

Validation Review

Procedure Performance check Agilent 7890/5977B GC/MS
CN16483010/US1648MO21

Check the appropriate box: New Validation ☐ Modification ☐ Performance Check ☒

Sign and Date to indicate your acceptance of the procedure/instrument:

Examiner (if applicable) Ellen Carpenter Date 5/11/17

Unit Supervisor Glenn B. Everett Date 5-11-17

Technical Leader (if different than Supervisor) Glenn B. Everett Date 5-11-17

Crime Laboratory Regional Supervisor Jennifer Ball Date 5-11-17

Quality Assurance Manager Chad Pe Date 05/11/17

*All information must be submitted to the Quality Assurance Manager prior to the implementation of the procedure/instrument. If all technical staff training has not been completed, please include a proposed training plan and completion schedule.

Forensic Chemistry Performance Verification

Gas Chromatograph (Model 7890B Serial Number CN16483010)

Mass Spectrometer (Model 5977B Serial Number US1648M021)

TBI FCU ID – Heisenberg

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Forensic Chemistry Performance Verification

Gas Chromatograph (Model 7890B Serial Number CN16483010)

Mass Spectrometer (Model 5977B Serial Number US1648M021)

TBI FCU ID – Heisenberg

1. Purpose:

Each gas chromatograph/mass spectrometer (GC/MS) acquired by the TBI FCU must demonstrate that it will accurately reproduce spectra previously obtained within the laboratory as well as provide adequate separation of complex mixtures using FCU validated methods.

Although properly maintained instruments all adhere to the theories of chromatography, unique factors may exist within each system that can affect retention times between different instruments.

This performance verification will assess the following:

- The chromatograph's ability to separate a mixture of method-appropriate standards with baseline resolution and appropriate elution order
- The chromatograph's ability to reproduce retention times (RT) of standards within $\pm 2\%$ of each other
- The spectrometer's ability to generate accurate spectra of these standards compared to previously run laboratory standard spectra
- The instrument's ability to detect certain late eluting compounds for the MS DRUGS100, MS100TR, and MS200TR methods

Forensic Chemistry Performance Verification

Gas Chromatograph (Model 7890B Serial Number CN16483010)

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2. Components and Methods Currently in Use:

Instrument Components

Gas Chromatograph	
Column type	HP-1MS 19091S-913
Column length	15 meters
Diameter	0.320 mm
Film Thickness	0.25 µm
Detector	FID

Mass Spectrometer (Single quadrupole)	
Column type	HP-1MS 1909S-602
Column length	12.5 meters
Diameter	0.200 mm
Film Thickness	0.33 µm
MSD Source	Extraction Source

GC/MS Methods

Manual Injection	
MSDRUGS100	100-280°C for 10 mins
MSDRUGS200	200-280°C for 10 mins
MSDRUGS60	60-280°C for 10 mins
MSDRUGSTI	100-280°C for 30 mins
MS280ISO	280°C isothermal for 20 mins
MS100TR	100-280°C for 6 mins
MS200TR	200-280°C for 6 mins

Auto-sample Injection	
ASMSDRUGS100	100-280°C for 10 mins
ASMSDRUGS200	200-280°C for 10 mins
ASMSDRUGS60	60-280°C for 10 mins
ASMSDRUGSTI	100-280°C for 30 mins
AMS280ISO	280°C isothermal for 20 mins
ASMS100TR	100-280°C for 6 mins
ASMS200TR	200-280°C for 6 mins

GC Methods

Manual Injection	
GC100	100-280°C for 10 mins
GC200	200-280°C for 10 mins
GC150ISO	150°C for 10 mins
GC280ISO	280°C Isothermal for 10 mins
GC280ISOTI	280°C isothermal for 30 mins

Auto-sample Injection	
ASGC100	100-280°C for 10 mins
ASGC200	200-280°C for 10 mins
ASGC150ISO	150°C for 10 mins
ASGC280ISO	280°C Isothermal for 10 mins
ASGC280ISOTI	280°C isothermal for 30 mins

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3. Procedure:

In general, lower molecular weight compounds will often elute at lower temperatures. The inverse is true for higher molecular weight compounds. Similarly, the compound's interaction with the column's stationary phase will also affect retention time for various compounds.

Since the FCU encounters a wide variety of legally significant substances, the methods developed in our laboratory are tailored to provide adequate separation while accounting for these variables. In order to determine adequate separation of closely eluting compounds, different standard mixtures will be analyzed using the appropriate method(s). Spectra generated from these standards will be compared to primary standard spectra maintained in the FCU.

Adequate separation will consist of separate and symmetrical peaks that are resolved to the baseline on the resulting chromatogram and/or total ion chromatogram (TIC).

Mass spectra generated must show adequate ion response as well as the correct ion fragmentation patterns as the primary standard.

A working mixture of amphetamine, phentermine, and methamphetamine will be analyzed using the following methods:

- | | |
|----------------|---------------|
| • MSDRUGS100 | • ASMSDRUGS60 |
| • ASMSDRUGS100 | • GC100 |
| • MS100TR | • ASGC100 |
| • ASMS100TR | • GC150ISO |
| • MSDRUGS60 | • ASGC150ISO |

Analyzing this mixture using methods starting at 200°C is not advisable due to the low molecular weights of these compounds. These compounds may co-elute with the solvent phase resulting in little to no separation at these temperatures. Furthermore, the solvent delay may prevent these samples from displaying on the TIC for these MS methods.

Alprazolam will be analyzed using the MS100TR method to determine if it will be detected with the shortened run time to prevent a false negative.

Forensic Chemistry Performance Verification

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A working mixture of cocaine, hydrocodone, and pethidine will be analyzed using the following methods:

- | | |
|----------------|---------------|
| • MSDRUGS100 | • MS200TR |
| • ASMSDRUGS100 | • ASMS200TR |
| • MSDRUGS200 | • GC100 |
| • ASMSDRUGS200 | • ASGC100 |
| • MS100TR | • GC200 |
| • ASMS100TR | • ASGC200 |
| • MSDRUGS60 | • ASMSDRUGS60 |

This mixture is used for monthly performance verification. Furthermore, all FCU GC/MS have previously demonstrated adequate separation of these compounds.

A mixture of LSD and LAMPA will be analyzed for the MS280ISO, AMS280ISO, GC280ISO, and ASGC280ISO methods. LSD and LAMPA demonstrate similar mass spectra, but can be easily distinguished by differences in retention time. These compounds are typically analyzed at higher temperatures due to late elution times.

A mixture of testosterone(s) acetate, benzoate, isocaproate, undecanoate will be analyzed using the MSDRUGSTI, ASMSDRUGSTI, GC280ISOTI, and ASGC280ISOTI method. These methods were developed specifically for steroids due to their often large molecular weights. Testosterone acetate and isocaproate will be used to determine if the instrument can fully resolve these compounds into two separate peaks. Testosterone benzoate and undecanoate will be used to determine if they will elute within the 30 minute run time.

Buprenorphine will be analyzed using the MSDRUGS100 and MS200TR methods to determine if it will be detected with a lower starting temperature or a shortened run time to prevent a false negative.

Repeatability analyses will be performed on the MSDRUGS100 method and all autosample methods (GC and MS) to ensure consistent retention times.

Forensic Chemistry Performance Verification

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4. Working Standards and Reagents Used:

- Amphetamine, Methamphetamine, and Phentermine Mix – 0.5N NaOH/CHCl₃ extraction*
Expiration date: 12/23/17

Standard/Solvent	Source (if applicable)	Lot Number
Amphetamine	K&K Labs	83567
Methamphetamine	K&K Labs	732A
Phentermine	Sigma	47H0208
0.5N NaOH	VRW	151J01006
Chloroform	VRW	55121 Bottle #4

- Pethidine, Cocaine, and Hydrocodone Mix – in Methanol*
Expiration date: 2/8/18

Standard/Solvent	Source (if applicable)	Lot Number
Pethidine	S.B. Penick	413NMN027
Cocaine	Sigma	50K1124
Hydrocodone	Merck	V1526
Methanol	Fisher Scientific	165076 Bottle# 3

- Testosterone Mix – in Methanol*
Expiration date: 3/6/18

Standard/Solvent	Source (if applicable)	Lot Number
Testosterone acetate	Sigma	19F0299
Testosterone benzoate	Sigma	49F0246
Testosterone isocaproate	Steraloids	L1563
Testosterone undecanoate	Steraloids	B0155
Methanol	Fisher Scientific	165076

- Vendor-procured Working Standards*

Standard/Solvent	Source	Lot Number	Exp Date
Buprenorphine in acetonitrile	Cerilliant	FE08141501	10/2020
Alprazolam in methanol	Cerilliant	FE07161509	7/2020
LAMPA in acetonitrile	Cerilliant	FE08021201	10/2017
LSD in acetonitrile	Cerilliant	FE06011602	7/2021

- Procedural Blanks*

Solvent	Lot Number/Bottle Number	Exp Date
Methanol	165076 Bottle #2	Until consumed
0.5N NaOH	153664	5/2017
Chloroform	55121 Bottle #4	Until consumed

Forensic Chemistry Performance Verification

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5. Results and Conclusions:

- *Amphetamine, Phentermine, and Methamphetamine Standard*

The methods selected for this standard all produced adequate baseline separation for the three compounds. Each method also demonstrated consistent retention times (within $\pm 2\%$) and elution order with repeatability testing.

