

From: P. Allan Kosecki, Blood Alcohol Technical Leader

To: Melinda Raines, Quality Manager *MM 10/19/17*

Date: 10/17/17

Subject: Switching from Nitrogen Cylinder to Nitrogen Generator

Background:

The Agilent headspace gas chromatograph uses nitrogen to pressurize the headspace vials and as a make-up gas for the flame ionization detectors (FID). The instrument also uses air as one of the gases burned in the FIDs. In July 2017, the source of nitrogen and air was changed from the PEAK nitrogen generator model NM20ZA-230v, serial number J06-06-09, to a nitrogen cylinder and a Domnick Hunter zero air generator model UHP-10ZA, serial number 09Z0025. The third gas used by the instrument is hydrogen supplied by Parker-Domnick Hunter hydrogen generator model 60HMD, serial number 13HMD0166.

System updates:

On October 10, 2017, I disconnected the nitrogen cylinder and the Domnick Hunter zero air generator. PEAK installed a new nitrogen generator, a new zero air generator, and an air compressor. The Peak Precision Air Compressor, serial number 770005370, supplies air to the Peak Zero Air generator, serial number ZA14-06-206, and the Peak Precision Nitrogen Trace 250 generator, serial number 770005056. The FID signal is about 4 to 6 picoamps using these two new generators.

On October 12, 2017, Will Adrian completed a quality assurance run on the instrument to confirm that the instrument was operating correctly with the new gas sources. See Appendix 1 for the run data. The data from the run confirm that instrument is operating correctly.

APPENDIX ONE

SCOTTSDALE POLICE DEPARTMENT CRIME LABORATORY BLOOD ALCOHOL FACE SHEET

ANALYSIS DATE 10/12/2017 SEQUENCE NAME PC12Oct17

EQUIPMENT

Pipettor Hamilton ML600EH7497 Hamilton ML600GJ10749
 Gas Chromatograph Agilent US14173023

INSTRUMENT CALIBRATION

Vial 1 0.02 calibrator Lot FN03241604 Coefficient of determination (r²)
 Vial 2 0.10 calibrator Lot FN06181501 0.99999
 Vial 3 0.20 calibrator Lot FN07201502
 Vial 4 0.40 calibrator Lot FN11191402

CALIBRATION VERIFICATION AND RESOLUTION TEST

Vial	Sample	Expected result	Measured result	Manufacturer/lot
5	Blank	Not detected	Not detected	SPD lab 090517
6	Volatiles mixture	6 compounds	6 compounds	SPD lab 020917WLA
7	Aqueous control	0.400 g/dL	0.410 g/dL	Lipomed 08012015-C
8	Aqueous control	0.040 g/dL	0.039 g/dL	Lipomed 09022015-A
9	Blood control	0.200 g/dL	0.198 g/dL	ACQ 407041529/3
10	Aqueous control	0.080 g/dL	0.081 g/dL	Lipomed 28082014-B
11	Aqueous control	0.150 g/dL	0.151 g/dL	Lipomed 09022015-C
12	Aqueous control	0.400 g/dL	0.404 g/dL	Lipomed 08012015-C
13	Aqueous control	0.040 g/dL	0.040 g/dL	Lipomed 09022015-A
14	Blood control	0.200 g/dL	0.202 g/dL	ACQ 407041529/3
15	Blank	Not detected	Not detected	SPD lab 090517

SUBJECT SAMPLES

Subjects in the sequence 0 Subjects requiring reanalysis 0

ADDITIONAL NOTES: Performance check, all testing proceeded as expected.

Run valid Run invalid
WA B1570 10/17/17
 Analyst

Run valid Run invalid
KOSECKI 10/17/17
 Technical Reviewer

SEQUENCE TABLE:

=====
Line : 1
Location : 1
Sample Information : 0.02
Sample Name : 0.020 Cerilliant FN03241604
Lims ID :
=====

=====
Line : 2
Location : 2
Sample Information : 0.1
Sample Name : 0.100 Cerilliant FN06181501
Lims ID :
=====

=====
Line : 3
Location : 3
Sample Information : 0.2
Sample Name : 0.200 Cerilliant FN07201502
Lims ID :
=====

=====
Line : 4
Location : 4
Sample Information : 0.4
Sample Name : 0.400 Cerilliant FN11191402
Lims ID :
=====

=====
Line : 5
Location : 5
Sample Information : Negative
Sample Name : blank 090517
Lims ID :
=====

=====
Line : 6
Location : 6
Sample Information :
Sample Name : volatiles mix 020917 WLA
Lims ID :
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=====
Line : 7
=====

Location : 7
Sample Information : 0.4
Sample Name : 0.400 Lipomed 08012015-C
Lims ID :

=====

Line : 8
Location : 8
Sample Information : 0.04
Sample Name : 0.040 Lipomed 09022015-A
Lims ID :

=====

Line : 9
Location : 9
Sample Information : 0.20
Sample Name : 0.20 ACQ 407041529/3
Lims ID :

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Line : 10
Location : 10
Sample Information : 0.080
Sample Name : 0.080 Lipomed 28082014-B
Lims ID :

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Line : 11
Location : 11
Sample Information : 0.150
Sample Name : 0.150 Lipomed 09022015-C
Lims ID :

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Line : 12
Location : 12
Sample Information : 0.4
Sample Name : 0.40 Lipomed 08012015-C
Lims ID :

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Line : 13
Location : 13
Sample Information : 0.04
Sample Name : 0.04 Lipomed 09022015-A
Lims ID :

=====

WA

Line : 14
Location : 14
Sample Information : 0.20
Sample Name : 0.20 ACQ 407041529/3
Lims ID :

Line : 15
Location : 15
Sample Information : Negative
Sample Name : blank 090517
Lims ID :

Sequence Summary Parameters:

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Print Sequence:	No
Print Logbook:	No
Print Method(s):	No
Print Analysis reports:	No
Print Statistics for Calib. runs:	No
Print Statistics for Sample runs:	No
Summary style:	Sample Summary

Scottsdale Police Department Crime Laboratory

Sequence Quality Assurance Summary

WA

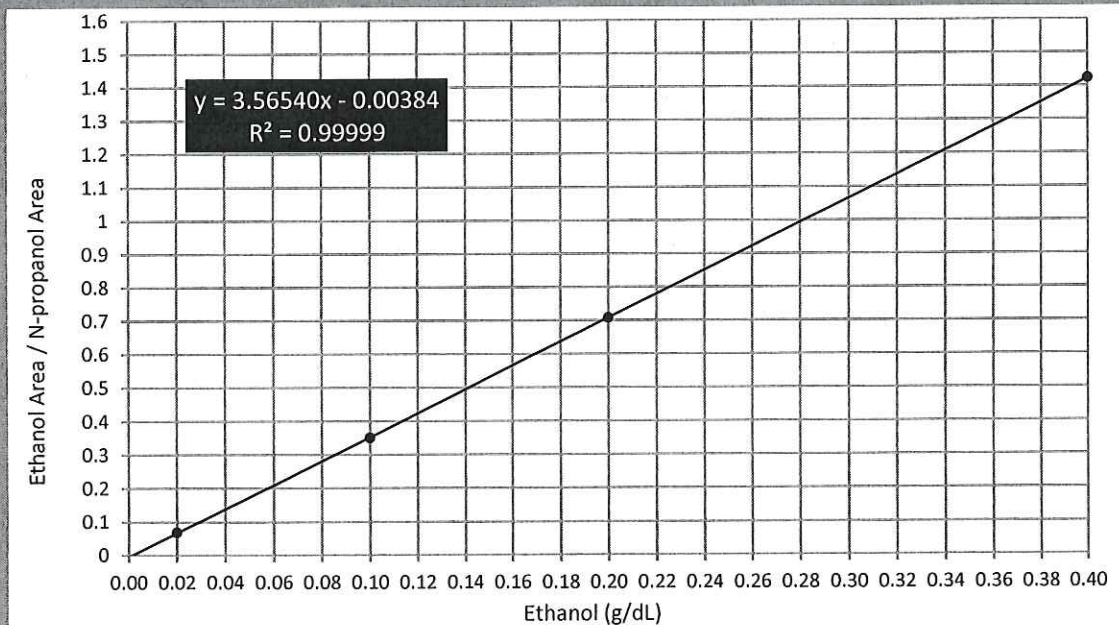
SEQUENCE NAME: PC12Oct17

ANALYST: Adrian

Sample Name	Vial	Measured Value (g/dL)	Expected Value (g/dL)	Percent Difference	Absolute Difference (g/dL)
blank 090517	5	negative	negative	-	-
0.400 Lipomed 08012015-C	7	0.410	0.400	2.50	0.010
0.040 Lipomed 09022015-A	8	0.039	0.040	2.50	-0.001
0.200 ACQ 407041529/3	9	0.198	0.200	1.00	-0.002
0.080 Lipomed 28082014-B	10	0.081	0.080	1.25	0.001
0.150 Lipomed 09022015-C	11	0.151	0.150	0.67	0.001
0.400 Lipomed 08012015-C	12	0.404	0.400	1.00	0.004
0.040 Lipomed 09022015-A	13	0.040	0.040	0.00	0.000
0.200 ACQ 407041529/3	14	0.202	0.200	1.00	0.002
blank 090517	15	negative	negative	-	-

