Lampiran 2. Spektrogram GC larutan sampel

- Spektrogram GC kontrol larutan alkohol

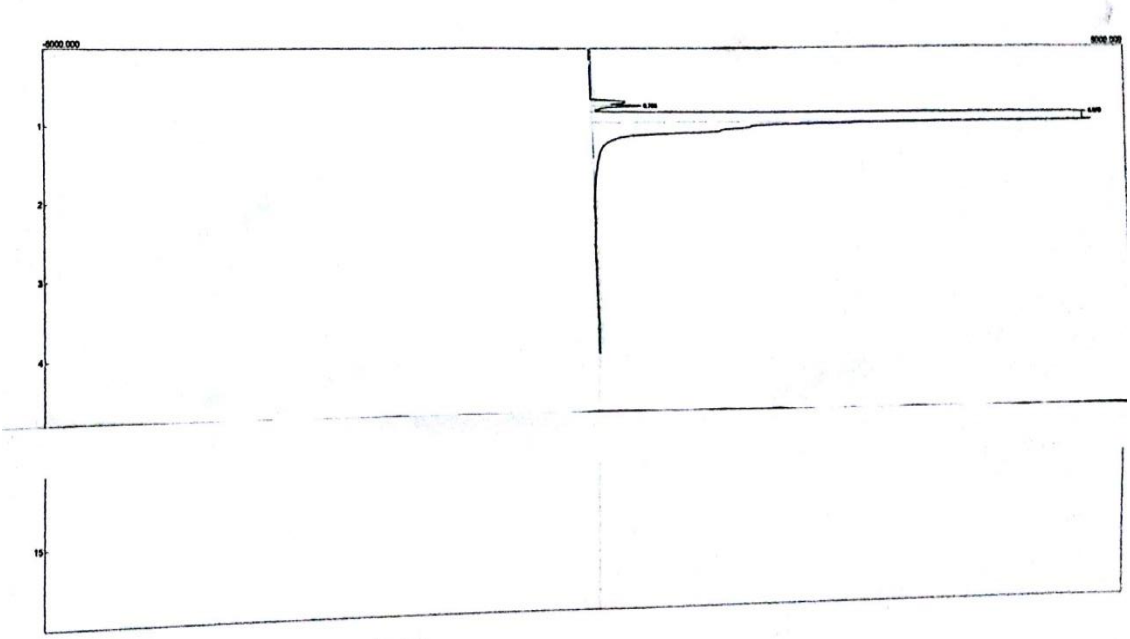
Lab name: SRI Instruments
Client: Valued Customer
Analysis date: 12/14/2016 10:53:59
Method: Syringe Injection
Lab ID:
Description: FID-CHANNEL 1
Column: RESTEK 15METER MXT-1
Carrier: Nitrogen 25 PSI
Temp. prog:
Events: C:\Peak426-32bit\cek.evt
Components: test.cpt
Data file: kontrol.chr ()
Sample: methanol
Comments: TYPE YOUR COMMENTS HERE

Temperature program:

Init temp	Hold	Ramp	Final temp
60.00	0.000	5.000	80.00

Events:

Time	Event



Retention	Component	Area	Area %
0.766		1103.4534	1.9978
0.870		54130.0898	98.0022
		55233.5432	100.0000

