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### Lampiran 1. Perhitungan pembuatan larutan standar timbal

1. Pembuatan larutan induk timbal 1000 ppm (mg/L) menjadi 100 ppm (mg/L) dalam labu ukur 100 mL

$$V_1 \times C_1 = V_2 \times C_2$$

$$V_1 \times 1000 \text{ mg/L} = 100 \text{ ml} \times 100 \text{ mg/L}$$

$$V_1 = \frac{100 \text{ mL} \times 100 \text{ mg/L}}{1000 \text{ mg/L}}$$

$$V_1 = 10 \text{ mL}$$

2. Pengenceran larutan standar 100 ppm (mg/L) menjadi 10 ppm (mg/L) dalam labu ukur 100 mL

$$V_1 \times C_1 = V_2 \times C_2$$

$$V_1 \times 100 \text{ mg/L} = 100 \text{ ml} \times 10 \text{ mg/L}$$

$$V_1 = \frac{100 \text{ mL} \times 10 \text{ mg/L}}{100 \text{ mg/L}}$$

$$V_1 = 10 \text{ mL}$$

3. Seri konsentrasi dari larutan standar 10 ppm (mg/L) dalam labu ukur 50 mL :

- a. Konsentrasi 0,25 ppm (mg/L)

$$V_1 \times C_1 = V_2 \times C_2$$

$$V_1 \times 10 \text{ mg/L} = 50 \text{ ml} \times 0,25 \text{ mg/L}$$

$$V_1 = \frac{50 \text{ mL} \times 0,25 \text{ mg/L}}{10 \text{ mg/L}}$$

$$V_1 = 1,25 \text{ mL}$$

- b. Konsentrasi 0,5 ppm (mg/L)

$$V_1 \times C_1 = V_2 \times C_2$$

$$V_1 \times 10 \text{ mg/L} = 50 \text{ ml} \times 0,5 \text{ mg/L}$$

$$V_1 = \frac{50 \text{ mL} \times 0,5 \text{ mg/L}}{10 \text{ mg/L}}$$

$$V_1 = 2,5 \text{ mL}$$

- c. Konsentrasi 1 ppm (mg/L)

$$V_1 \times C_1 = V_2 \times C_2$$

$$V_1 \times 10 \text{ mg/L} = 50 \text{ ml} \times 1 \text{ mg/L}$$

$$V_1 = \frac{50 \text{ mL} \times 1 \text{ mg/L}}{10 \text{ mg/L}}$$

$$V_1 = 5 \text{ ml}$$

- d. Konsentrasi 2 ppm (mg/L)

$$V_1 \times C_1 = V_2 \times C_2$$

$$V_1 \times 10 \text{ mg/L} = 50 \text{ ml} \times 2 \text{ mg/L}$$

$$V_1 = \frac{50 \text{ mL} \times 2 \text{ mg/L}}{10 \text{ mg/L}}$$

$$V_1 = 10 \text{ mL}$$

e. Konsentrasi 5 ppm (mg/L)

$$V_1 \times C_1 = V_2 \times C_2$$

$$V_1 \times 10 \text{ mg/L} = 50 \text{ mL} \times 5 \text{ mg/L}$$

$$V_1 = \frac{50 \text{ mL} \times 5 \text{ mg/L}}{10 \text{ mg/L}}$$

$$V_1 = 25 \text{ mL}$$

Keterangan :

$V_1$  : Volume larutan induk

$V_2$  : Volume larutan pengencer

$C_1$  : Konsentrasi larutan induk dalam ppm (mg/L)

$C_2$  : Konsentrasi larutan pengencer dalam ppm (mg/L)