The MS methods demonstrated adequate responses in ion fragment detection. All spectra generated displayed accurate fragmentation patterns when compared to previously run FCU standards.

Appendix A contains all generated data obtained for this mixture.

- *Pethidine, Cocaine, and Hydrocodone Standard*

The methods selected for this standard all produced adequate baseline separation for the three compounds. Each method also demonstrated consistent retention times (within $\pm 2\%$) and elution order with repeatability testing.

The MS methods demonstrated adequate responses in ion fragment detection. All spectra generated displayed accurate fragmentation patterns when compared to previously run FCU standards.

Appendix B contains all generated data obtained for this mixture.

- *Testosterone Mixture Standard*

The methods selected for this standard all produced adequate baseline separation for the four compounds. Each method also demonstrated consistent retention times (within $\pm 2\%$) and elution order with repeatability testing.

The MS methods demonstrated adequate responses in ion fragment detection. All spectra generated displayed accurate fragmentation patterns when compared to previously run FCU standards.

Appendix C contains all generated data obtained for this mixture.

- *LSD/LAMPA Standard*

The methods selected for this standard all produced adequate baseline separation for these two compounds. Each method also demonstrated consistent retention times (within $\pm 2\%$) and elution order with repeatability testing.

The MS methods demonstrated adequate responses in ion fragment detection. All spectra generated displayed accurate fragmentation patterns when compared to previously run FCU standards.

Appendix D contains all generated data obtained for this mixture.

Forensic Chemistry Performance Verification

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TBI FCU ID – Heisenberg

- *Late Eluting Compounds and Time Reduction Methods*

The MS100TR method failed to detect alprazolam with the shortened run time. The alprazolam standard was verified using the MSDRUGS100 method and produced adequate response on the TIC and accurate spectra when compared to the FCU standard.

The MSDRUGS100 and MS200TR methods failed to detect buprenorphine with their respective parameters. The buprenorphine standard was verified using the MSDRUGS200 method and produced adequate response on the TIC and accurate spectra when compared to the FCU standard.

These method failures were expected due to the new column length. While these compounds were not analyzed with the auto sample version of these methods, failure would also be expected because the remaining method parameters are identical. It may be possible these compounds will be detected using these methods in the future with regular instrument maintenance.

Appendix E contains all generated data obtained for these compounds and methods.

All procedural blanks and MS tune data can be located in Appendix F.

In summary, this instrument has demonstrated satisfactory results for use within the TBI FCU.

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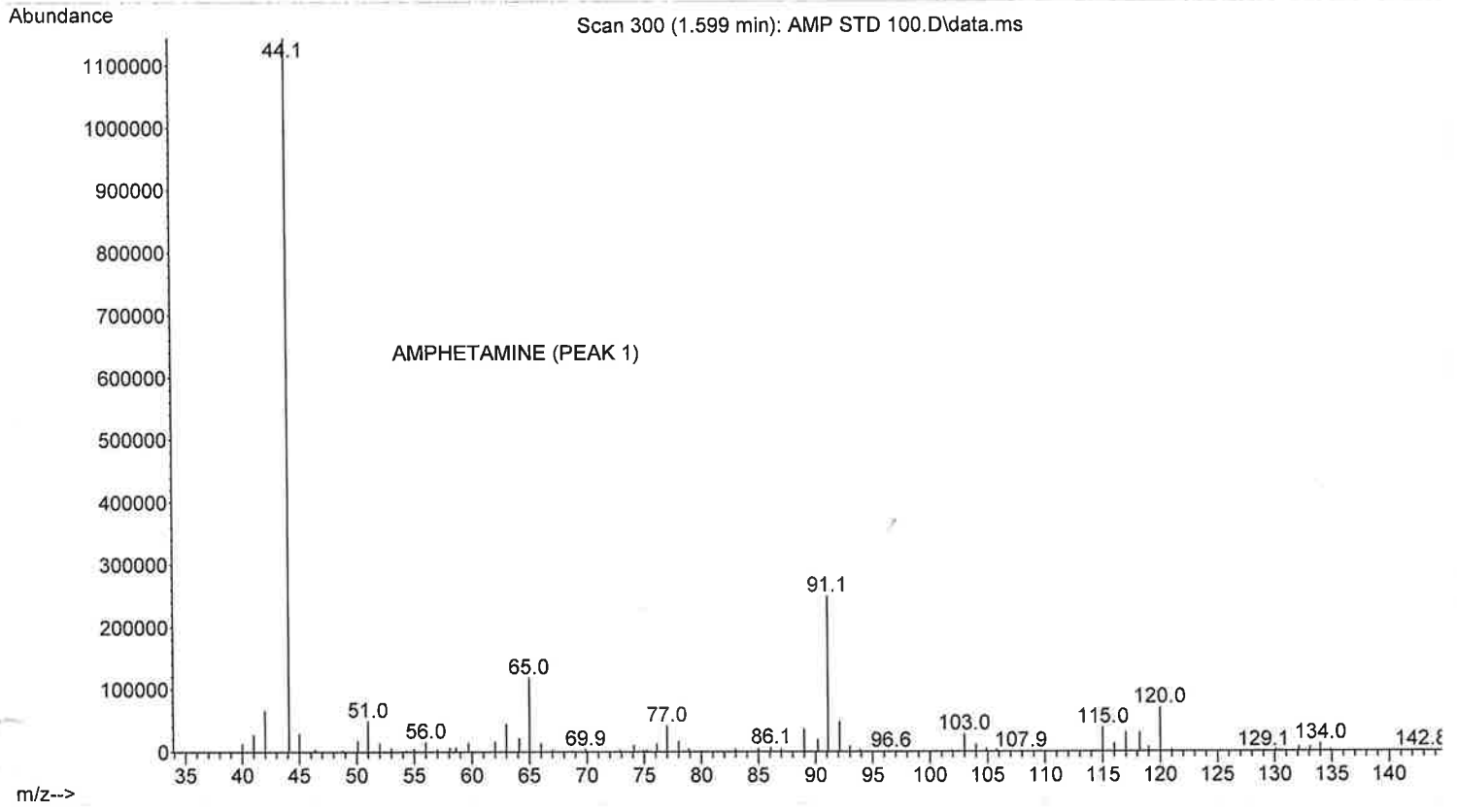
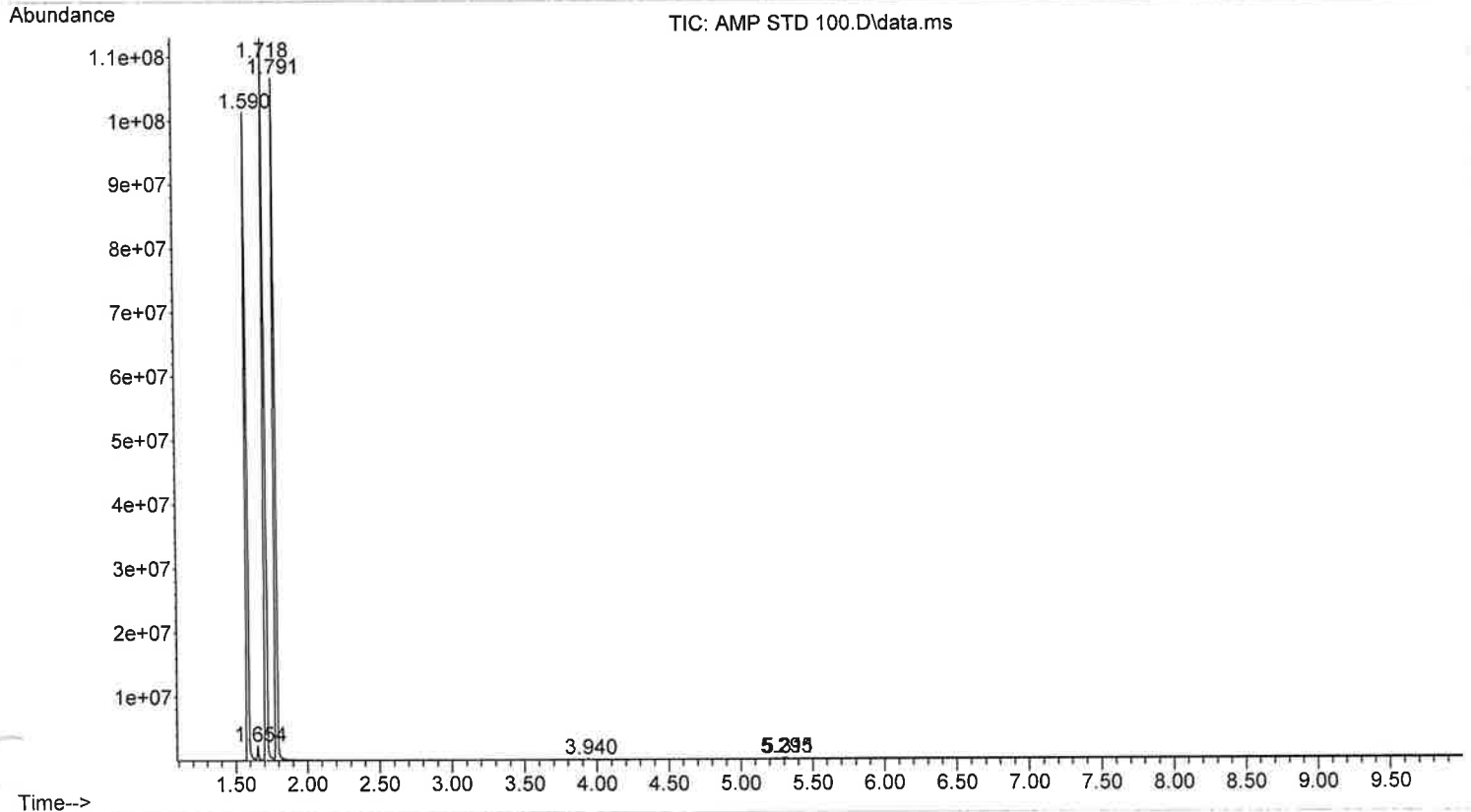
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TBI FCU ID – Heisenberg