- Spektrogram GC larutan sampel fermentasi 2 jam

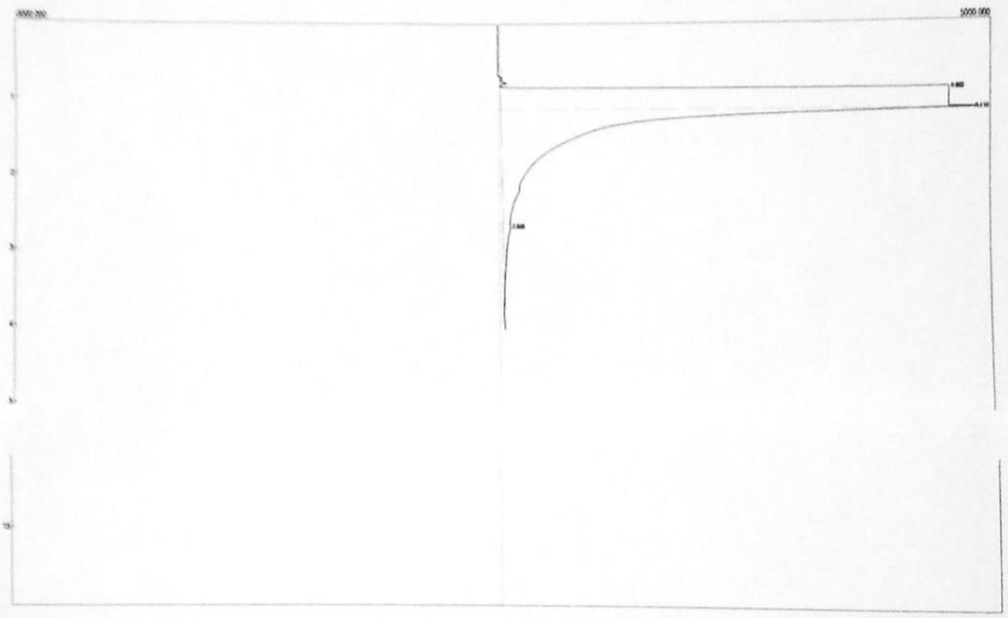
Lab name: SRI Instruments
Client: Valued Customer
Analysis date: 12/14/2016 11:03:06
Method: Syringe Injection
Lab ID:
Description: FID-CHANNEL 1
Column: RESTEK 15METER MXT-1
Carrier: Nitrogen 25 PSI
Temp. prog:
Events: C:\Peak426-32bit\cek.evt
Components: test.cpt
Data file: 2 jam.chr ()
Sample: methanol
Comments: TYPE YOUR COMMENTS HERE

Temperature program:

Init temp	Hold	Ramp	Final temp
80.00	0.000	5.000	80.00

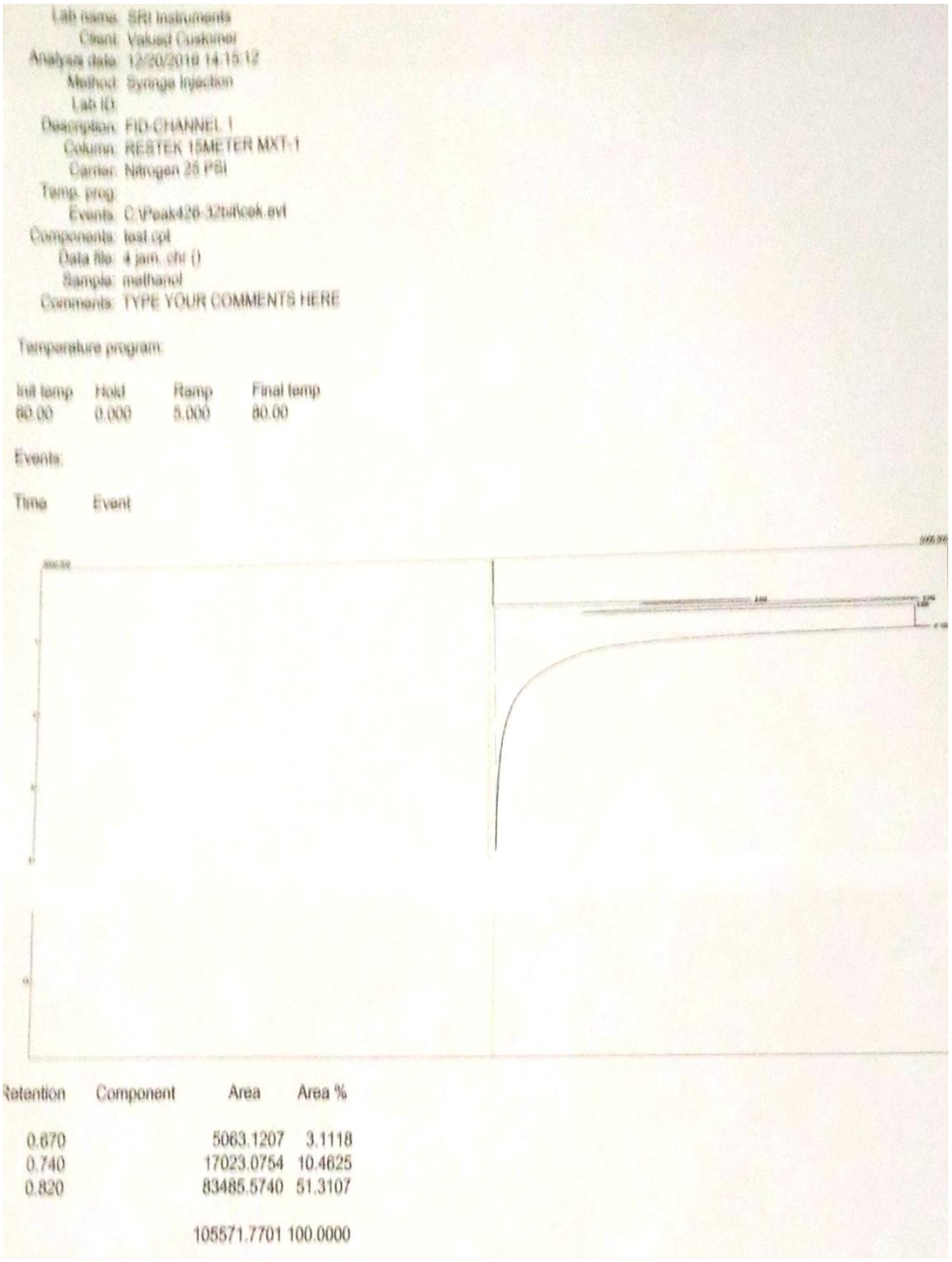
Events:

Time	Event



Retention	Component	Area	Area %
0.850		70230.4753	51.9041
2.636		2380.4647	1.7593
		72610.9400	100.0000

- Spektrogram GC larutan sampel fermentasi 4 jam



Lab name: SRI Instruments
Client: Valued Customer
Analysis date: 12/20/2018 14:15:12
Method: Syringe Injection
Lab ID:
Description: FID-CHANNEL 1
Column: RESTEK 15METER MXT-1
Carrier: Nitrogen 25 PSI
Temp. prog:
Events: C:\Peak426-32bit\cek.evt
Components: test.cpt
Data file: 4 jam .chr ()
Sample: methanol
Comments: TYPE YOUR COMMENTS HERE

Temperature program:

Init temp	Hold	Ramp	Final temp
60.00	0.000	5.000	80.00

Events:

Time	Event

Retention	Component	Area	Area %
0.670		5063.1207	3.1118
0.740		17023.0754	10.4625
0.820		83485.5740	51.3107
		105571.7701	100.0000

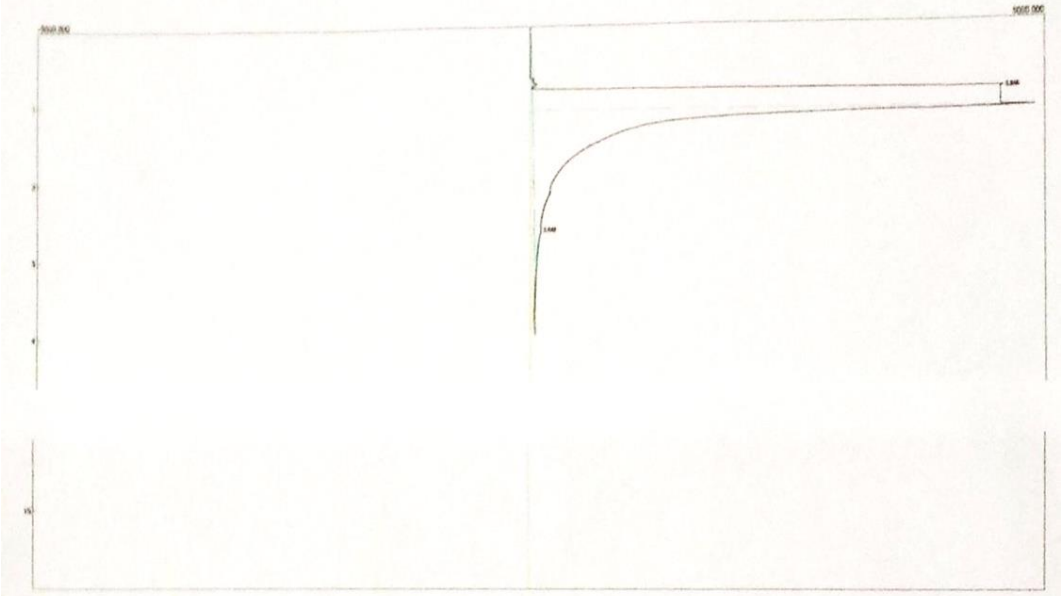
Lab name: SRI Instruments
Client: Valued Customer
Analysis date: 12/14/2016 11:12:42
Method: Syringe Injection
Lab ID:
Description: FID-CHANNEL 1
Column: RESTEK 15METER MXT-1
Carrier: Nitrogen 25 PSI
Temp. prog:
Events: C:\Peak426-32bit\cek.evt
Components: test.cpt
Data file: 5 jam.chr ()
Sample: methanol
Comments: TYPE YOUR COMMENTS HERE

Temperature program:

Init temp	Hold	Ramp	Final temp
60.00	0.000	5.000	80.00

Events:

Time	Event



Retention	Component	Area	Area %
0.846		127249.2273	98.3059
2.646		2192.8896	1.6941
		129442.1169	100.0000

- Spektrogram GC larutan sampel fermentasi 5 jam

- Spektrogram GC larutan sampel fermentasi 6 jam

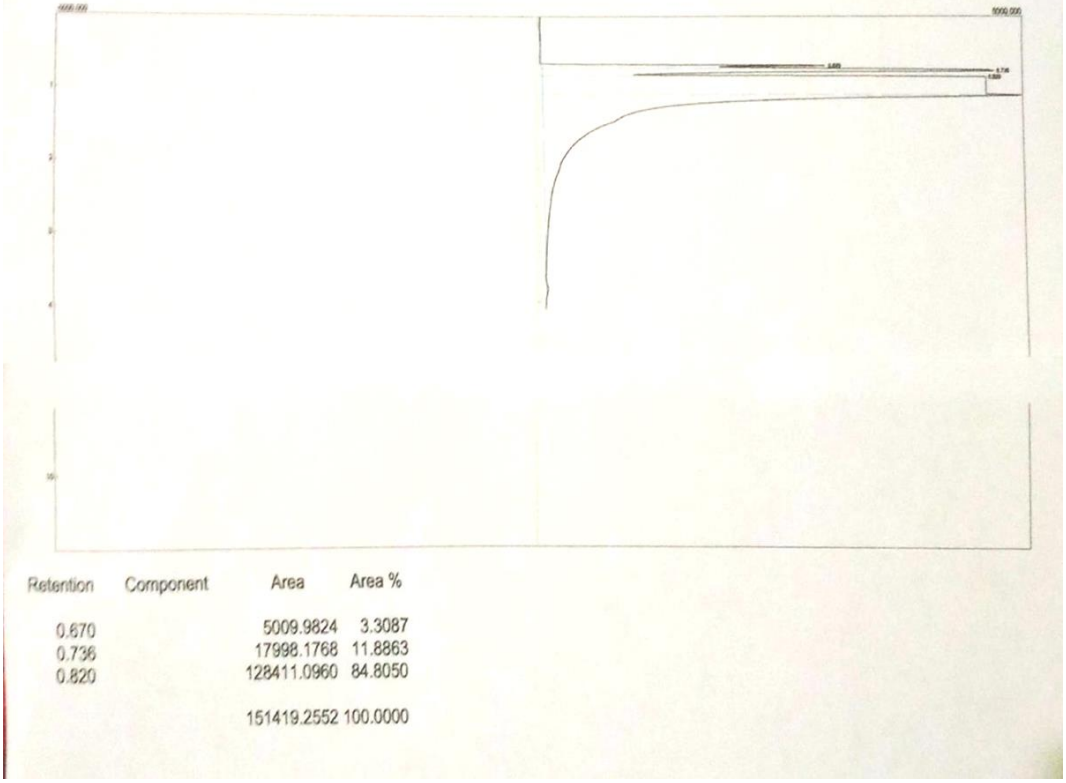
Lab name: SRI Instruments
Client: Valued Customer
Analysis date: 12/20/2016 14:22:39
Method: Syringe Injection
Lab ID:
Description: FID-CHANNEL 1
Column: RESTEK 15METER MXT-1
Carrier: Nitrogen 25 PSI
Temp. prog:
Events: C:\Peak426-32bit\cek.evt
Components: test.cpt
Data file: 6 jam.chr ()
Sample: methanol
Comments: TYPE YOUR COMMENTS HERE