## Lampiran 2. Preparasi sampel



Pemanasan



Pengukuran suhu



Penambahan  
aquabidest



Penyaringan

**Lampiran 3. Hasil destruksi**



**Lampiran 4. Uji kualitatif**

Sampel A.1



Sampel A.2



Sampel A.3



Sampel B.1



Sampel B.2



Sampel B.3



Sampel C.1



Sampel C.2



Sampel C.3



Sampel D.1



Sampel D.2



Sampel D.3



Sampel E.1



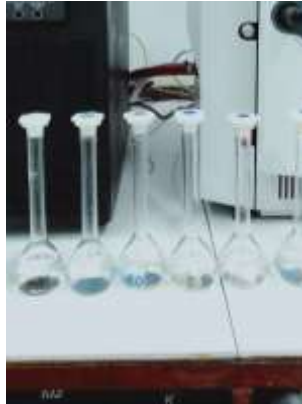
Sampel E.2



Sampel E.3

**Lampiran 5. Larutan induk, standar, aquabidest**

Larutan induk



Larutan Standar




Aquabidest



**Lampiran 6. Instrument AAS**



Lampiran 7. Data hasil AAS




Operator Name: Sugilo  
Results File: C:\SOI\AARM\DATA\Praktikum Pb 03-10-2022-4 SLP

Method: Analisa - Pb  
Autosampler: None  
Use SFI: No

Analysis Name: Analysis 1 03/10/2022  
Operator Name: Sugilo

Y = 0,06216x + 0,0005  
Fit: 1,0000  
Characteristic Conc: 0,0536



Print Date: 03/10/2022 10:04:47

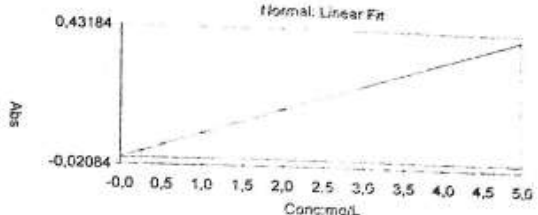
### General Parameters

Operator: sugilo  
Instrument Mode: Flame  
Detector: None

### Analysis Details

Spectrometer: CE 3000 AA520282A v1.56

### Solution Results - Pb



Sample ID	Signal Abs	Rsd %	Conc mg/L	Corrected Conc mg/L
<b>Pb Blank</b>	-0,00026	23,1	0,0000	
1	-0,00022		Background: 0,00241	03/10/2022 09:42:45
2	-0,00023		Background: 0,00264	03/10/2022 09:42:50
3	-0,00033		Background: 0,00417	03/10/2022 09:42:54
<b>Pb Standard 1</b>	0,02061	1,2	0,2500	
1	0,02078		Background: 0,00291	03/10/2022 09:44:06
2	0,02072		Background: 0,00188	03/10/2022 09:44:10
3	0,02034		Background: 0,00231	03/10/2022 09:44:14
<b>Pb Standard 2</b>	0,04305	1,2	0,5000	
1	0,04365		Background: 0,01075	03/10/2022 09:46:13
2	0,04287		Background: 0,01269	03/10/2022 09:46:18
3	0,04263		Background: 0,01177	03/10/2022 09:46:22
<b>Pb Standard 3</b>	0,08269	1,3	1,0000	
1	0,08352		Background: 0,01187	03/10/2022 09:48:19
2	0,08147		Background: 0,01040	03/10/2022 09:48:23
3	0,08308		Background: 0,00946	03/10/2022 09:48:27
<b>Pb Standard 4</b>	0,16478	0,6	2,0000	
1	0,16524		Background: 0,01498	03/10/2022 09:50:12
2	0,16360		Background: 0,01333	03/10/2022 09:50:17
3	0,16551		Background: 0,01471	03/10/2022 09:50:21
<b>Pb Standard 5</b>	0,41127	0,4	5,0000	
1	0,41080		Background: 0,01640	03/10/2022 09:52:50
2	0,41289		Background: 0,01502	03/10/2022 09:52:54
3	0,41012		Background: 0,01696	03/10/2022 09:52:58
<b>Pb A1</b>	0,02215	1,0	0,2530	0,2610
1	0,02240		Background: 0,02325	03/10/2022 09:53:42
2	0,02198		Background: 0,02181	03/10/2022 09:53:47
3	0,02207		Background: 0,02235	03/10/2022 09:53:51
<b>Pb A2</b>	0,00078	19,7	0,0030	0,0030
1	0,00094		Background: 0,02237	03/10/2022 09:54:20
2	0,00078		Background: 0,02211	03/10/2022 09:54:24
3	0,00063		Background: 0,02215	03/10/2022 09:54:29

