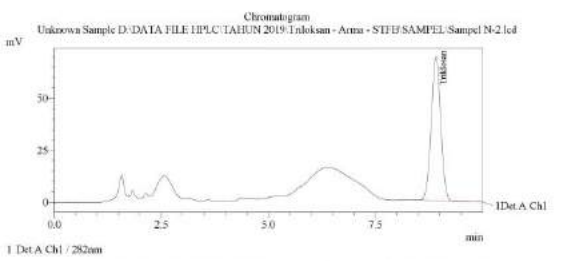

1 Det.A Ch1 / 282nm

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Detector A

Name	Ret. Time	Area	Theoretical Plate#	Resolution	Tailing Factor	HETP	K
Triloksan	8.909	1079303	7130.829	0.000	1.033	21.035	0.000

Lampiran L. Hasil kromatogram sampel *hand soap* N-3

4/8/2019 00:41:25 1 / 1

==== POLITEKNIK KESEHATAN BANDUNG ====
UNIT LABORATORIUM - LABORATORIUM TERPADU

Acquired by	: Arma Noprianti
Sample Name	: Sampel
Sample ID	: Sampel N-3
Injection Volume	: 20
Data File Name	: Sampel N-3.lcd
Method File Name	: OKA 28022019.lcm
Batch File Name	: 20190409.lcb
Report File Name	: Default.lcr
Data Acquired	: 8 April 2019

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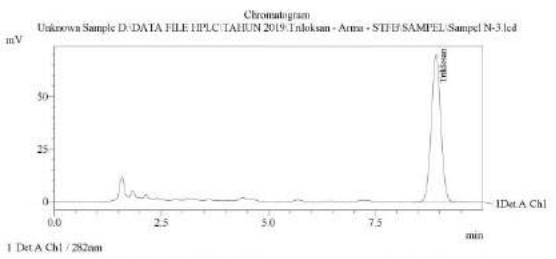

1 Det.A Ch1 / 282nm

D:\DATA FILE HPLC\TAHUN 2019\Triloksan - Arma - STFB\SAMPEL\Sampel N-3.lcd

Detector A

Name	Ret. Time	Area	Theoretical Plate#	Resolution	Tailing Factor	HETP	k
Triklosan	8.910	1105309	7149.147	0.000	1.038	20.982	0.000

Lampiran M. Hasil kromatogram sampel *hand soap* S-1

4/8/2019 00:44:06 1 / 1

==== POLITEKNIK KESEHATAN BANDUNG ====
UNIT LABORATORIUM - LABORATORIUM TERPADU

Acquired by	: Arma Noprianti
Sample Name	: Sampel
Sample ID	: Sampel S-1
Injection Volume	: 20
Data File Name	: Sampel S-1.lcd
Method File Name	: OKA 28022019.lcm
Batch File Name	: 20190408.lcb
Report File Name	: Default.lcr
Data Acquired	: 8 April 2019

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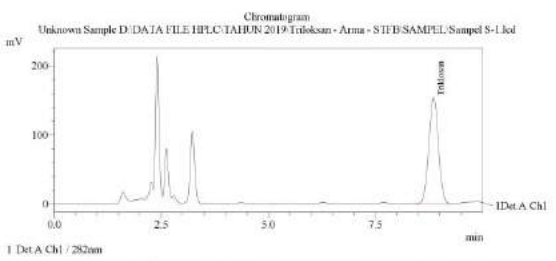

1 Det.A Ch1 / 282nm

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Detector A

Name	Ret. Time	Area	Theoretical Plate#	Resolution	Tailing Factor	HETP	k
Triloksan	8.853	2430453	6969.058	0.000	1.039	21.524	0.000

Lampiran N. Hasil kromatogram sampel *hand soap* S-2

4/8/2019 00:44:57 1 / 1

==== POLITEKNIK KESEHATAN BANDUNG ====
UNIT LABORATORIUM - LABORATORIUM TERPADU

Acquired by	: Arma Noprianti
Sample Name	: Sampel
Sample ID	: Sampel S-2
Injection Volume	: 20
Data File Name	: Sampel S-2.lcd
Method File Name	: OKA 28022019.lcm
Batch File Name	: 20190409.lcb
Report File Name	: Default.lcr
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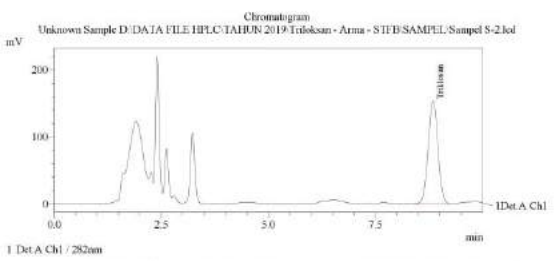

1 Det.A Ch1 / 282nm

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Detector A

Name	Ret. Time	Area	Theoretical Plate#	Resolution	Tailing Factor	HETP	k
Triloksan	8.839	2434583	6831.124	0.000	1.039	21.958	0.000