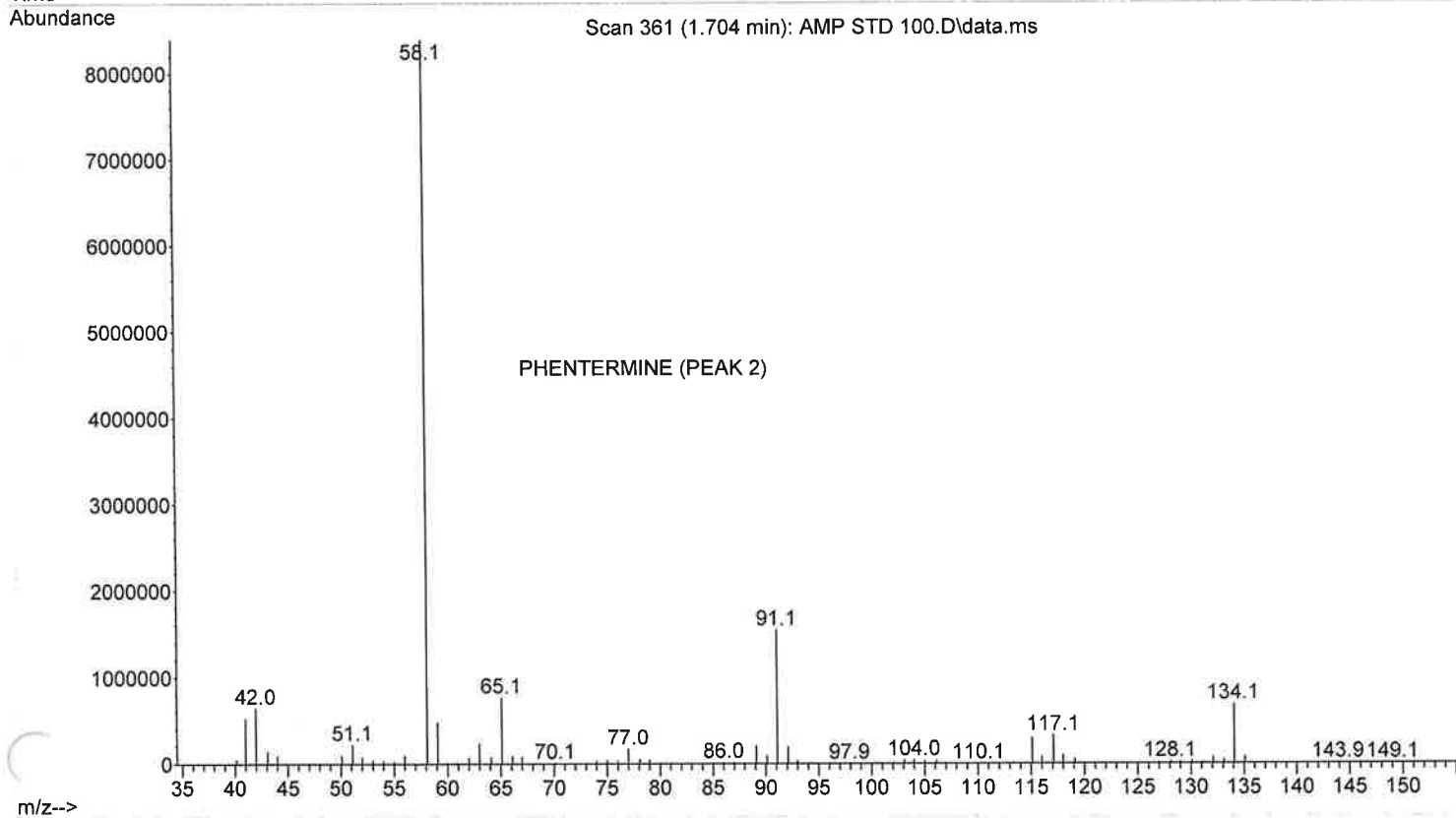
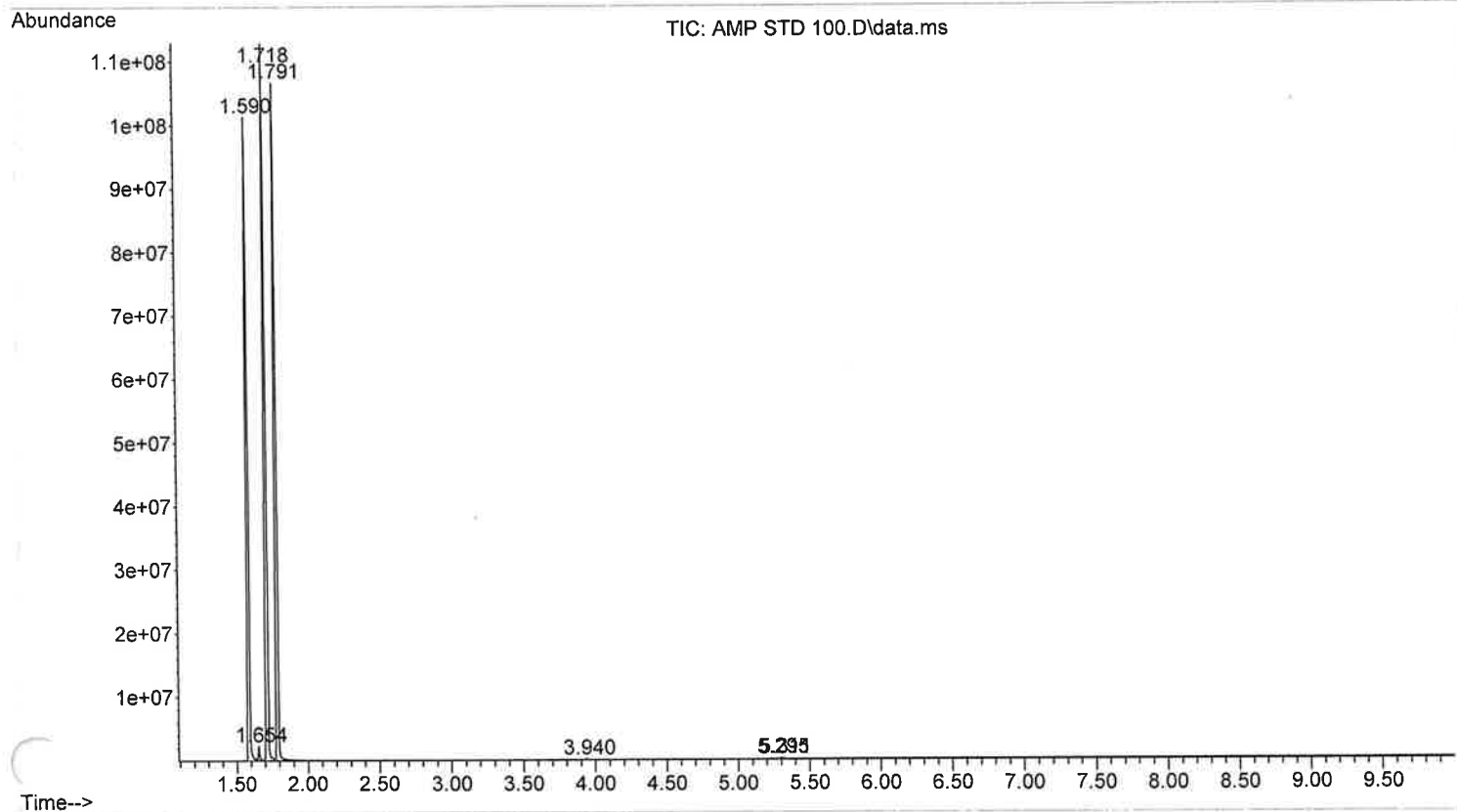
- Amphetamine, Phentermine, and Methamphetamine Standard RT Comparisons