SOLAAR Data Station V11.11

Page 1 - Results

# SOLAAR AA Report

Operator Name: Sugito

Results File: C:\SOLAAR\MDATA\Praktikum Pb 03 - 10-2022-4 SLR

Report Date: 03/10/2022 10:04:47

## Solution Results - Pb

Sample ID	Signal	Rsd	Conc	Corrected Conc
	Abs	%	mg/L	mg/L
<b>Pb A3</b>	<b>0,00161</b>	<b>8,2</b>	<b>0,0131</b>	<b>0,0131</b>
	1 0,00100	Background: 0,02351		03/10/2022 09:54:50
	2 0,00171	Background: 0,02342		03/10/2022 09:54:54
	3 0,00146	Background: 0,02257		03/10/2022 09:54:59
<b>Pb B1</b>	<b>0,00284</b>	<b>2,7</b>	<b>0,0281</b>	<b>0,0281</b>
	1 0,00287	Background: 0,02545		03/10/2022 09:55:18
	2 0,00290	Background: 0,02572		03/10/2022 09:55:22
	3 0,00275	Background: 0,02580		03/10/2022 09:55:26
<b>Pb B2</b>	<b>0,00036</b>	<b>39,1</b>	<b>-0,0022</b>	<b>-0,0022</b>
	1 0,00052	Background: 0,02774		03/10/2022 09:55:47
	2 0,00029	Background: 0,02625		03/10/2022 09:55:51
	3 0,00026	Background: 0,02601		03/10/2022 09:55:55
<b>Pb B3</b>	<b>0,00151</b>	<b>10,4</b>	<b>0,0118</b>	<b>0,0118</b>
	1 0,00159	Background: 0,02649		03/10/2022 09:56:15
	2 0,00133	Background: 0,02545		03/10/2022 09:56:19
	3 0,00161	Background: 0,02593		03/10/2022 09:56:23
<b>Pb C1</b>	<b>0,00047</b>	<b>31,5</b>	<b>-0,0007</b>	<b>-0,0007</b>
	1 0,00065	Background: 0,02499		03/10/2022 09:56:44
	2 0,00041	Background: 0,02442		03/10/2022 09:56:48
	3 0,00037	Background: 0,02475		03/10/2022 09:56:52
<b>Pb C2</b>	<b>0,00280</b>	<b>2,3</b>	<b>0,0275</b>	<b>0,0275</b>
	1 0,00287	Background: 0,02486		03/10/2022 09:57:11
	2 0,00275	Background: 0,02210		03/10/2022 09:57:16
	3 0,00277	Background: 0,02283		03/10/2022 09:57:20
<b>Pb C3</b>	<b>0,00123</b>	<b>4,5</b>	<b>0,0085</b>	<b>0,0085</b>
	1 0,00129	Background: 0,02340		03/10/2022 09:57:39
	2 0,00122	Background: 0,02940		03/10/2022 09:57:43
	3 0,00118	Background: 0,02676		03/10/2022 09:57:48
<b>Pb D1</b>	<b>0,00107</b>	<b>8,1</b>	<b>0,0065</b>	<b>0,0065</b>
	1 0,00099	Background: 0,02420		03/10/2022 09:58:45
	2 0,00116	Background: 0,02479		03/10/2022 09:58:49
	3 0,00106	Background: 0,02588		03/10/2022 09:58:53
<b>Pb D2</b>	<b>0,00053</b>	<b>70,8</b>	<b>0,0000</b>	<b>0,0000</b>
	1 0,00011	Background: 0,02892		03/10/2022 09:59:14
	2 0,00082	Background: 0,02347		03/10/2022 09:59:18
	3 0,00068	Background: 0,02534		03/10/2022 09:59:23
<b>Pb D3</b>	<b>-0,00076</b>	<b>10,5</b>	<b>-0,0157 C</b>	<b>-0,0157 C</b>
	-1 -0,00062	Background: 0,02371		03/10/2022 09:59:48
	-2 -0,00078	Background: 0,02660		03/10/2022 09:59:53
	-3 -0,00067	Background: 0,02600		03/10/2022 09:59:57
<b>Pb D3</b>	<b>0,00107</b>	<b>26,1</b>	<b>0,0065</b>	<b>0,0065</b>
	1 0,00139	Background: 0,00673		03/10/2022 10:01:15
	2 0,00090	Background: 0,00882		03/10/2022 10:01:19
	3 0,00092	Background: 0,01177		03/10/2022 10:01:24
<b>Pb E1</b>	<b>-0,00008</b>	<b>&gt;99</b>	<b>-0,0075</b>	<b>-0,0075</b>
	1 0,00013	Background: 0,00812		03/10/2022 10:01:46
	2 -0,00031	Background: 0,00844		03/10/2022 10:01:50
	3 -0,00005	Background: 0,00677		03/10/2022 10:01:54