Calibrator	Ethanol Area	N-propanol Area	Ratio
0.020	12.650	183.432	0.069
0.100	64.458	183.434	0.351
0.200	130.551	184.302	0.708
0.400	260.083	182.769	1.423

Calibration Line



WA

Scottsdale Police Department Crime Lab Volatiles Analysis

Sample: 0.020 Cerilliant FN03241604	Item number:
Injection date: 10/12/2017 4:23:39 PM	Vial: 1
Method: ethanol quant.M	Sequence: PC12Oct17
Instrument: US14173023 CN14160045	Analyst: Adrian
Data file: C:\Chem32\1\Data\PC12Oct17\1.D	

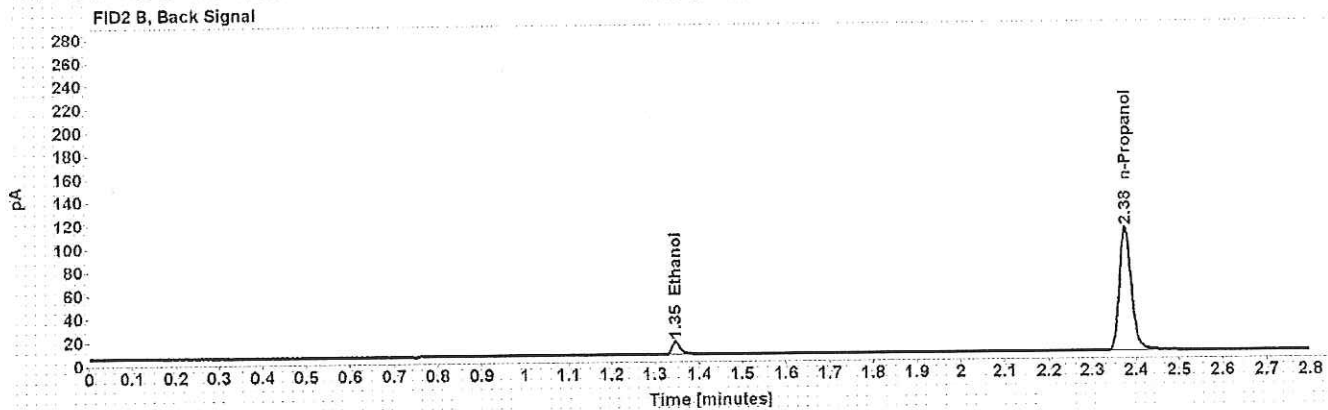
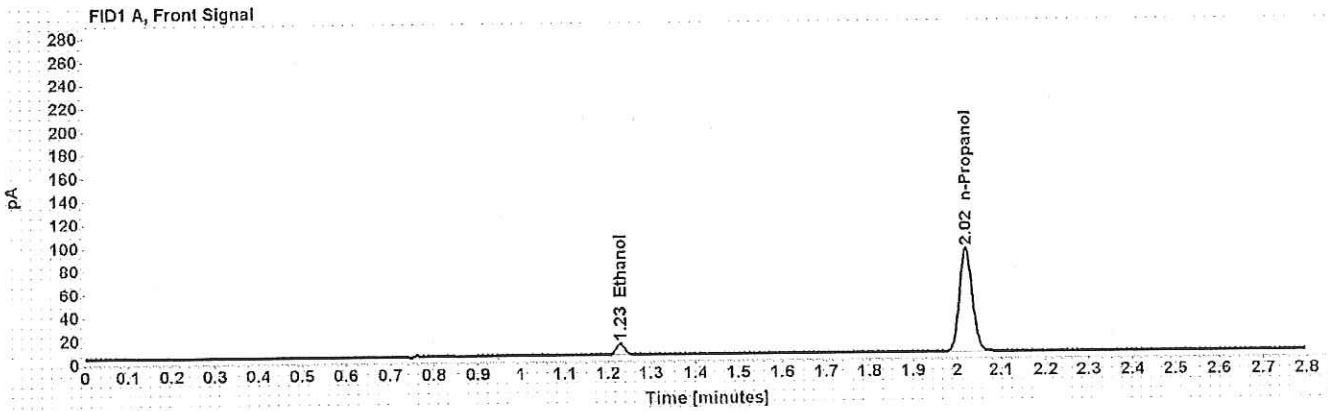


Table 1: FID 1 A (column DB-ALC1)

Compound	Time (min)	Peak Area
Ethanol	1.229	12.650
n-Propanol	2.020	183.432

Table 2: FID 2 B (column DB-ALC2)

Compound	Time (min)	Peak Area
Ethanol	1.347	14.143
n-Propanol	2.375	204.768

WA

Scottsdale Police Department Crime Lab Volatiles Analysis

Sample: 0.100 Cerilliant FN06181501	Item number:
Injection date: 10/12/2017 4:27:39 PM	Vial: 2
Method: ethanol quant.M	Sequence: PC12Oct17
Instrument: US14173023 CN14160045	Analyst: Adrian
Data file: C:\Chem32\1\Data\PC12Oct17\2.D	

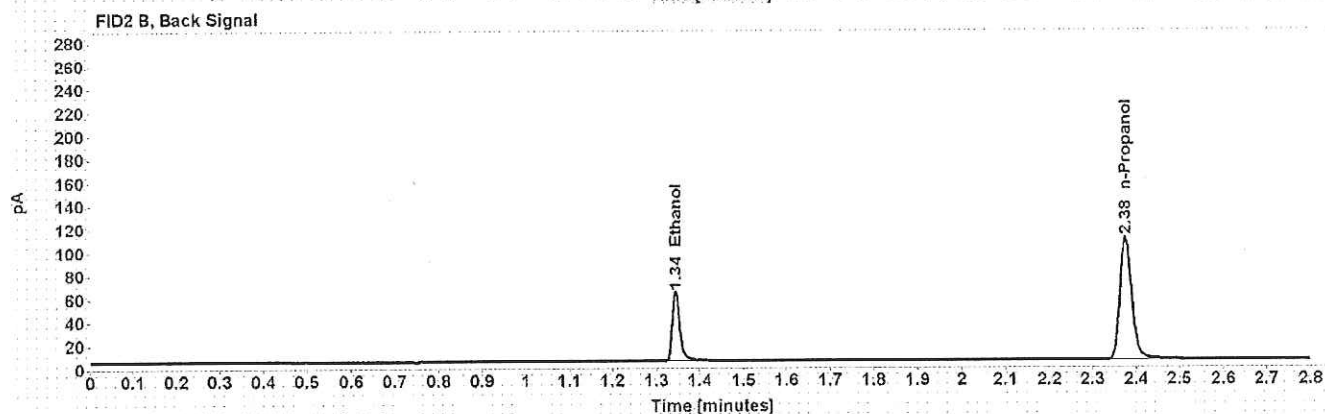
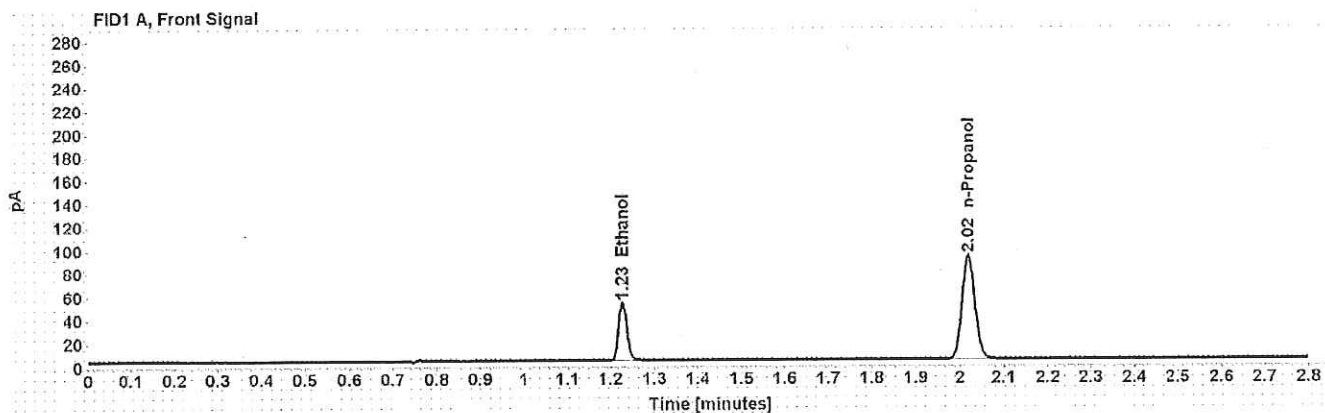


Table 1: FID 1 A (column DB-ALC1)

Compound	Time (min)	Peak Area
Ethanol	1.227	64.458
n-Propanol	2.020	183.434

Table 2: FID 2 B (column DB-ALC2)

Compound	Time (min)	Peak Area
Ethanol	1.344	73.644
n-Propanol	2.375	204.140

WA

Scottsdale Police Department Crime Lab Volatiles Analysis

Sample: 0.200 Cerilliant FN07201502
Injection date: 10/12/2017 4:31:38 PM
Method: ethanol quant.M
Instrument: US14173023 CN14160045
Data file: C:\Chem32\1\Data\PC12Oct17\3.D