Temperature program:

Init temp	Hold	Ramp	Final temp
60.00	0.000	5.000	80.00

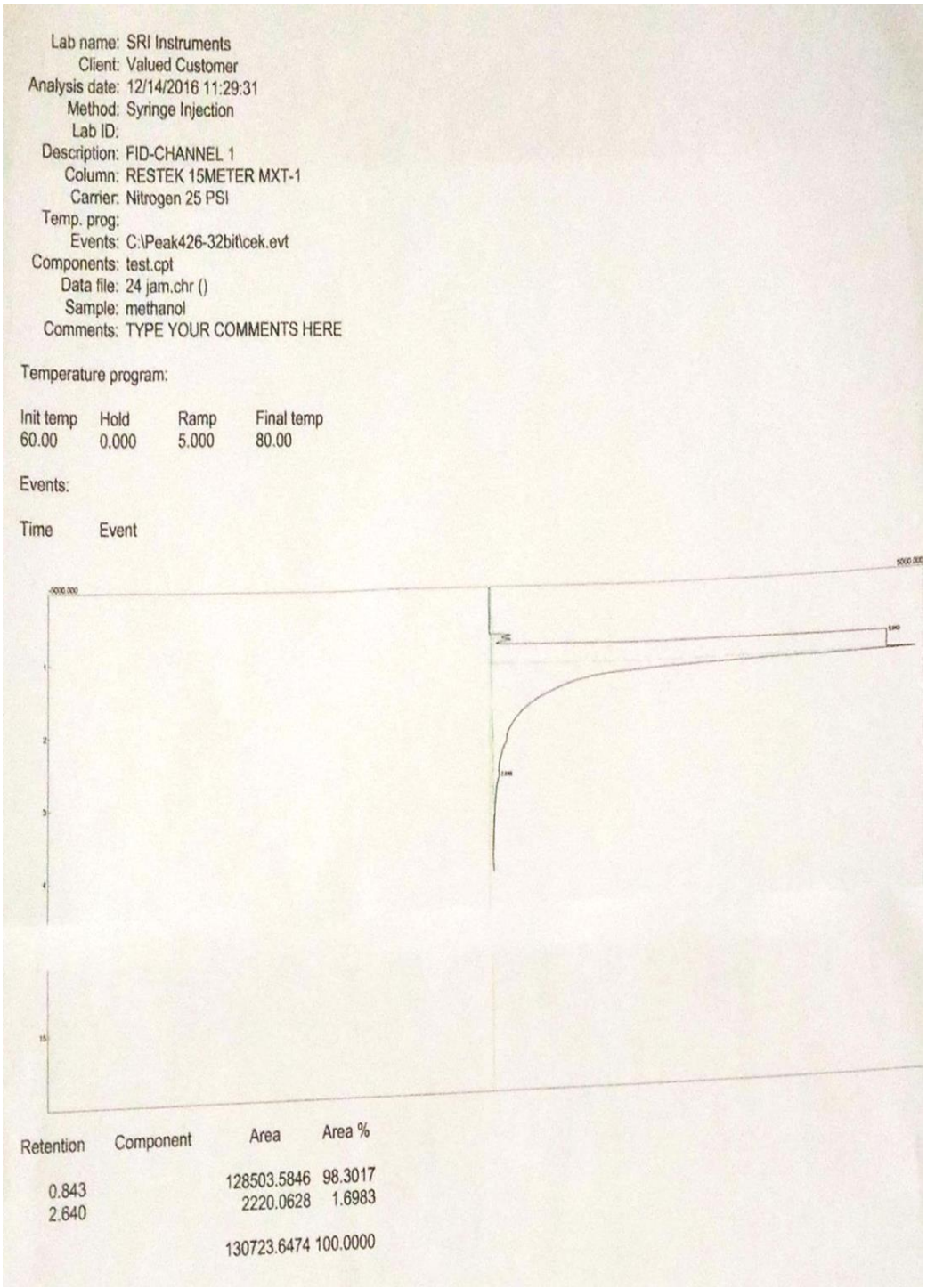
Events:

Time	Event



Retention	Component	Area	Area %
0.670		5009.9824	3.3087
0.736		17998.1768	11.8863
0.820		128411.0960	84.8050
		151419.2552	100.0000

- Spektrogram GC larutan sampel fermentasi 24 jam



Lab name: SRI Instruments
Client: Valued Customer
Analysis date: 12/14/2016 11:29:31
Method: Syringe Injection
Lab ID:
Description: FID-CHANNEL 1
Column: RESTEK 15METER MXT-1
Carrier: Nitrogen 25 PSI
Temp. prog:
Events: C:\Peak426-32bit\cek.evt
Components: test.cpt
Data file: 24 jam.chr ()
Sample: methanol
Comments: TYPE YOUR COMMENTS HERE

Temperature program:

Init temp	Hold	Ramp	Final temp
60.00	0.000	5.000	80.00

Events:

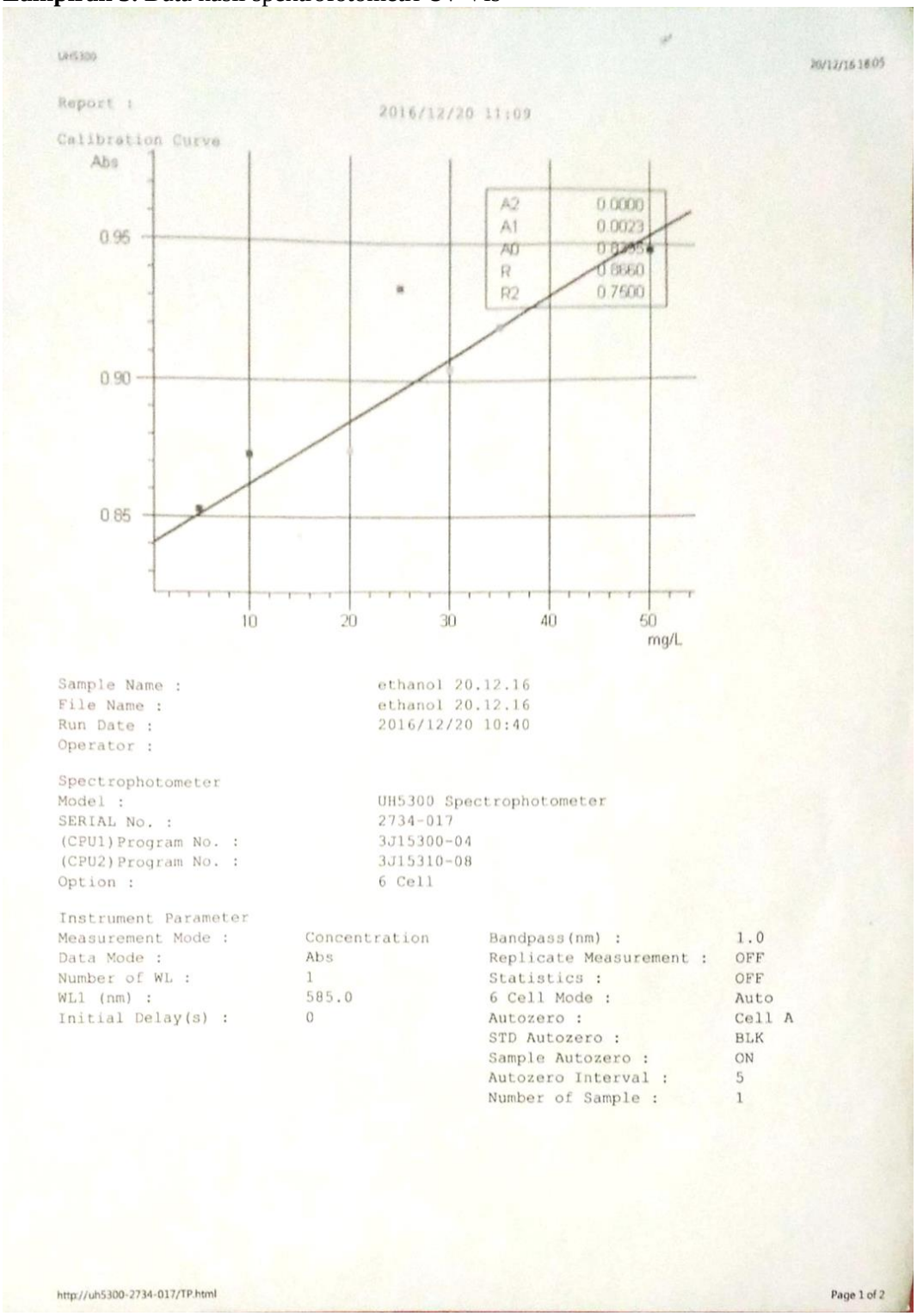
Time	Event

Retention	Component	Area	Area %
0.843		128503.5846	98.3017
2.640		2220.0628	1.6983
		130723.6474	100.0000

Lampiran 3. Perhitungan pembuatan larutan standar

- **Larutan induk 50%**
  $V1 \times M1 = V2 \times M2$
  $V1 \times 100\% = 25mL \times 50\%$
  $V1 = 12{,}5\ mL$
- **Larutan standar 5 %**
  $V1 \times M1 = V2 \times M2$
  $V1 \times 50\% = 25mL \times 5\%$
  $V1 = 2{,}5\ mL$
- **Larutan induk 10%**
  $V1 \times M1 = V2 \times M2$