# SOLAAR AA Report

Operator Name: Sugito

Results File: C:\SOLAAR\MIDATA\Praktikum Pb 03-10-2022-4,SLR

Report Date: 03/10/2022 10:04:47

## Solution Results - Pb

Sample ID	Signal	Rsd	Conc	Corrected Conc
	Abs	%	mg/L	mg/L
<b>Pb E2</b>	<b>0,00055</b>	<b>34,3</b>	<b>0,0002</b>	<b>0,0002</b>
1	0,00072	Background: 0,01110		03/10/2022 10:02:13
2	0,00057	Background: 0,01087		03/10/2022 10:02:18
3	0,00035	Background: 0,00918		03/10/2022 10:02:22
<b>Pb E3</b>	<b>-0,00007</b>	<b>15,4</b>	<b>-0,0171 C</b>	<b>-0,0171 C</b>
-1	-0,00075	Background: 0,00757		03/10/2022 10:02:43
-2	-0,00055	Background: 0,00660		03/10/2022 10:02:48
-3	-0,00044	Background: 0,00564		03/10/2022 10:02:52
<b>Pb E3</b>	<b>0,00107</b>	<b>14,8</b>	<b>0,0065</b>	<b>0,0065</b>
1	0,00097	Background: 0,01331		03/10/2022 10:03:32
2	0,00125	Background: 0,00991		03/10/2022 10:03:36
3	0,00098	Background: 0,00802		03/10/2022 10:03:41
<b>Pb E1</b>	<b>0,00291</b>	<b>4,2</b>	<b>0,0290</b>	<b>0,0290</b>
1	0,00293	Background: 0,01059		03/10/2022 10:04:11
2	0,00278	Background: 0,01103		03/10/2022 10:04:15
3	0,00303	Background: 0,00962		03/10/2022 10:04:19

### Lampiran 8. Data presisi dan akurasi larutan standar


**Operator Name** Sugito  
**Results File** C:\SOLAAR\DATA\Analisa Pb - 08-11-2022 SLR  
**Instrument Mode** Flame  
**Dilution** None  
**Report Date** 08/11/2022 10:55:37

**Method** Analisa - Pb  
**Autosampler** None  
**Use SFI** No

#### General Parameters

**Operator** sugito  
**Instrument Mode** Flame  
**Dilution** None

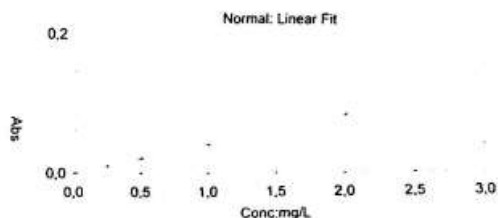
**Analysis Name** Analysis 1 08/11/2022  
**Operator Name** Sugito