Item number:
Vial: 3
Sequence: PC12Oct17
Analyst: Adrian

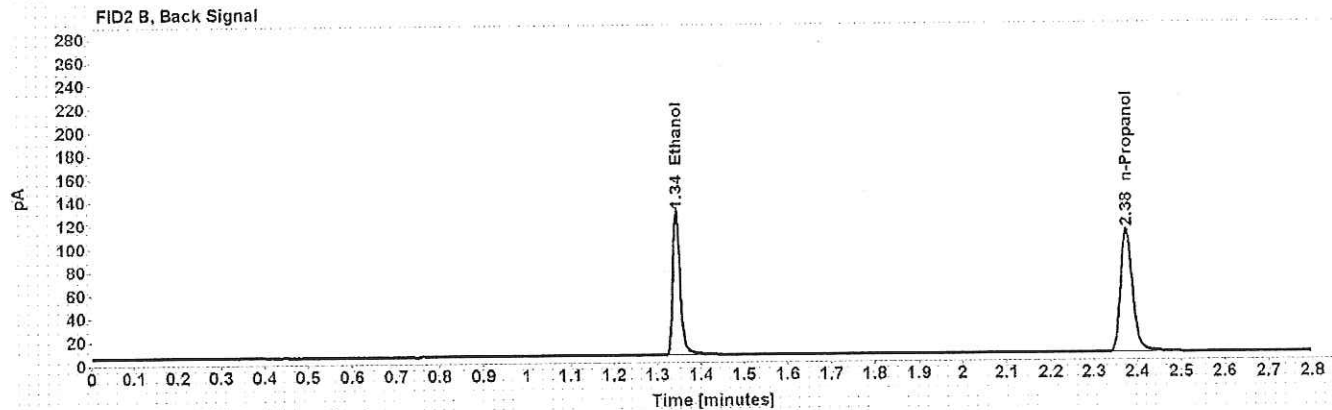
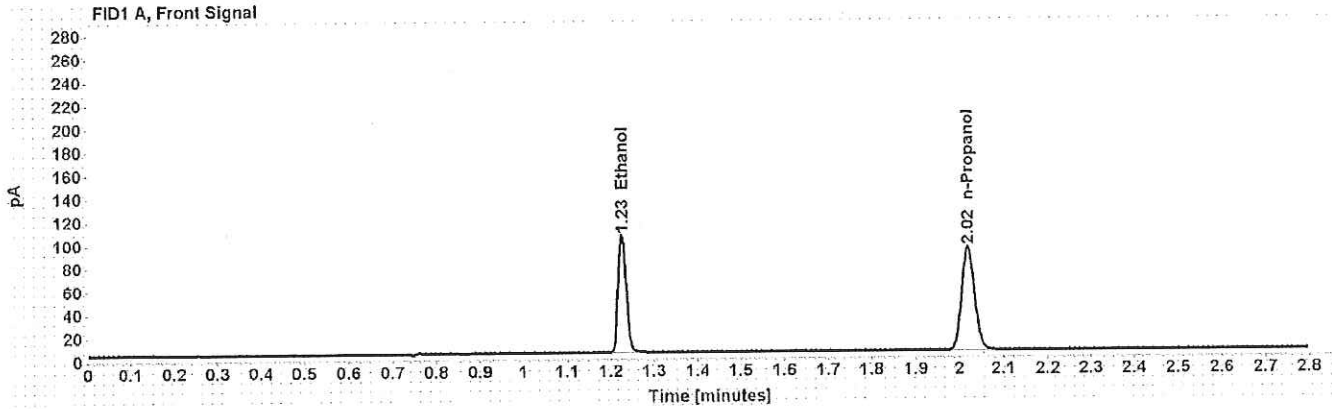


Table 1: FID 1 A (column DB-ALC1)

Compound	Time (min)	Peak Area
Ethanol	1.227	130.551
n-Propanol	2.020	184.302

Table 2: FID 2 B (column DB-ALC2)

Compound	Time (min)	Peak Area
Ethanol	1.343	150.224
n-Propanol	2.375	205.041

Scottsdale Police Department Crime Lab Volatiles Analysis

WA

Sample: 0.400 Cerilliant FN11191402	Item number:
Injection date: 10/12/2017 4:35:39 PM	Vial: 4
Method: ethanol quant.M	Sequence: PC12Oct17
Instrument: US14173023 CN14160045	Analyst: Adrian
Data file: C:\Chem32\1\Data\PC12Oct17\4.D	

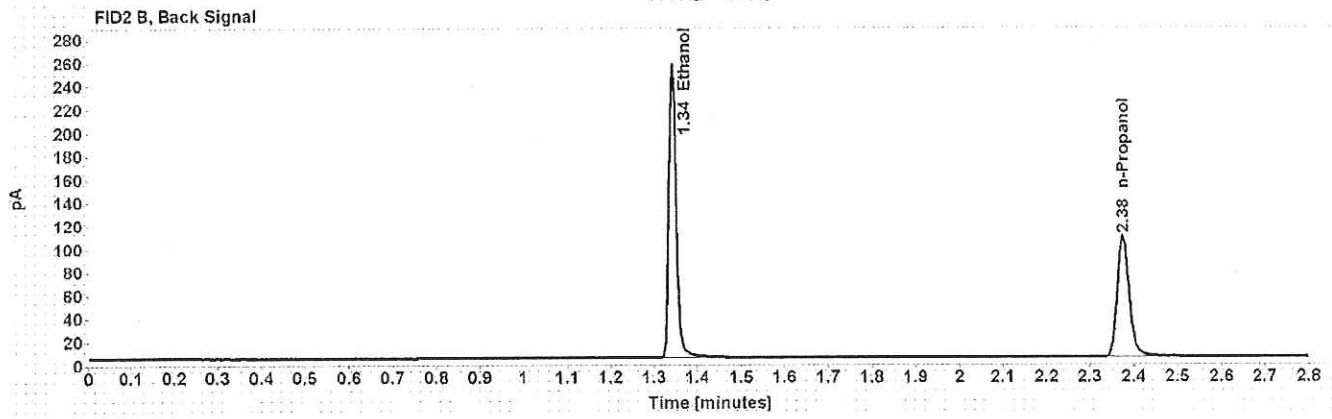
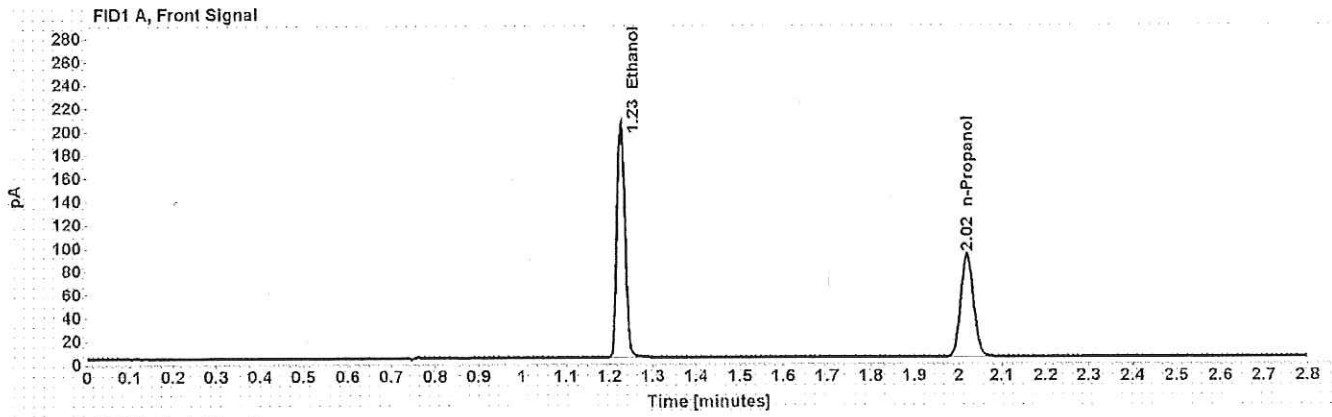


Table 1: FID 1 A (column DB-ALC1)

Compound	Time (min)	Peak Area
Ethanol	1.226	260.083
n-Propanol	2.019	182.769

Table 2: FID 2 B (column DB-ALC2)

Compound	Time (min)	Peak Area
Ethanol	1.342	302.664
n-Propanol	2.375	203.331

Scottsdale Police Department Crime Lab Volatiles Analysis

WA

Sample: blank 090517	Item number:
Injection date: 10/12/2017 4:39:38 PM	Vial: 5
Method: ethanol quant.M	Sequence: PC12Oct17
Instrument: US14173023 CN14160045	Analyst: Adrian
Data file: C:\Chem32\1\Data\PC12Oct17\5.D	