Lampiran O. Hasil kromatogram sampel *hand soap* S-3

4/8/2019 00:45:38 1 / 1

==== POLITEKNIK KESEHATAN BANDUNG ====
UNIT LABORATORIUM - LABORATORIUM TERPADU

Acquired by	: Arma Noprianti
Sample Name	: Sampel
Sample ID	: Sampel S-3
Injection Volume	: 20
Data File Name	: Sampel S-3.lcd
Method File Name	: OKA 28022019.lcm
Batch File Name	: 20190409.lcb
Report File Name	: Default.lcr
Data Acquired	: 8 April 2019

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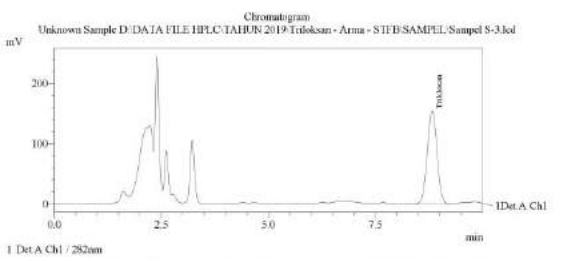

1 Det.A Ch1 / 282nm

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Detector A

Name	Ret. Time	Area	Theoretical Plate#	Resolution	Tailing Factor	HETP	k
Triklosan	8.817	2437481	6883.612	0.000	1.041	21.791	0.000

Lampiran P. Hasil kromatogram sampel *hand soap* W-1

4/8/2019 00:42:08 1 / 1

==== POLITEKNIK KESEHATAN BANDUNG ====
UNIT LABORATORIUM - LABORATORIUM TERPADU

Acquired by	: Arma Noprianti
Sample Name	: Sampel
Sample ID	: Sampel W-1
Injection Volume	: 20
Data File Name	: Sampel W-1.lcd
Method File Name	: OKA 28022019.lcm
Batch File Name	: 20190409.lcb
Report File Name	: Default.lcr
Data Acquired	: 8 April 2019

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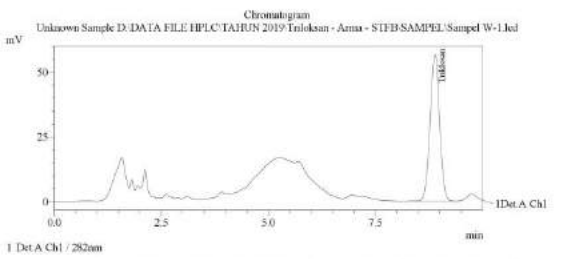

1 Det.A Ch1 / 282nm

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Detector A

Name	Ret. Time	Area	Theoretical Plate#	Resolution	Tailing Factor	HETP	k
Triloksan	8.882	885897	7152.173	0.000	1.035	20.973	0.000

Lampiran Q. Hasil kromatogram sampel *hand soap* W-2

==== POLITEKNIK KESEHATAN BANDUNG ====
UNIT LABORATORIUM - LABORATORIUM TERPADU

Acquired by	: Arma Noprianti
Sample Name	: Sampel
Sample ID	: Sampel W-2
Injection Volume	: 20
Data File Name	: Sampel W-2.lcd
Method File Name	: OKA 28022019.lcm
Batch File Name	: 20190409.lcb
Report File Name	: Default.lcr
Data Acquired	: 8 April 2019

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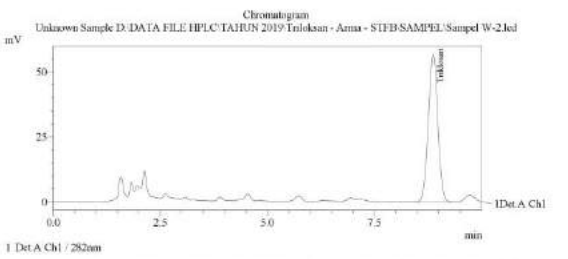

1 Det.A Ch1 / 282nm

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Detector A

Name	Ret. Time	Area	Theoretical Plate#	Resolution	Tailing Factor	HETP	k
Triloksan	8.864	888409	7122.026	0.000	1.037	21.061	0.000

Lampiran R. Hasil kromatogram sampel *hand soap* W-3

==== POLITEKNIK KESEHATAN BANDUNG ====
UNIT LABORATORIUM - LABORATORIUM TERPADU

Acquired by	: Arma Noprianti
Sample Name	: Sampel
Sample ID	: Sampel W-3
Injection Volume	: 20
Data File Name	: Sampel W-3.lcd
Method File Name	: OKA 28022019.lcm
Batch File Name	: 20190409.lcb
Report File Name	: Default.lcr
Data Acquired	: 8 April 2019

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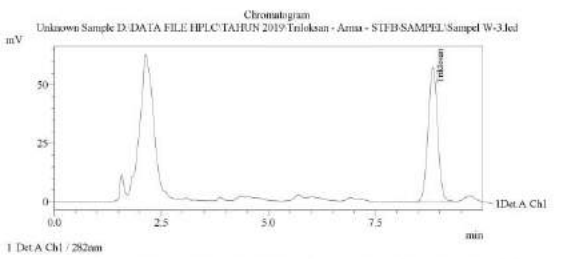

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Detector A

Name	Ret. Time	Area	Theoretical Plate#	Resolution	Tailing Factor	HETP	k
Triloksan	8.835	896703	7095.054	0.000	1.044	21.141	0.000