#### Analysis Details

**Spectrometer** iCE 3000 AA05202804 v1.30

**Y =** 0.04248x - 0.0001  
**Fit** 0.9999  
**Characteristic Conc.** 0.1036

#### Solution Results - Pb



Sample ID	Signal Abs	Rsd %	Conc mg/L	Corrected Conc mg/L
Pb Blank	0.00037	57,8	0,0000	
	0.00013		Background 0.00107	08/11/2022 10:49:13
	0.00021		Background 0.00127	08/11/2022 10:49:18
	0.00047		Background 0.00078	08/11/2022 10:49:22
Pb Standard 1	0.00058		Background 0.00092	08/11/2022 10:49:26
	0,01016	2,1	0,2500	
	0.00987		Background 0.00054	08/11/2022 10:49:47
	0.01013		Background 0.00099	08/11/2022 10:49:51
Pb Standard 2	0.01034		Background 0.00140	08/11/2022 10:49:56
	0.01029		Background 0.00040	08/11/2022 10:50:00
	0,02098	0,4	0,5000	
	0.02093		Background 0.00173	08/11/2022 10:50:17
Pb Standard 3	0.02109		Background 0.00039	08/11/2022 10:50:21
	0.02089		Background 0,00048	08/11/2022 10:50:26
	0.02100		Background -0.00005	08/11/2022 10:50:30
	0,04184	1,3	1,0000	
Pb Standard 4	0.04126		Background 0.00047	08/11/2022 10:50:48
	0.04156		Background 0.00105	08/11/2022 10:50:52
	0.04249		Background 0.00059	08/11/2022 10:50:56
	0.04206		Background 0.00016	08/11/2022 10:51:01
Pb Standard 5	0,08548	0,5	2,0000	
	0.08536		Background 0.00199	08/11/2022 10:51:23
	0.08505		Background 0.00076	08/11/2022 10:51:27
	0.08604		Background 0.00032	08/11/2022 10:51:31
Pb Standard 5	0.08551		Background 0.00098	08/11/2022 10:51:36
	0,12707	0,7	3,0000	
	0.12829		Background 0.00179	08/11/2022 10:51:56
	0.12684		Background 0.00271	08/11/2022 10:52:00
Pb Standard 5	0.12618		Background 0.00236	08/11/2022 10:52:04
	0.12699		Background 0.00117	08/11/2022 10:52:09

## Lampiran 9. Surat pengantar penelitian



Nomor : 964 / H6 - 04 / 31.08.2022

Lamp. : -

H a l : Ijin Penelitian Skripsi

Kepada :

Yth. Bapak / Ibu Direktur / Kepala / Pimpinan

UPT LAB, UNS

Surakarta

Dengan hormat,

Berkaitan dengan tugas penelitian mahasiswa Program Studi S1 Farmasi Fakultas Farmasi Universitas Setia Budi, maka dengan ini kami mengajukan permohonan ijin bagi mahasiswa kami :

N a m a : RIVA JAYANTI NAULI

NIM : 25195939A

Waktu Penelitian :

No Tlpn / WA :

Judul Penelitian : Analisis Kandungan Timbal (Pb) Pada Lotion Pemutih Di Toko Online Dan Toko Swalayan Menggunakan Spektrofotometri Serapan Atom (SSA)

Untuk keperluan / memperoleh Data )\* :

Pengujian kadar timbal

Besar harapan kami atas terkabulnya permohonan ini yang tentunya akan berguna bagi pembangunan nusa dan bangsa khususnya kemajuan dibidang pendidikan.

Demikian atas kerja samanya disampaikan banyak terima kasih.

Surakarta, 31 Agustus 2022  
Dekan,



Prof. Dr. Apt. R.A. Oetari, SU., MM., M.Sc.  
NIS. 01200409162098

**Lampiran 10. Surat izin penelitian**

Nomer : 0347/UPT-lab/05.08.2022  
Lamp. : -  
Hal : Ijin Penelitian di Laboratorium

Kepada Yth. Bapak/Ibu Laboran dan PU

Di Tempat

Dengan hormat,

Sehubungan dengan penyelesaian penelitian mahasiswa, maka kami UPT laboratorium menyetujui untuk praktikum kepada :

Nama/NIM : Riva Jayanti Nauli/25195939A  
Fakultas : Farmasi  
Nomor Lab & Masa Berlaku : 4 selama 25 hari (tgl 5 September – 7 Oktober 2022)

**\*Note : jam mengikuti jadwal lab apabila ada praktikum reguler penelitian dilarang masuk**

Atas perhatian dan kerjasamanya, kami ucapkan terimakasih.

Catatan : Membawa bukti transfer yang sudah difotokopi dan diperbesar sebanyak 4 lembar dan Selama praktikum mahasiswa yang bersangkutan harus memakai APD lengkap ( jas praktek, masker, sepatu )

Surakarta, 5 September 2022  
Ka UPT Laboratorium

Asik Gunawan