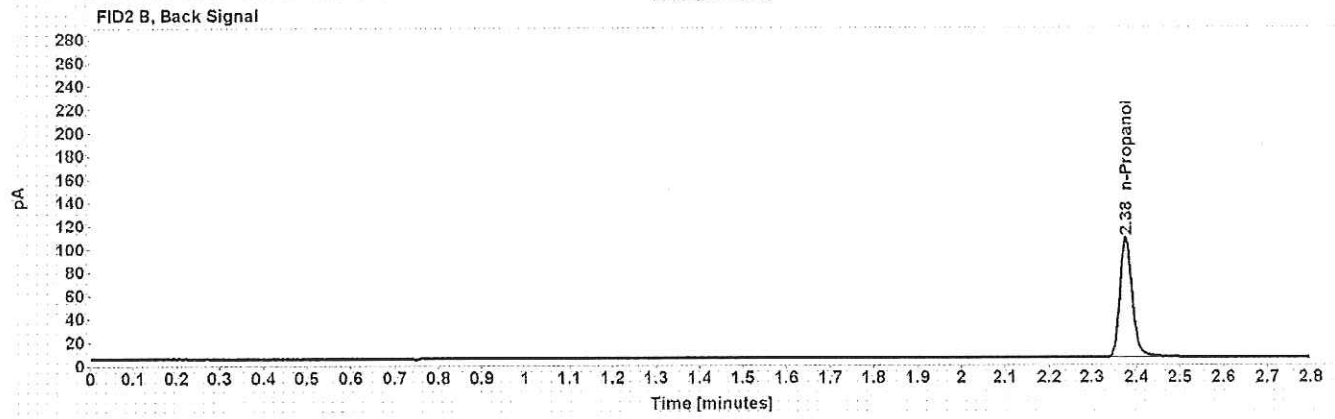
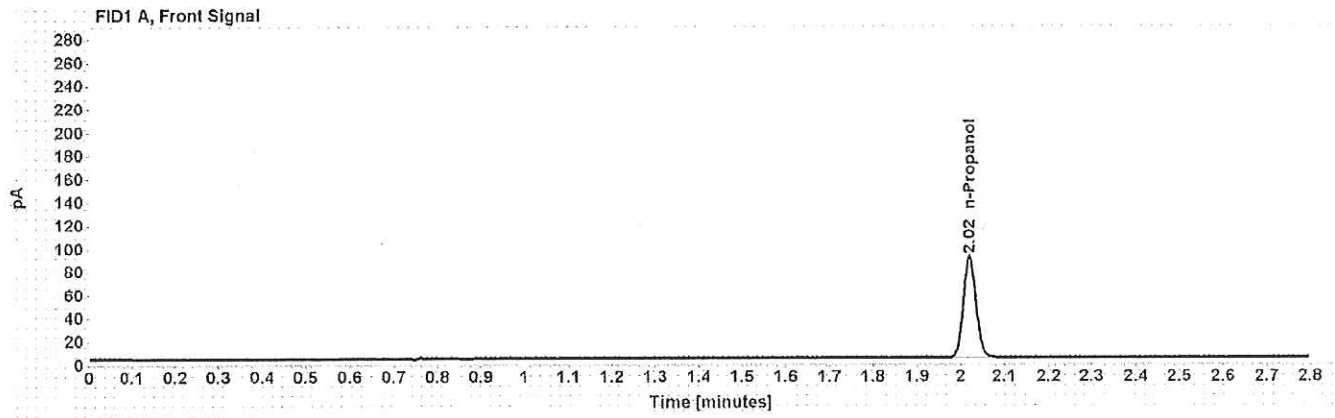


Table 1: FID 1 A (column DB-ALC1)

Compound	Amount (g/100mL)	Time (min)	Peak Area
n-Propanol	-----	2.020	179.908

Table 2: FID 2 B (column DB-ALC2)

Compound	Time (min)	Peak Area
n-Propanol	2.376	199.540

Scottsdale Police Department Crime Lab Volatiles Analysis

WLA

Sample: volatiles mix 020917 WLA	Item number:
Injection date: 10/12/2017 4:43:39 PM	Vial: 6
Method: ethanol quant.M	Sequence: PC12Oct17
Instrument: US14173023 CN14160045	Analyst: Adrian
Data file: C:\Chem32\1\Data\PC12Oct17\6.D	

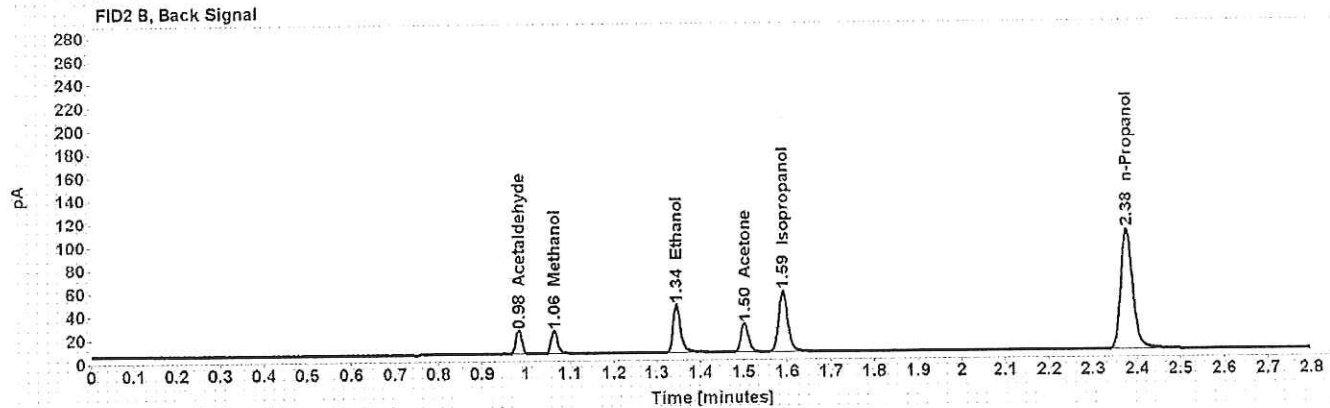
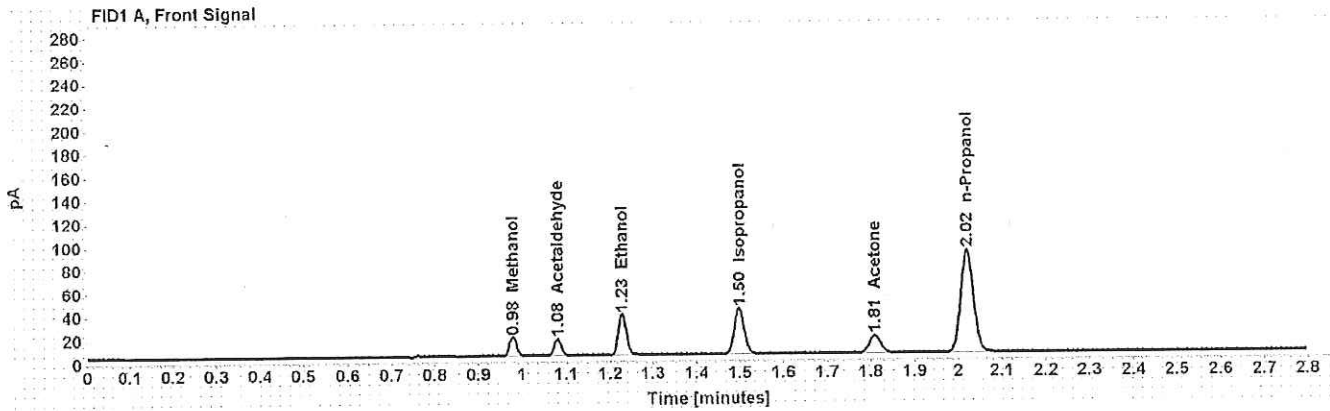


Table 1: FID 1 A (column DB-ALC1)

Compound	Amount (g/100mL)	Time (min)	Peak Area
Methanol	-----	0.979	18.276
Acetaldehyde	-----	1.080	15.899
>Ethanol	0.0711	1.228	45.267
Isopropanol	-----	1.497	65.448
Acetone	-----	1.809	27.886
n-Propanol	-----	2.020	181.263

Table 2: FID 2 B (column DB-ALC2)

Compound	Time (min)	Peak Area
Acetaldehyde	0.984	19.256
Methanol	1.064	20.782
Ethanol	1.345	51.471
Acetone	1.502	30.956
Isopropanol	1.590	77.008
n-Propanol	2.376	201.635

Scottsdale Police Department Crime Lab Volatiles Analysis

WA

Sample: 0.400 Lipomed 08012015-C	Item number:
Injection date: 10/12/2017 4:47:54 PM	Vial: 7
Method: ethanol quant.M	Sequence: PC12Oct17
Instrument: US14173023 CN14160045	Analyst: Adrian
Data file: C:\Chem32\11\Data\PC12Oct17\7.D	