  $V1 \times 50\% = 25mL \times 10\%$
  $V1 = 5\ mL$
- **Larutan standar 15 %**
  $V1 \times M1 = V2 \times M2$
  $V1 \times 50\% = 25mL \times 15\%$
  $V1 = 7{,}5mL$
- **Larutan standar 20 %**
  $V1 \times M1 = V2 \times M2$
  $V1 \times 50\% = 25mL \times 20\%$
  $V1 = 10\ mL$
- **Larutan induk 25%**
  $V1 \times M1 = V2 \times M2$
  $V1 \times 50\% = 25mL \times 25\%$
  $V1 = 12{,}5\ mL$
- **Larutan standar 30 %**
- $V1 \times M1 = V2 \times M2$
- $V1 \times 50\% = 25mL \times 30\%$
- $V1 = 15\ mL$
- **Larutan standar 35 %**
  $V1 \times M1 = V2 \times M2$
  $V1 \times 50\% = 25mL \times 35\%$
- $V1 = 17{,}5\ mL$
- **Larutan induk 50%**
- $V1 \times M1 = V2 \times M2$
- $V1 \times 50\% = 25mL \times 50\%$
- $V1 = 25\ mL$

Lampiran 3. Data hasil spektrofotometri Uv-Vis



UH5300 20/12/16 18:05

Report : 2016/12/20 11:09

Calibration Curve

Sample Name :	ethanol 20.12.16
File Name :	ethanol 20.12.16
Run Date :	2016/12/20 10:40
Operator :	

Spectrophotometer

Model :	UH5300 Spectrophotometer
SERIAL No. :	2734-017
(CPU1) Program No. :	3J15300-04
(CPU2) Program No. :	3J15310-08
Option :	6 Cell