Method	Compound	RT	Acceptable variance (±2%)	Repeat RT
MSDRUGS100	Amphetamine	1.572	±0.031	1.573
	Phentermine	1.703	±0.034	1.702
	Methamphetamine	1.777	±0.036	1.775
ASMSDRUGS100	Amphetamine	1.590	±0.032	1.590
	Phentermine	1.718	±0.034	1.717
	Methamphetamine	1.791	±0.036	1.789
ASMS100TR	Amphetamine	1.590	±0.032	1.590
	Phentermine	1.719	±0.034	1.718
	Methamphetamine	1.792	±0.036	1.790
ASMSDRUGS60	Amphetamine	4.246	±0.085	4.241
	Phentermine	4.415	±0.088	4.408
	Methamphetamine	4.512	±0.090	4.503
ASGC100	Amphetamine	1.253	±0.025	1.256
	Phentermine	1.391	±0.028	1.393
	Methamphetamine	1.472	±0.029	1.473
ASGC150IS0	Amphetamine	1.583	±0.032	1.584
	Phentermine	1.681	±0.034	1.682
	Methamphetamine	1.736	±0.035	1.738

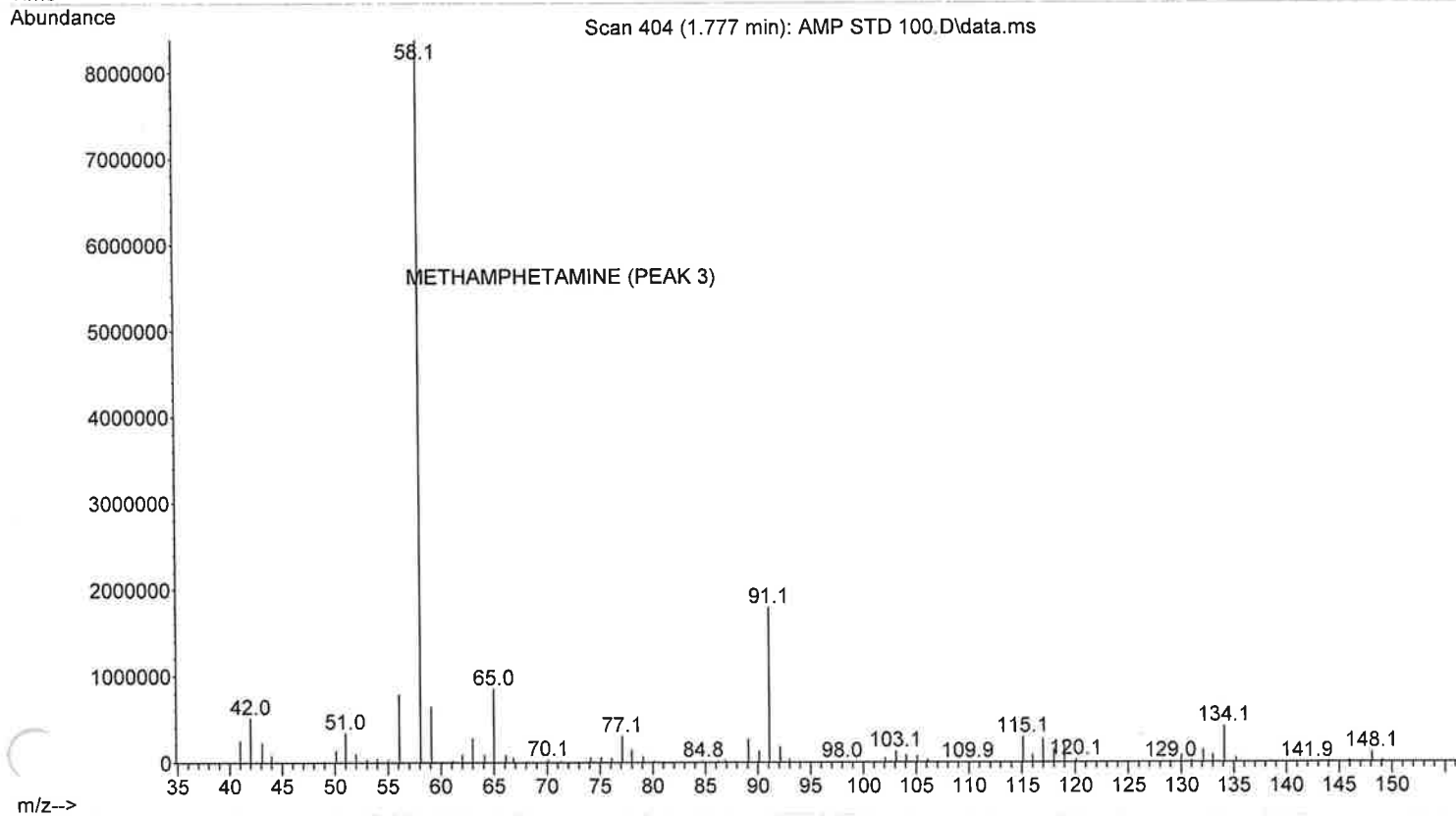
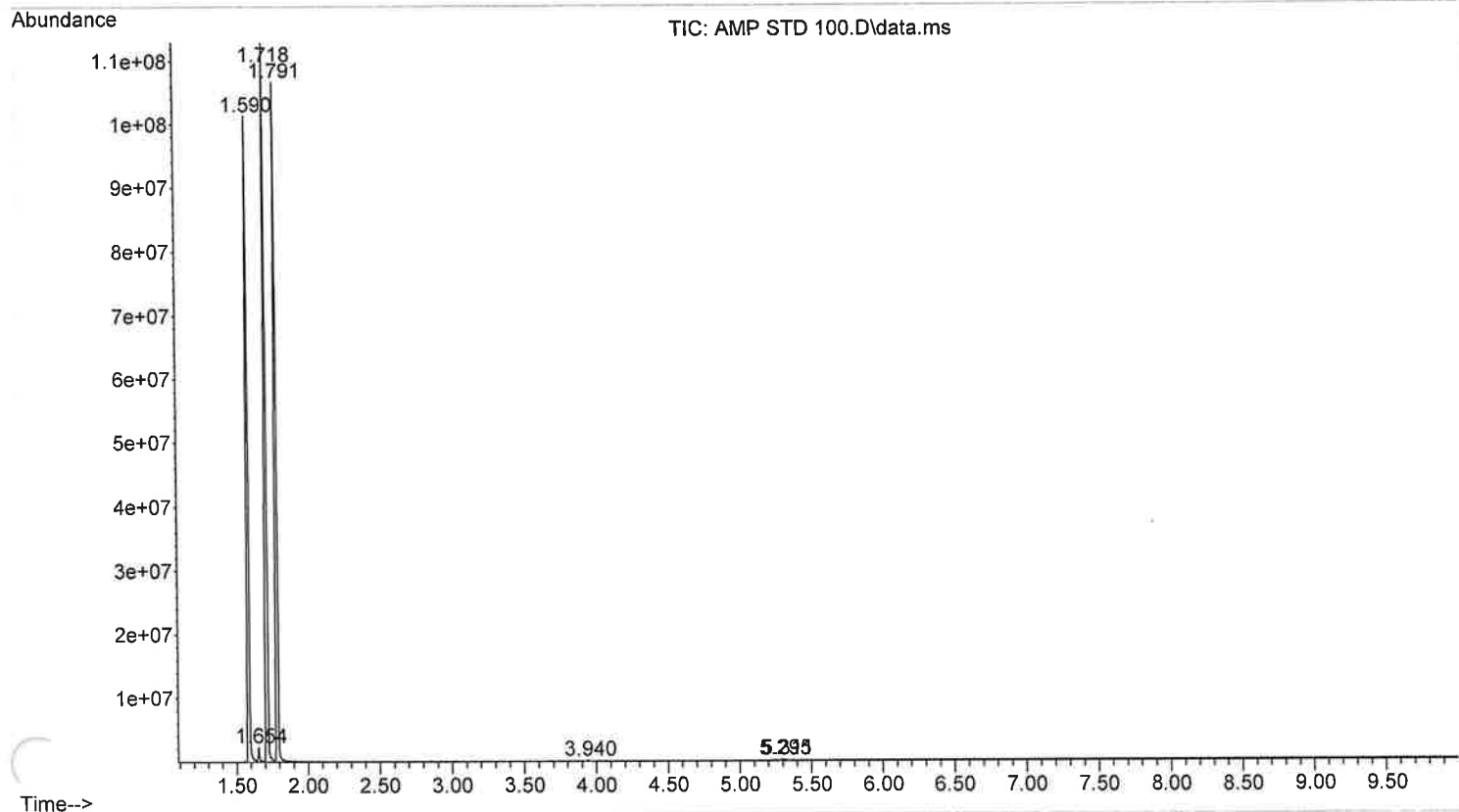
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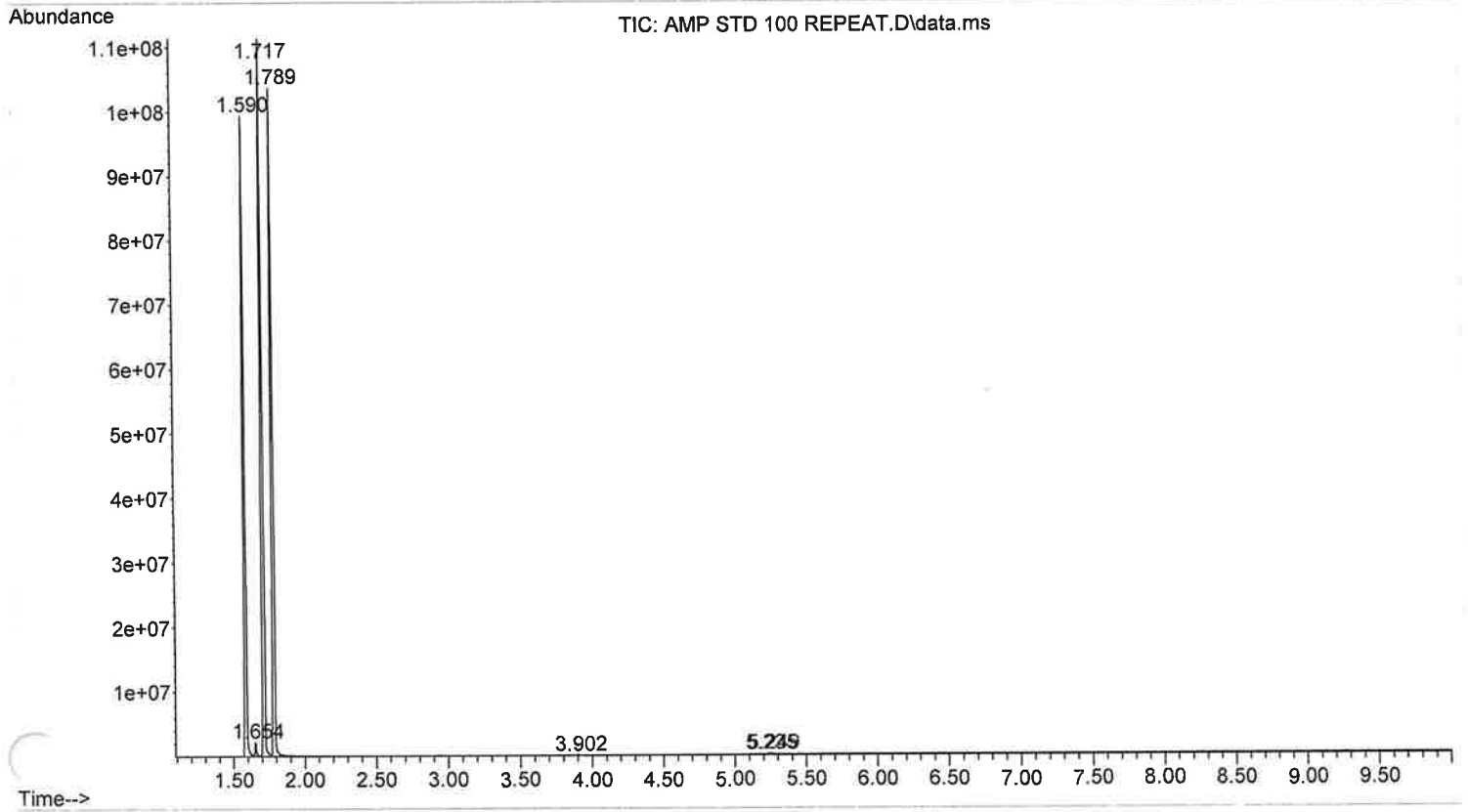