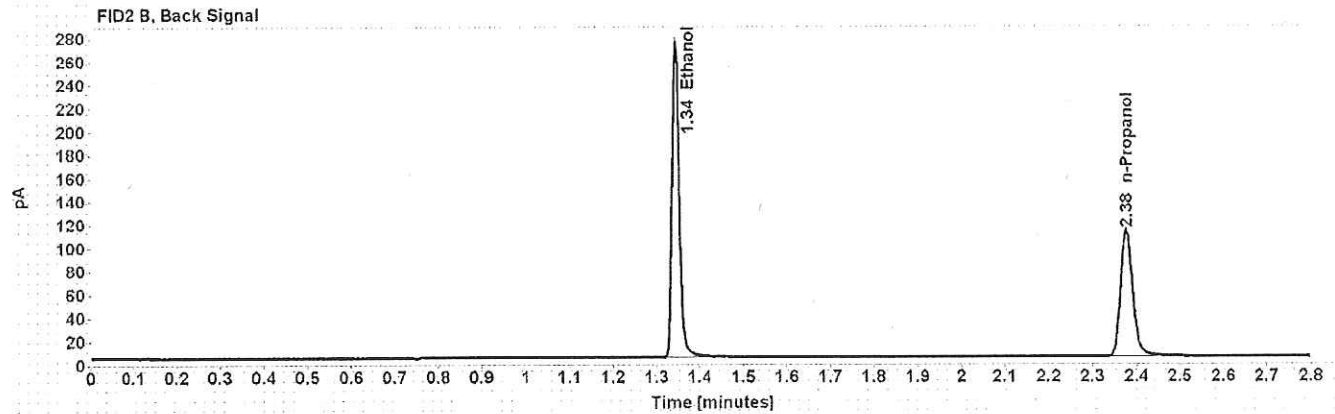
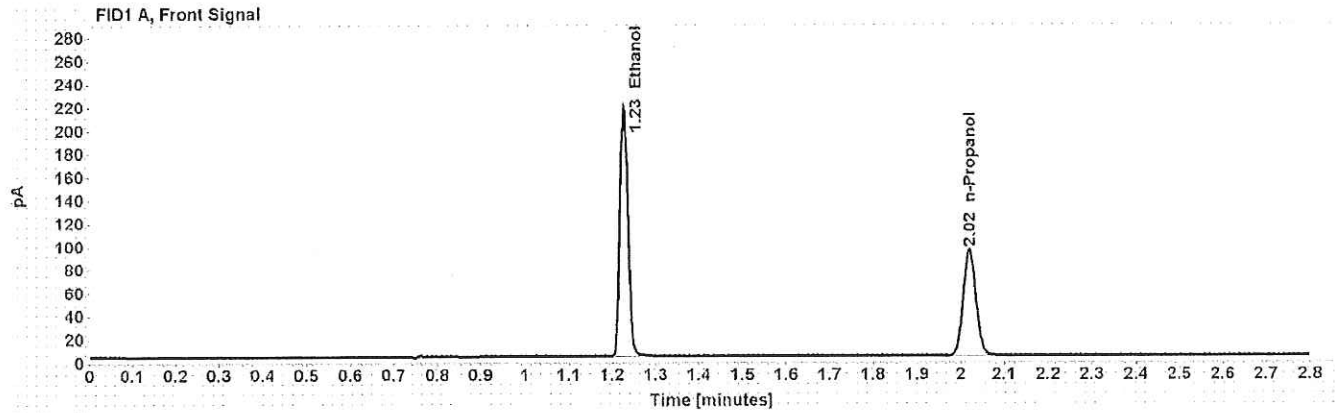


Table 1: FID 1 A (column DB-ALC1)

Compound	Amount (g/100mL)	Time (min)	Peak Area
>Ethanol	0.4100	1.227	275.893
n-Propanol	-----	2.020	189.226

Table 2: FID 2 B (column DB-ALC2)

Compound	Time (min)	Peak Area
Ethanol	1.344	321.323
n-Propanol	2.376	210.777

Scottsdale Police Department Crime Lab Volatiles Analysis

WA

Sample: 0.040 Lipomed 09022015-A	Item number:
Injection date: 10/12/2017 4:51:53 PM	Vial: 8
Method: ethanol quant.M	Sequence: PC12Oct17
Instrument: US14173023 CN14160045	Analyst: Adrian
Data file: C:\Chem32\1\Data\PC12Oct17\8.D	

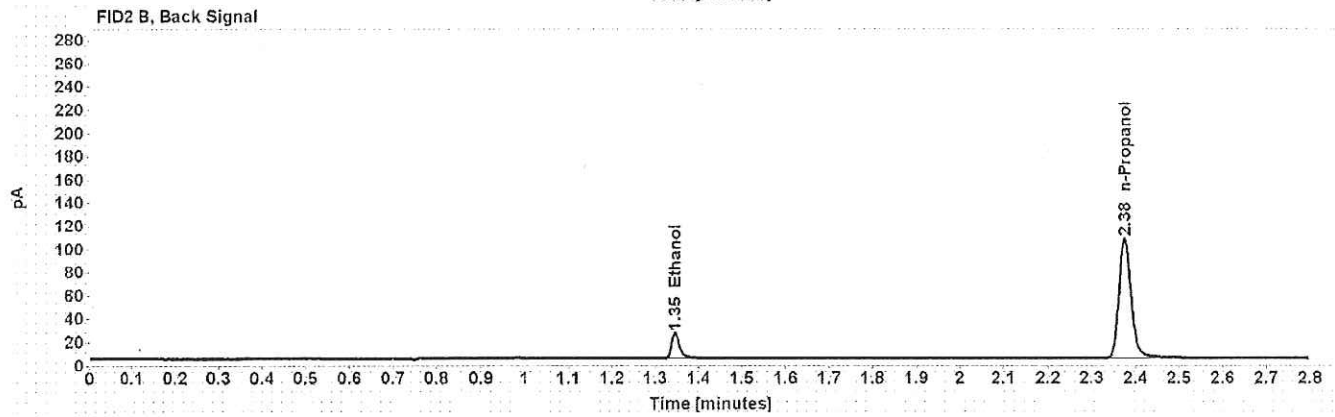
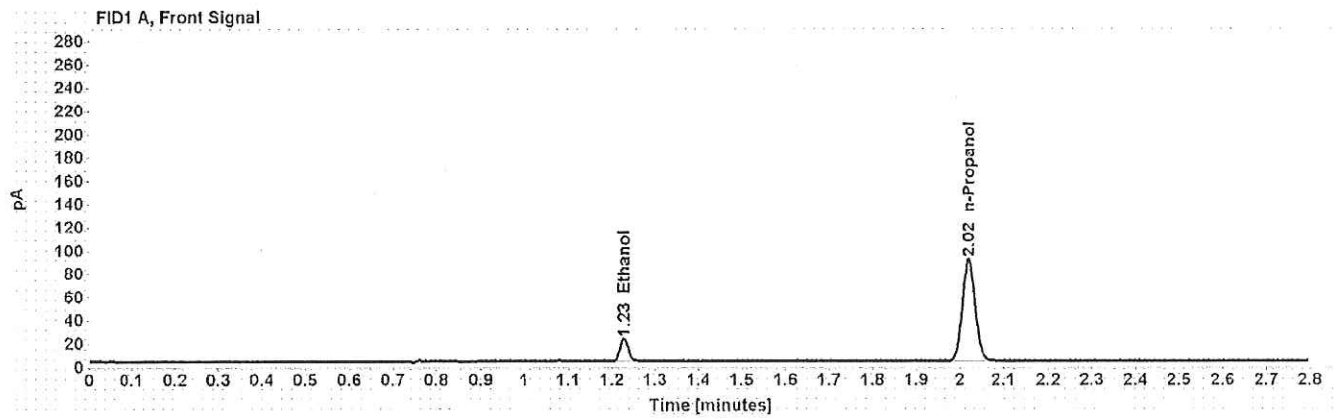


Table 1: FID 1 A (column DB-ALC1)

Compound	Amount (g/100mL)	Time (min)	Peak Area
>Ethanol	0.0399	1.228	24.981
n-Propanol	-----	2.020	180.608

Table 2: FID 2 B (column DB-ALC2)

Compound	Time (min)	Peak Area
Ethanol	1.345	28.005
n-Propanol	2.375	200.516

Scottsdale Police Department Crime Lab Volatiles Analysis

WA

Sample: 0.20 ACQ 407041529/3	Item number:
Injection date: 10/12/2017 4:55:54 PM	Vial: 9
Method: ethanol quant.M	Sequence: PC12Oct17
Instrument: US14173023 CN14160045	Analyst: Adrian
Data file: C:\Chem32\1\Data\PC12Oct17\9.D	

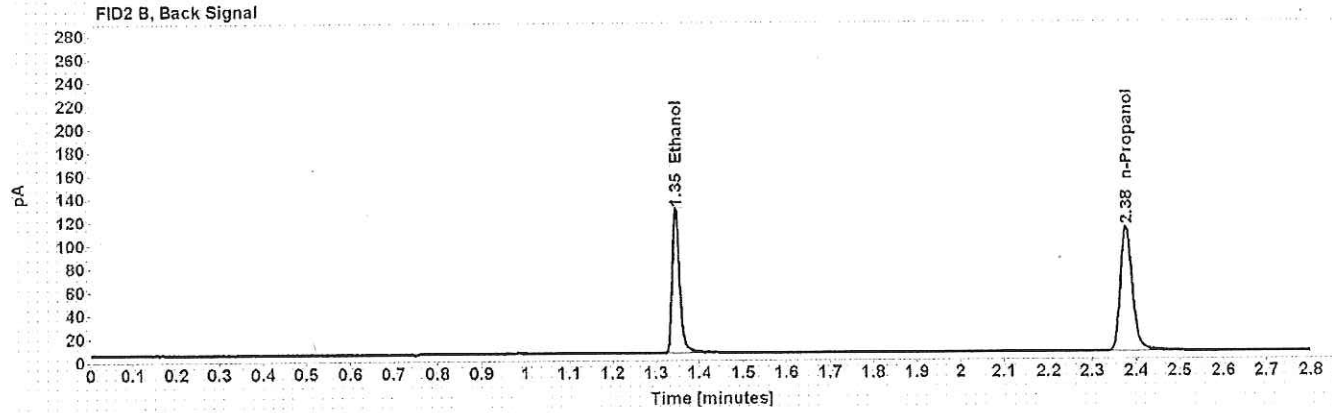
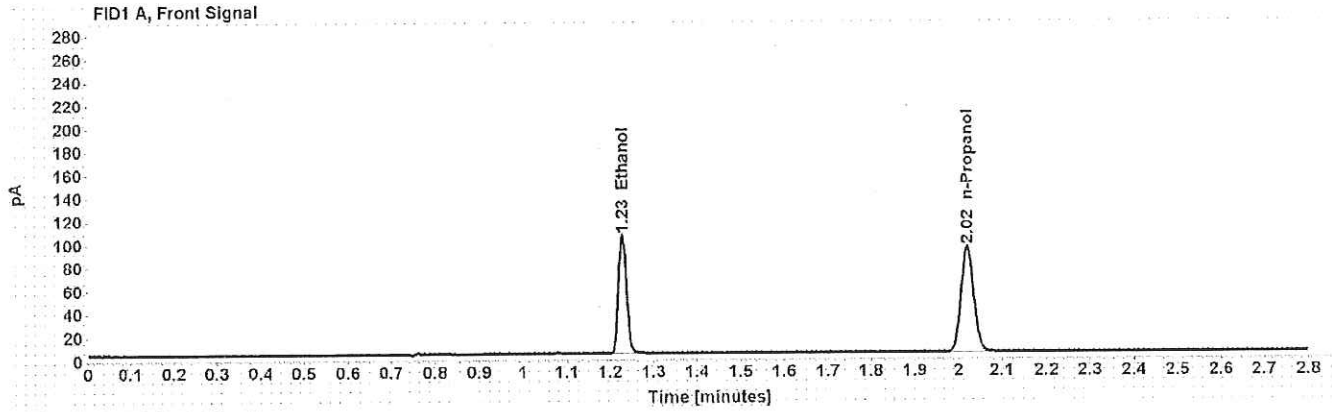