Instrument Parameter

Measurement Mode :	Concentration	Bandpass(nm) :	1.0
Data Mode :	Abs	Replicate Measurement :	OFF
Number of WL :	1	Statistics :	OFF
WL1 (nm) :	585.0	6 Cell Mode :	Auto
Initial Delay(s) :	0	Autozero :	Cell A
		STD Autozero :	BLK
		Sample Autozero :	ON
		Autozero Interval :	5
		Number of Sample :	1

http://uh5300-2734-017/TP.html Page 1 of 2

- **Data hasil speektrofotometri Uv-Vis absorbansi larutan standar dan sampel**

20/12/16 18:05

UH5300

STD

STD No.	Abs	CONC (mg/L)	DIFF	RD	T
STD1	0.853	5.0000	0.9317	104.27164	0.11070
STD2	0.873	10.0000	4.7406	530.52918	0.56325
STD3	0.843	15.0000	-13.3676	-1495.98295	-1.58824
STD4	0.874	20.0000	-4.6435	-519.65330	-0.55170
STD5	0.933	25.0000	16.2442	1817.90160	1.93001
STD6	0.904	30.0000	-1.6089	-180.05165	-0.19116
STD7	0.919	35.0000	0.1127	12.60695	0.01338
STD8	0.948	50.0000	-2.4093	-269.62147	-0.28625

Curve Information

Calibration Curve Type :	1st Order
Calibration Curve Formula :	Abs=f(CONC)
Through Zero :	OFF
CONC Min :	0.0000
CONC Max :	100.0000
Calibration Curve Factor :	A0 : 0.8395 A1 : 0.0023
Factor :	Correlation Coefficient: R =0.8660
	Determination Coefficient: R2 =0.7500

Sample

Sample ID	Abs	CONC (mg/L)
2 jam	0.886	32.5275
4 jam	0.892	38.5295
5 jam	0.885	31.5138
6 jam	0.889	35.5540
24 jam	0.881	28.4469

Lampiran 4. Perhitungan konsentrasi alkohol dalam sampel

Diketahui :

Persamaan linear yang diperoleh : y = 0,002x + 0,838

Ditanya : konsentrasi alkohol dalam sampel = ...?

Jawab :

- **Kandungan alkohol dalam sampel 2 jam fermentasi**
- $y = 0{,}002x + 0{,}838$
  $0{,}886 = 0{,}002x + 0{,}838$
  $(0{,}886 - 0{,}838) = 0{,}002x$
  $0{,}048 = 0{,}002x = 24$
  Jadi, konsentrasi alkohol = 24%

- **Kandungan alkohol dalam sampel 4 jam fermentasi**
- $y = 0{,}002x + 0{,}838$
  $0{,}892 = 0{,}002x + 0{,}838$
  $(0{,}892 - 0{,}838) = 0{,}002x$
  $0{,}054 = 0{,}002x = 27$
  Jadi, konsentrasi alkohol = 27%

- **Kandungan alkohol dalam sampel 5 jam fermentasi**
- $y = 0{,}002x + 0{,}838$
  $0{,}885 = 0{,}002x + 0{,}838$
  $(0{,}885 - 0{,}838) = 0{,}002x$
  $0{,}047 = 0{,}002x$
  $x = 23{,}5$
  Jadi, konsentrasi alkohol = 23,5%

- **Kandungan alkohol dalam sampel 6 jam fermentasi**
- $y = 0{,}002x + 0{,}838$
  $0{,}889 = 0{,}002x + 0{,}838$
  $(0{,}889 - 0{,}838) = 0{,}002x$
  $0{,}051 = 0{,}002x$
  $x = 25{,}5$
  Jadi, konsentrasi alkohol = 25,5%

- **Kandungan alkohol dalam sampel 24 jam fermentasi**
- $y = 0{,}002x + 0{,}838$
  $0{,}881 = 0{,}002x + 0{,}838$
  $(0{,}881 - 0{,}838) = 0{,}002x$
  $0{,}043 = 0{,}002x$
  $x = 21{,}5$
  Jadi, konsentrasi alkohol = 21,5%