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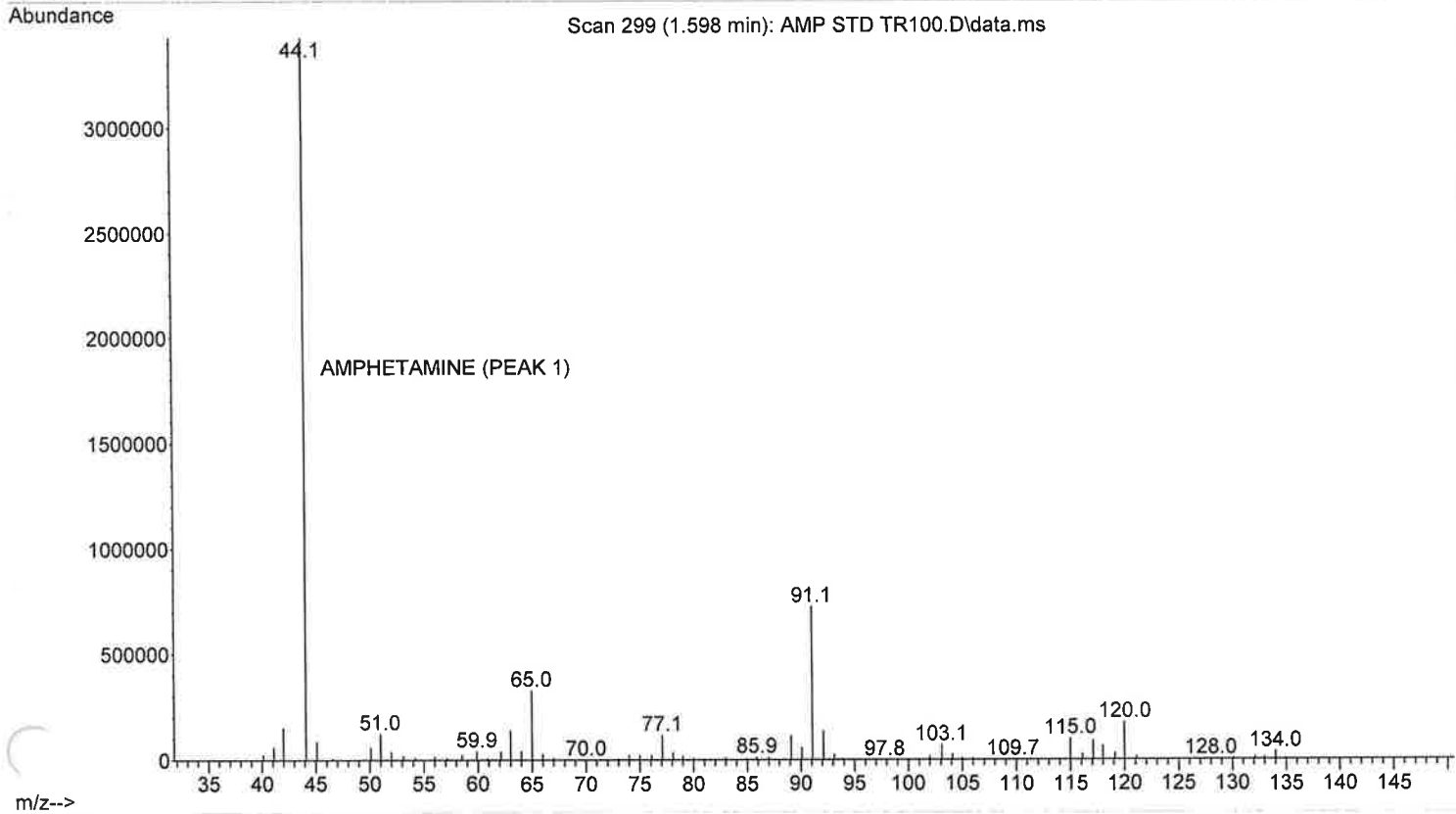
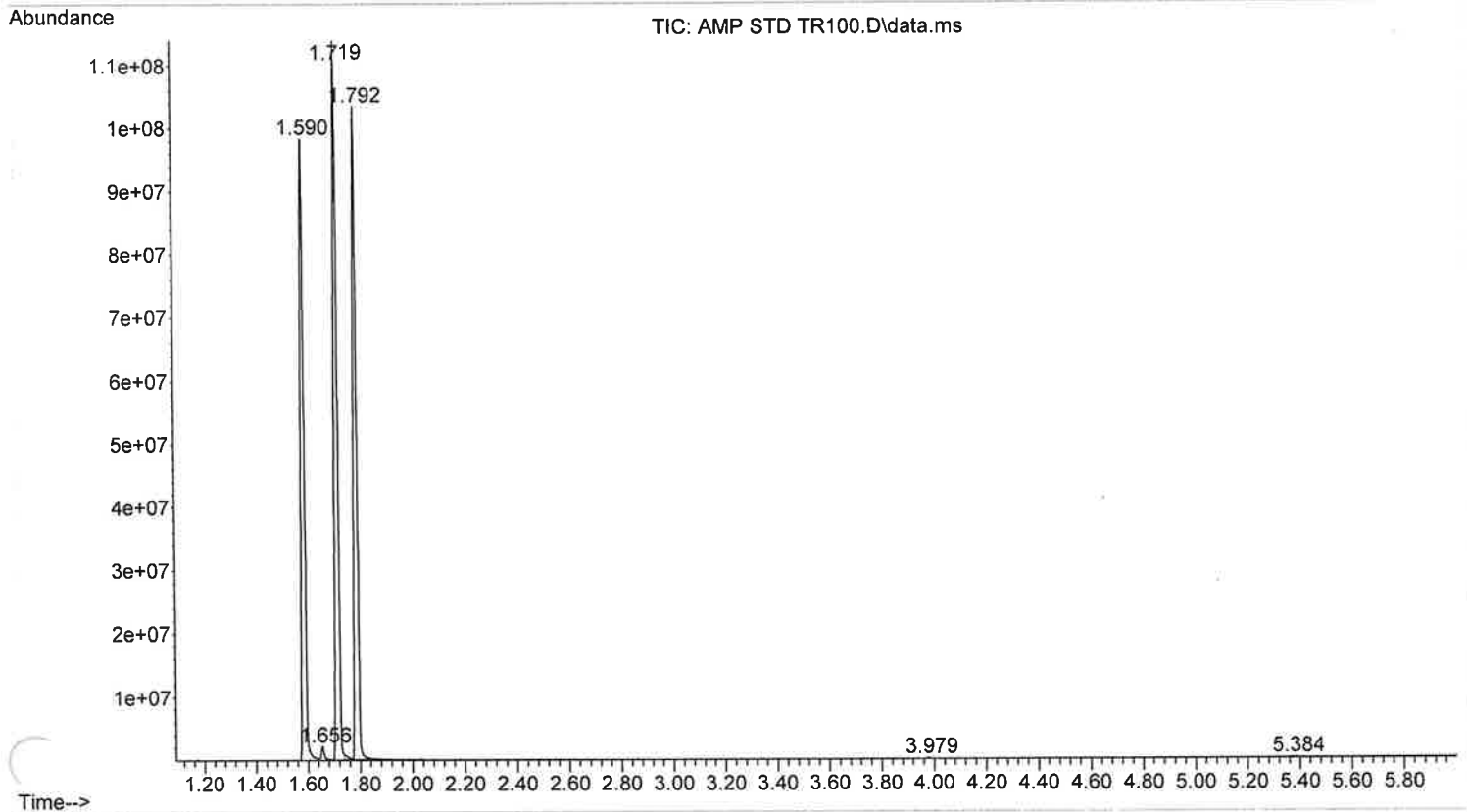
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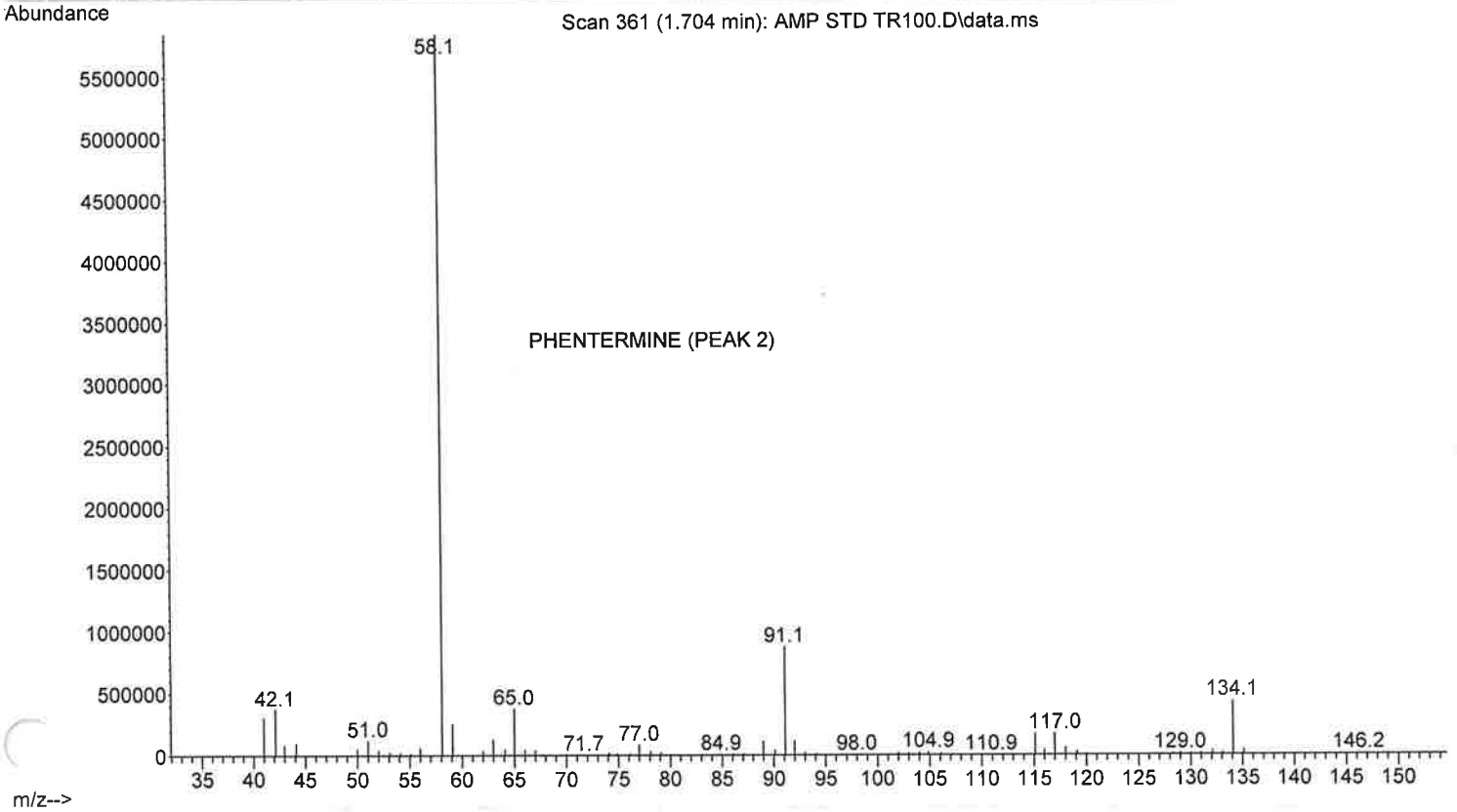
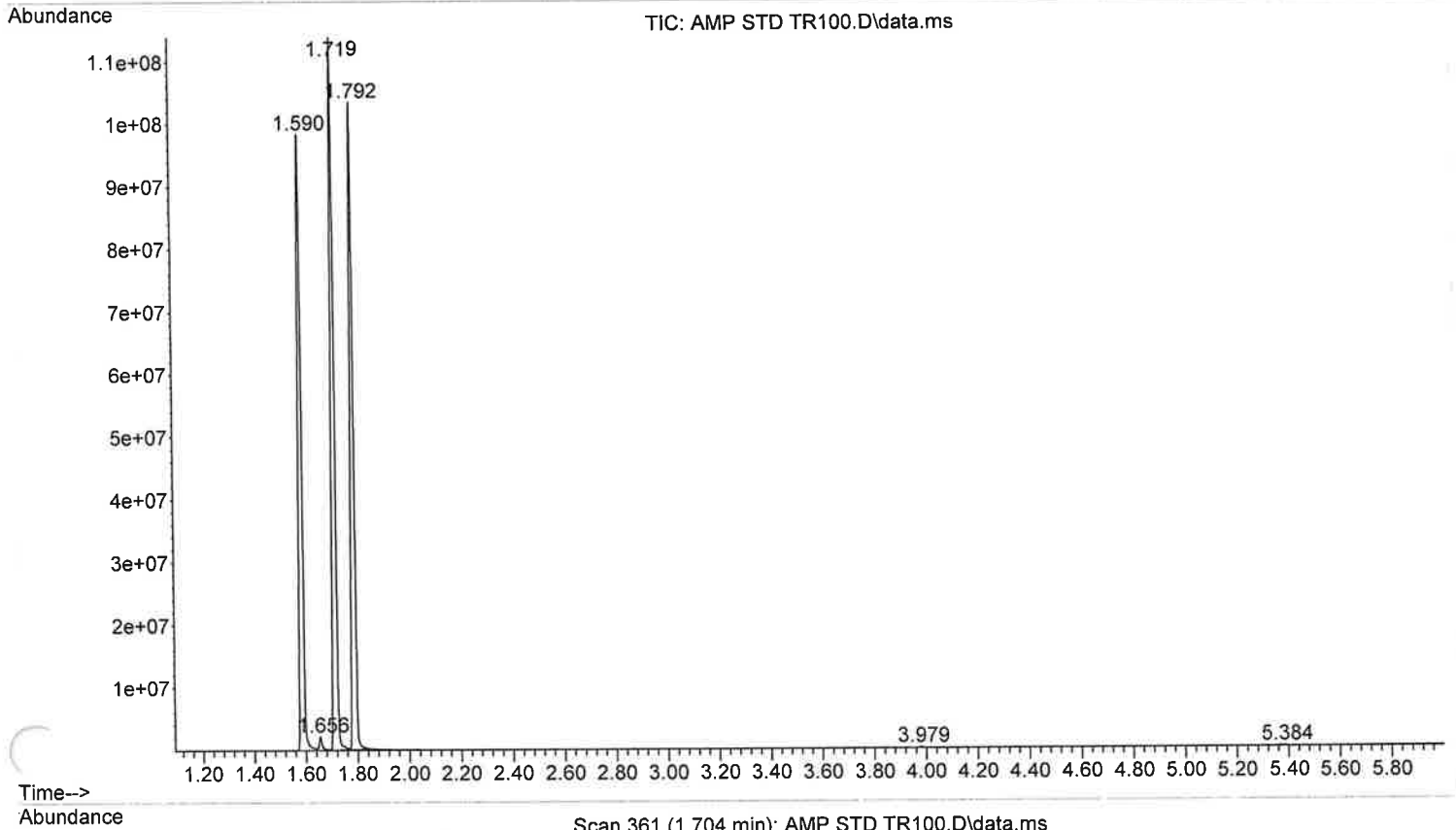