Table 1: FID 1 A (column DB-ALC1)

Compound	Amount (g/100mL)	Time (min)	Peak Area
>Ethanol	0.1988	1.228	131.659
n-Propanol	-----	2.021	186.722

Table 2: FID 2 B (column DB-ALC2)

Compound	Time (min)	Peak Area
Ethanol	1.345	151.422
n-Propanol	2.377	207.713

Scottsdale Police Department Crime Lab Volatiles Analysis

WA

Sample: 0.080 Lipomed 28082014-B	Item number:
Injection date: 10/12/2017 4:59:54 PM	Vial: 10
Method: ethanol quant.M	Sequence: PC12Oct17
Instrument: US14173023 CN14160045	Analyst: Adrian
Data file: C:\Chem32\1\Data\PC12Oct17\10.D	

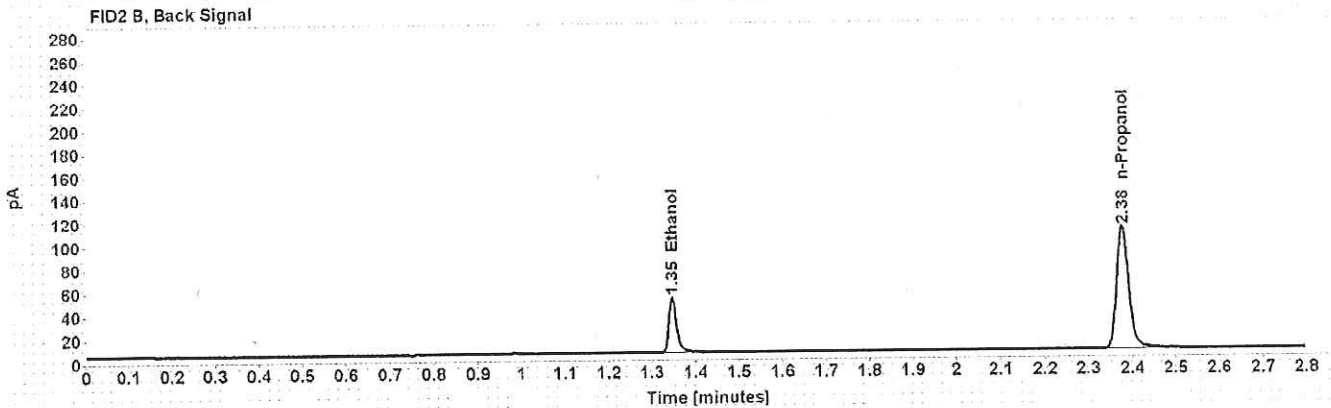
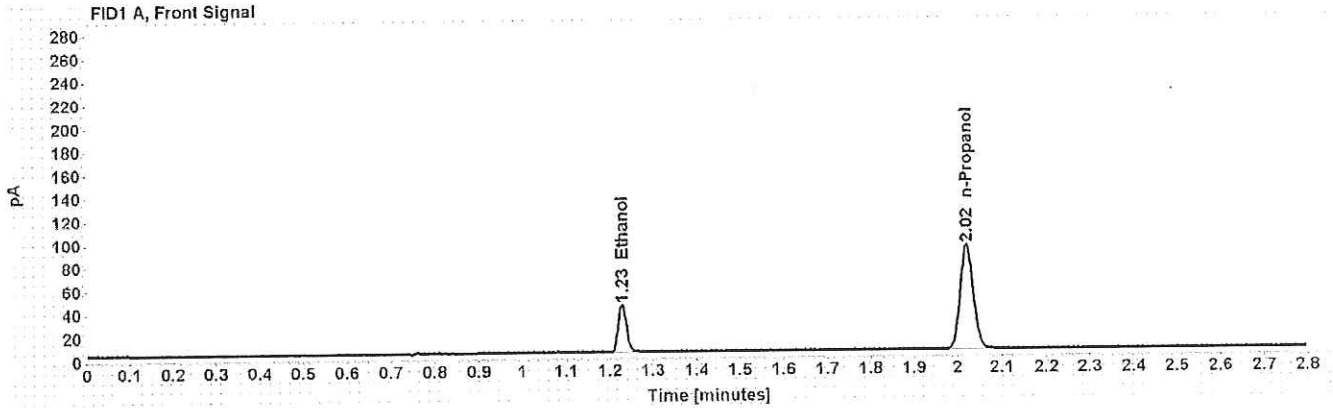


Table 1: FID 1 A (column DB-ALC1)

Compound	Amount (g/100mL)	Time (min)	Peak Area
>Ethanol	0.0810	1.229	52.384
n-Propanol	-----	2.021	183.939

Table 2: FID 2 B (column DB-ALC2)

Compound	Time (min)	Peak Area
Ethanol	1.346	59.626
n-Propanol	2.377	204.552

Scottsdale Police Department Crime Lab Volatiles Analysis

WA

Sample: 0.150 Lipomed 09022015-C	Item number:
Injection date: 10/12/2017 5:03:53 PM	Vial: 11
Method: ethanol quant.M	Sequence: PC12Oct17
Instrument: US14173023 CN14160045	Analyst: Adrian
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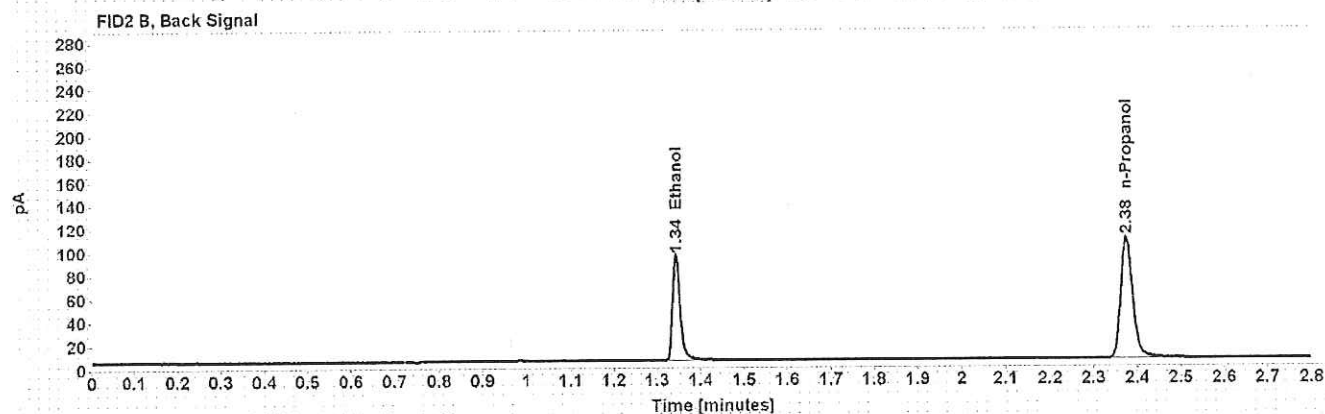
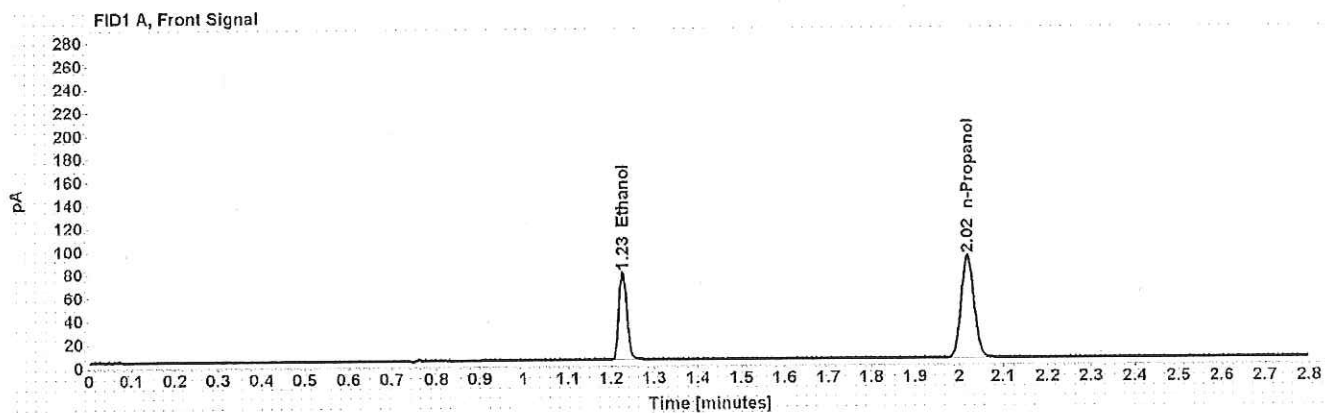


Table 1: FID 1 A (column DB-ALC1)

Compound	Amount (g/100mL)	Time (min)	Peak Area
>Ethanol	0.1510	1.227	97.312
n-Propanol	-----	2.020	182.043

Table 2: FID 2 B (column DB-ALC2)

Compound	Time (min)	Peak Area
Ethanol	1.344	111.309
n-Propanol	2.375	202.532

Scottsdale Police Department Crime Lab Volatiles Analysis

WA

Sample: 0.40 Lipomed 08012015-C	Item number:
Injection date: 10/12/2017 5:07:54 PM	Vial: 12
Method: ethanol quant.M	Sequence: PC12Oct17
Instrument: US14173023 CN14160045	Analyst: Adrian
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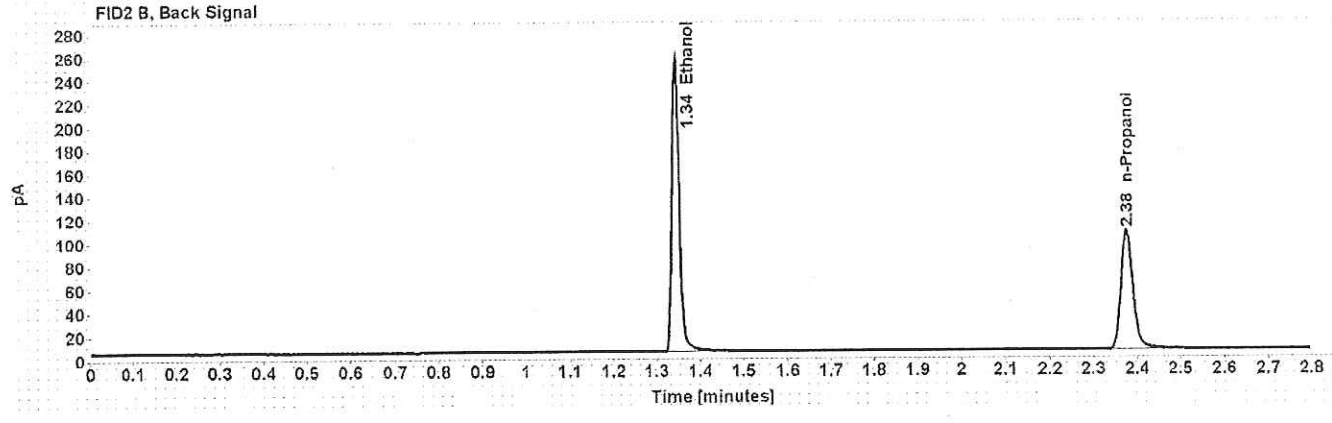
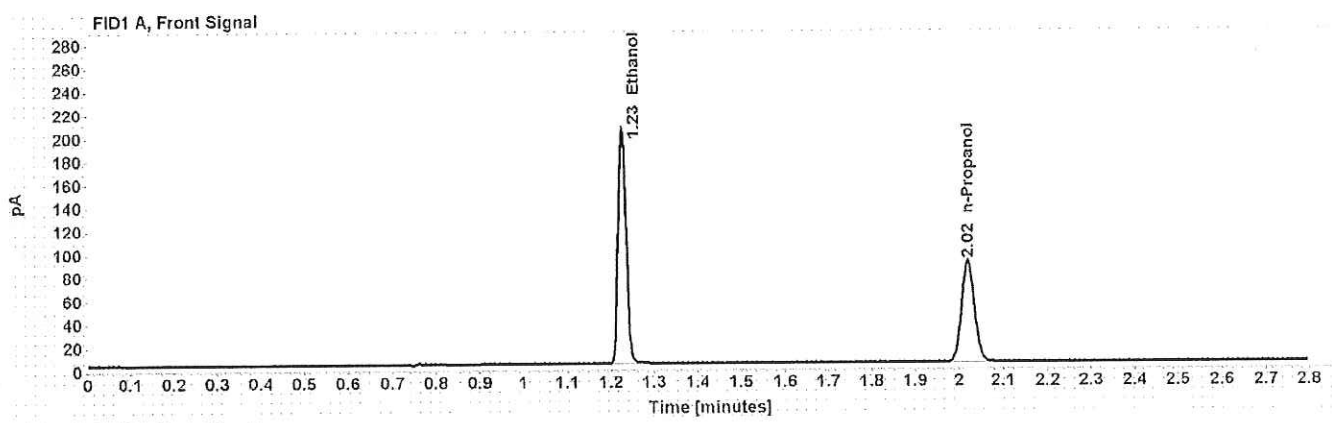


Table 1: FID 1 A (column DB-ALC1)

Compound	Amount (g/100mL)	Time (min)	Peak Area
>Ethanol	0.4049	1.227	258.837
n-Propanol	-----	2.020	179.788

Table 2: FID 2 B (column DB-ALC2)

Compound	Time (min)	Peak Area
Ethanol	1.343	301.401
n-Propanol	2.376	200.078

Scottsdale Police Department Crime Lab Volatiles Analysis

WA

Sample: 0.04 Lipomed 09022015-A	Item number:
Injection date: 10/12/2017 5:12:09 PM	Vial: 13
Method: ethanol quant.M	Sequence: PC12Oct17
Instrument: US14173023 CN14160045	Analyst: Adrian
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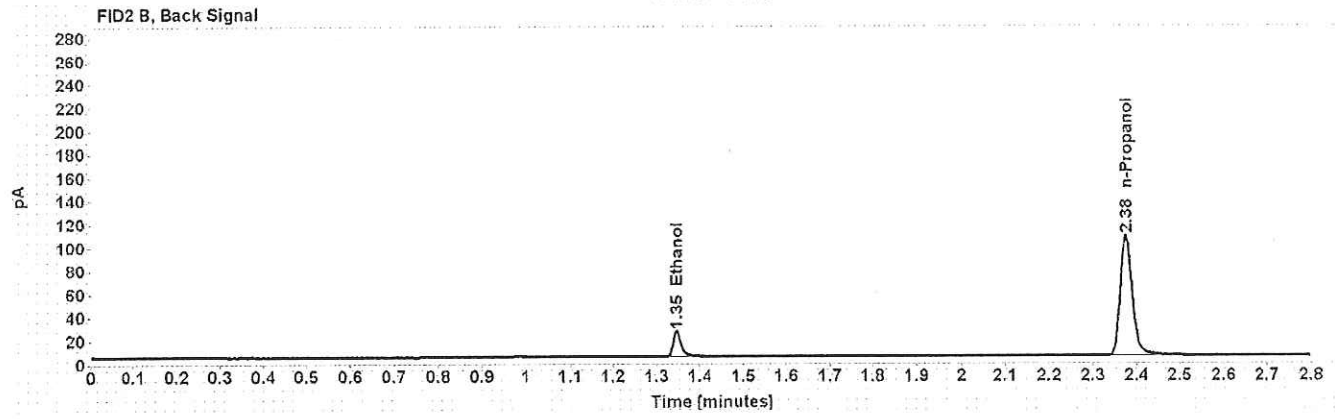
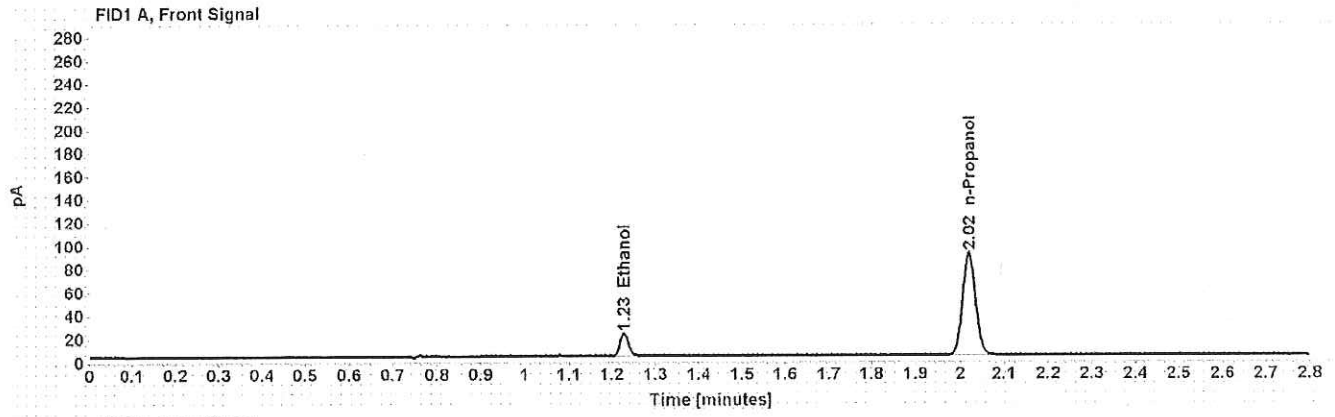


Table 1: FID 1 A (column DB-ALC1)

Compound	Amount (g/100mL)	Time (min)	Peak Area
>Ethanol	0.0403	1.228	25.326
n-Propanol	-----	2.020	180.921

Table 2: FID 2 B (column DB-ALC2)

Compound	Time (min)	Peak Area
Ethanol	1.346	28.391
n-Propanol	2.376	201.261

Scottsdale Police Department Crime Lab Volatiles Analysis

WA

Sample: 0.20 ACQ 407041529/3	Item number:
Injection date: 10/12/2017 5:16:08 PM	Vial: 14
Method: ethanol quant.M	Sequence: PC12Oct17
Instrument: US14173023 CN14160045	Analyst: Adrian
Data file: C:\Chem32\1\Data\PC12Oct17\14.D	

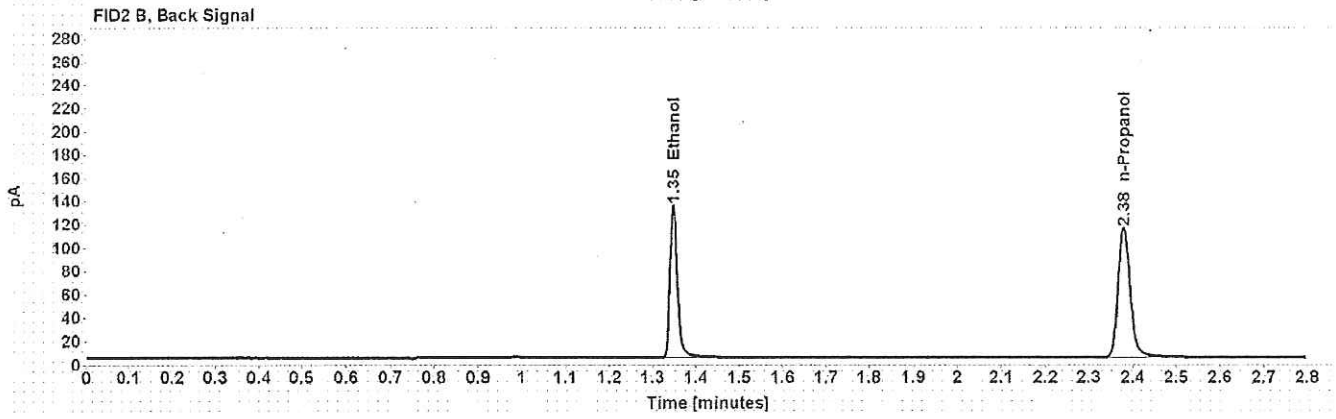
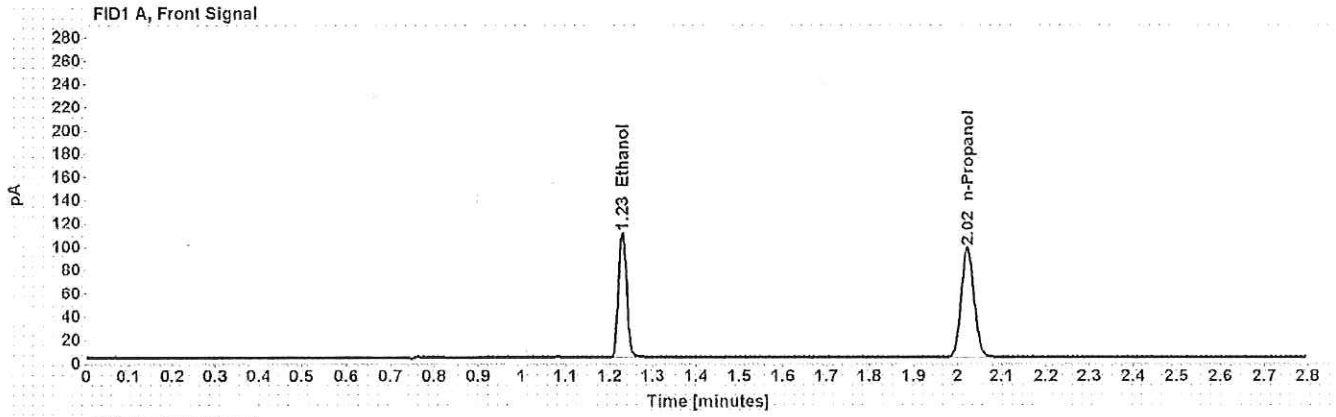


Table 1: FID 1 A (column DB-ALC1)

Compound	Amount (g/100mL)	Time (min)	Peak Area
>Ethanol	0.2027	1.230	139.033
n-Propanol	-----	2.022	193.417

Table 2: FID 2 B (column DB-ALC2)

Compound	Time (min)	Peak Area
Ethanol	1.348	160.183
n-Propanol	2.379	215.757

Scottsdale Police Department Crime Lab Volatiles Analysis

WJA

Sample: blank 090517	Item number:
Injection date: 10/12/2017 5:20:08 PM	Vial: 15
Method: ethanol quant.M	Sequence: PC12Oct17
Instrument: US14173023 CN14160045	Analyst: Adrian
Data file: C:\Chem32\1\Data\PC12Oct17\15.D	

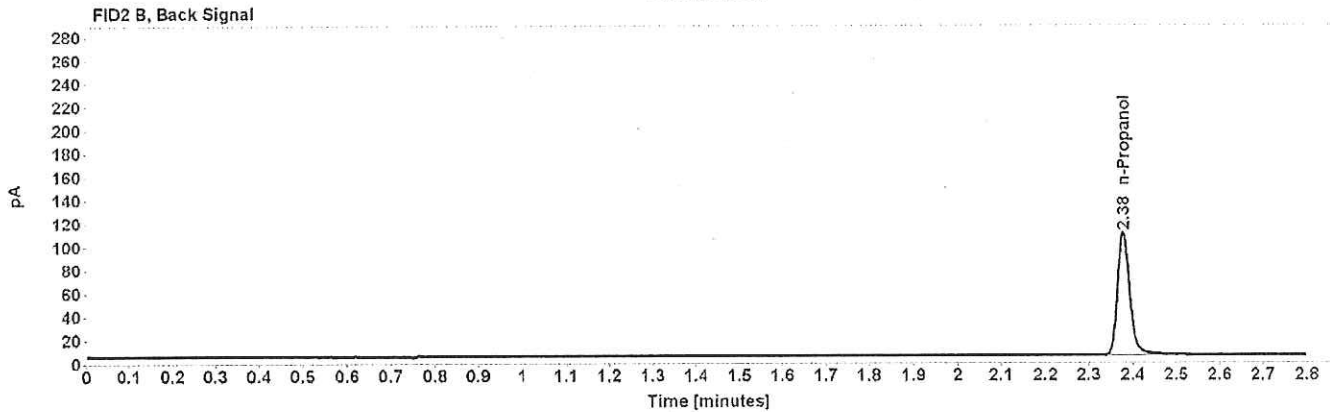
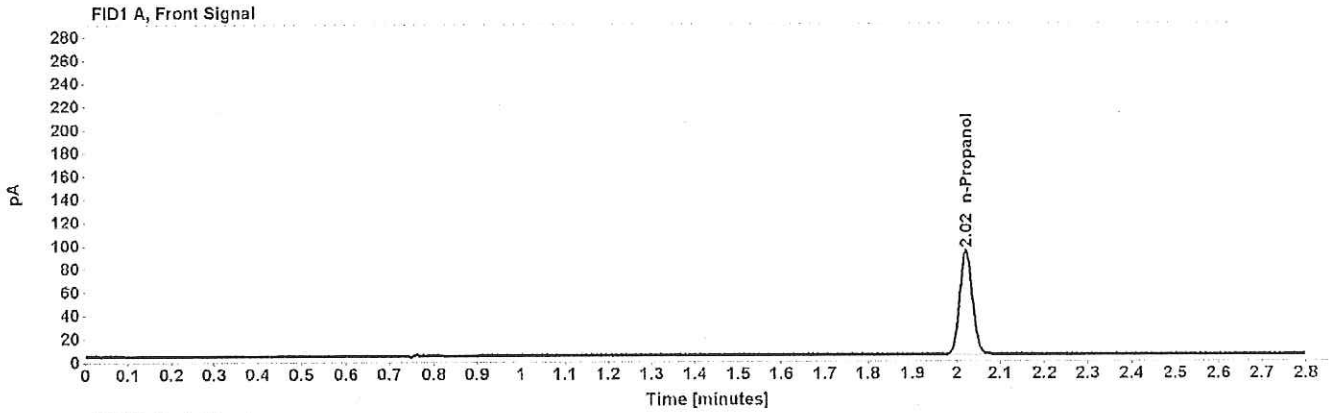


Table 1: FID 1 A (column DB-ALC1)

Compound	Amount (g/100mL)	Time (min)	Peak Area
n-Propanol	-----	2.022	184.104

Table 2: FID 2 B (column DB-ALC2)

Compound	Time (min)	Peak Area
n-Propanol	2.379	204.885