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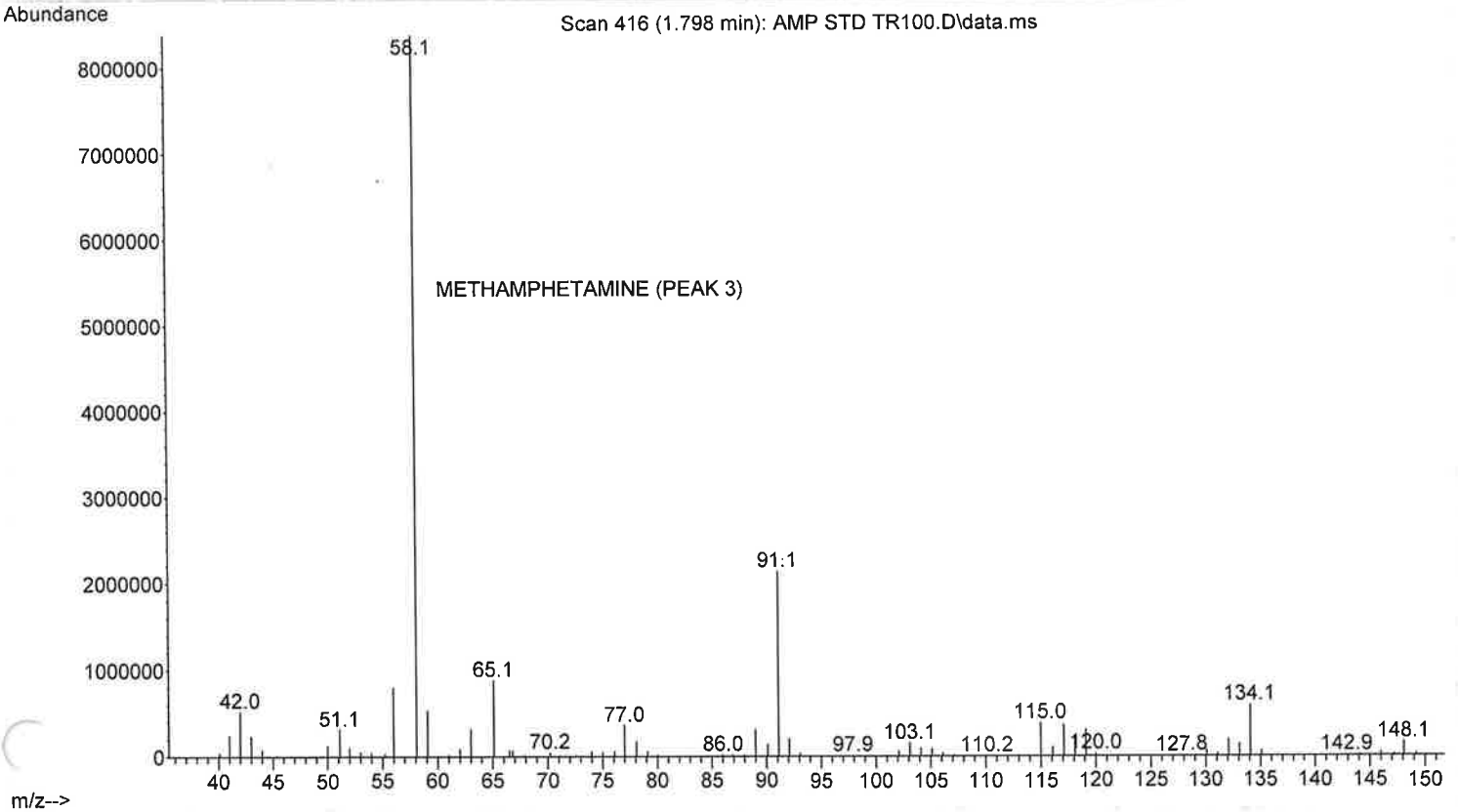
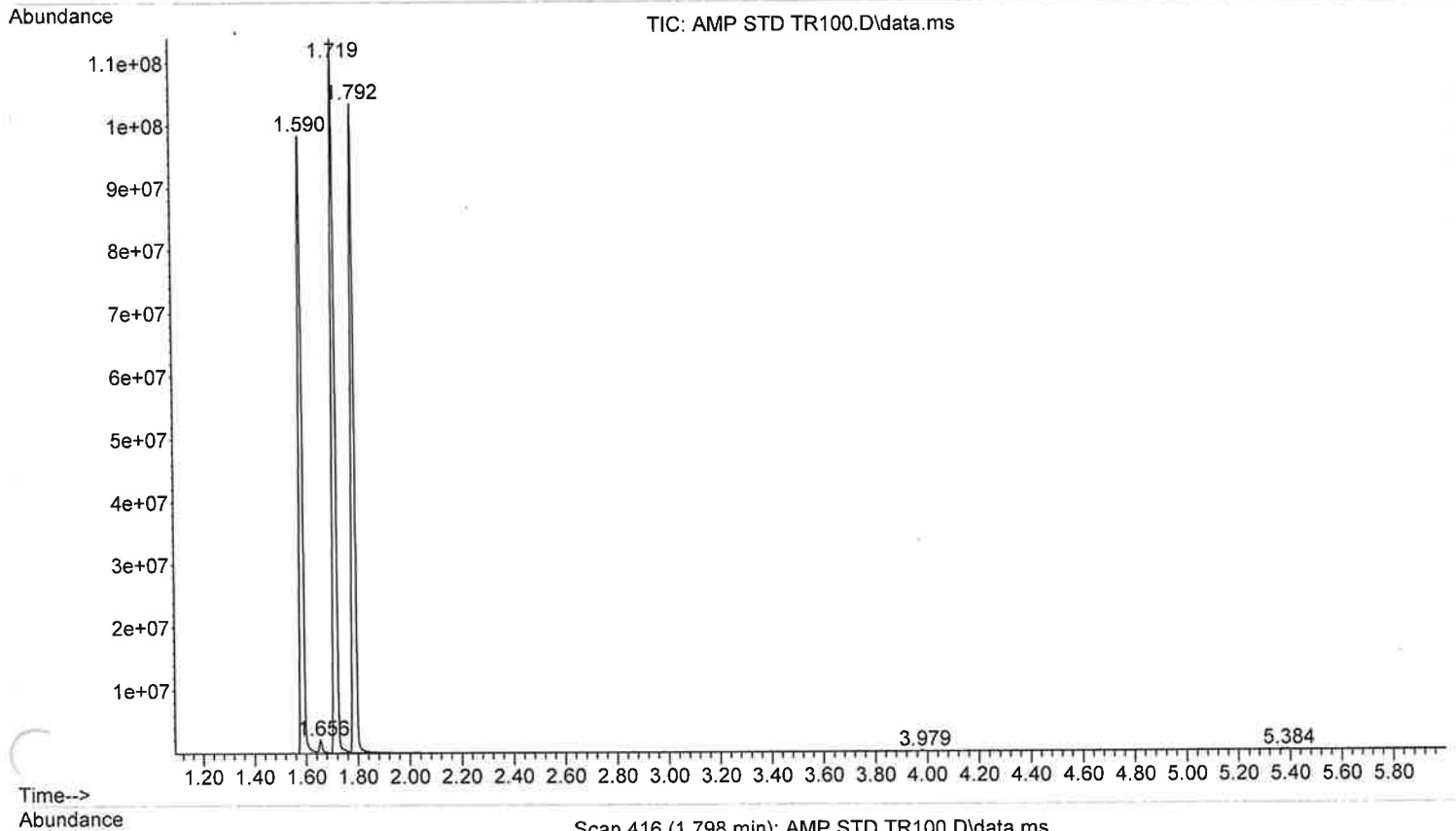
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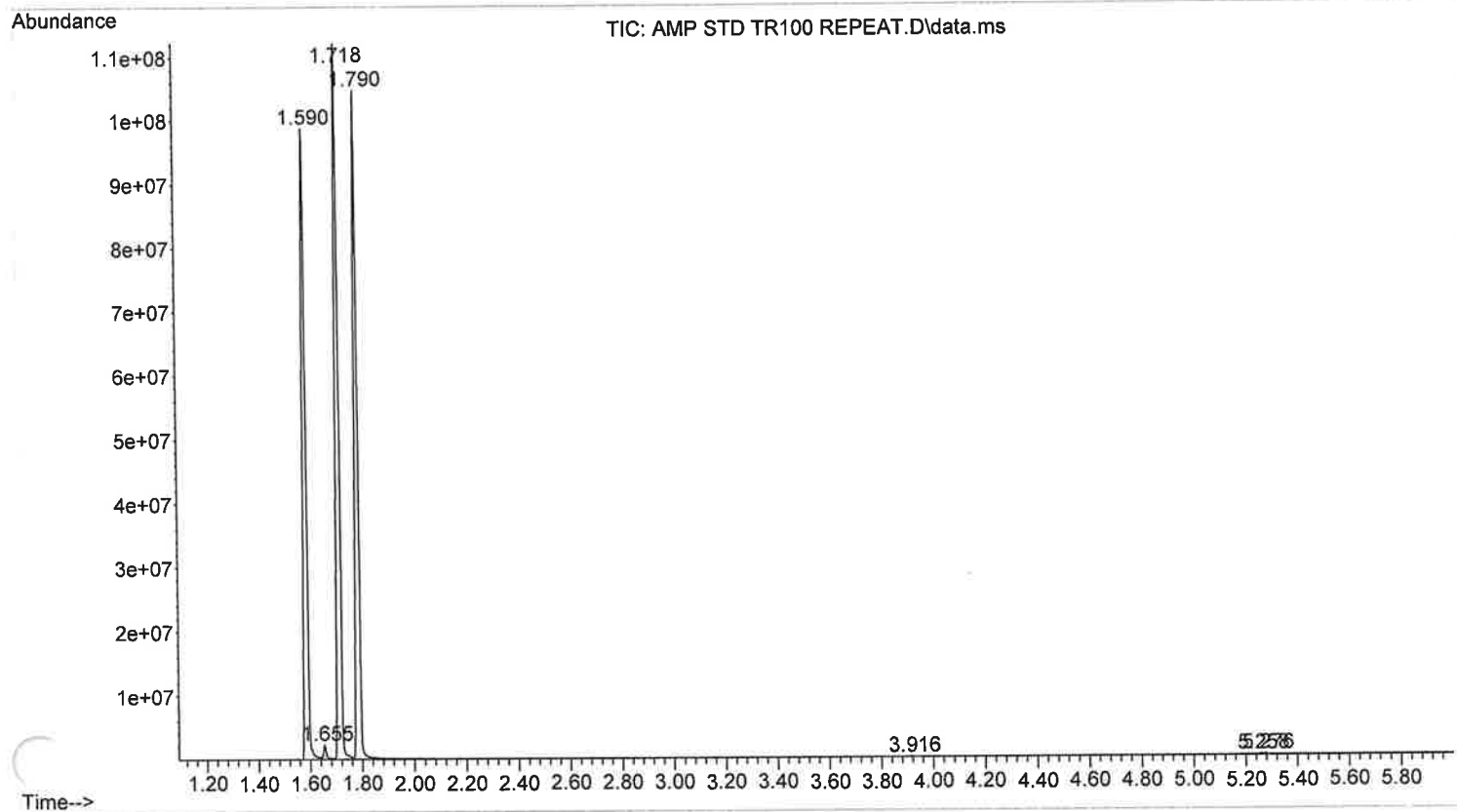
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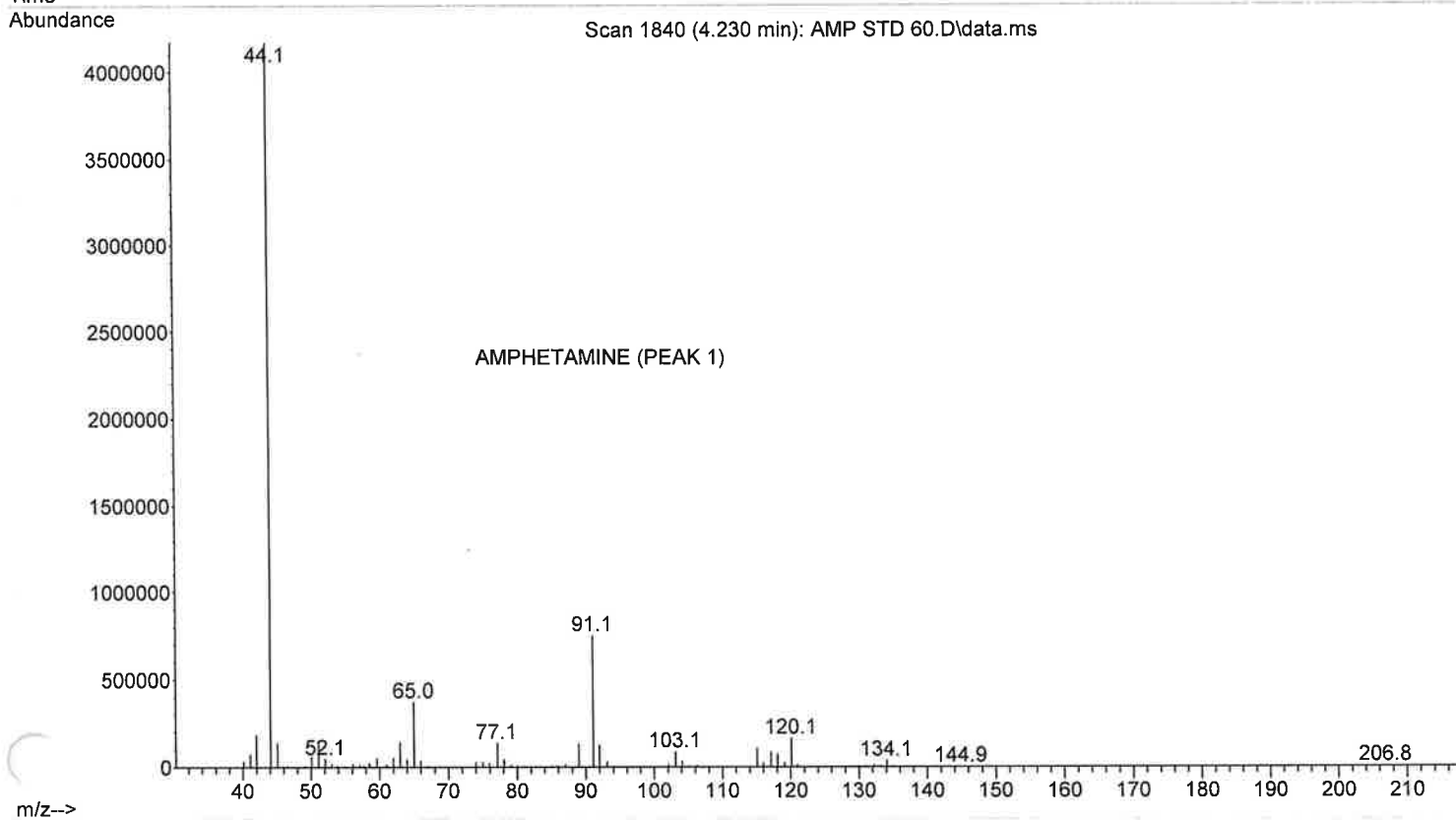
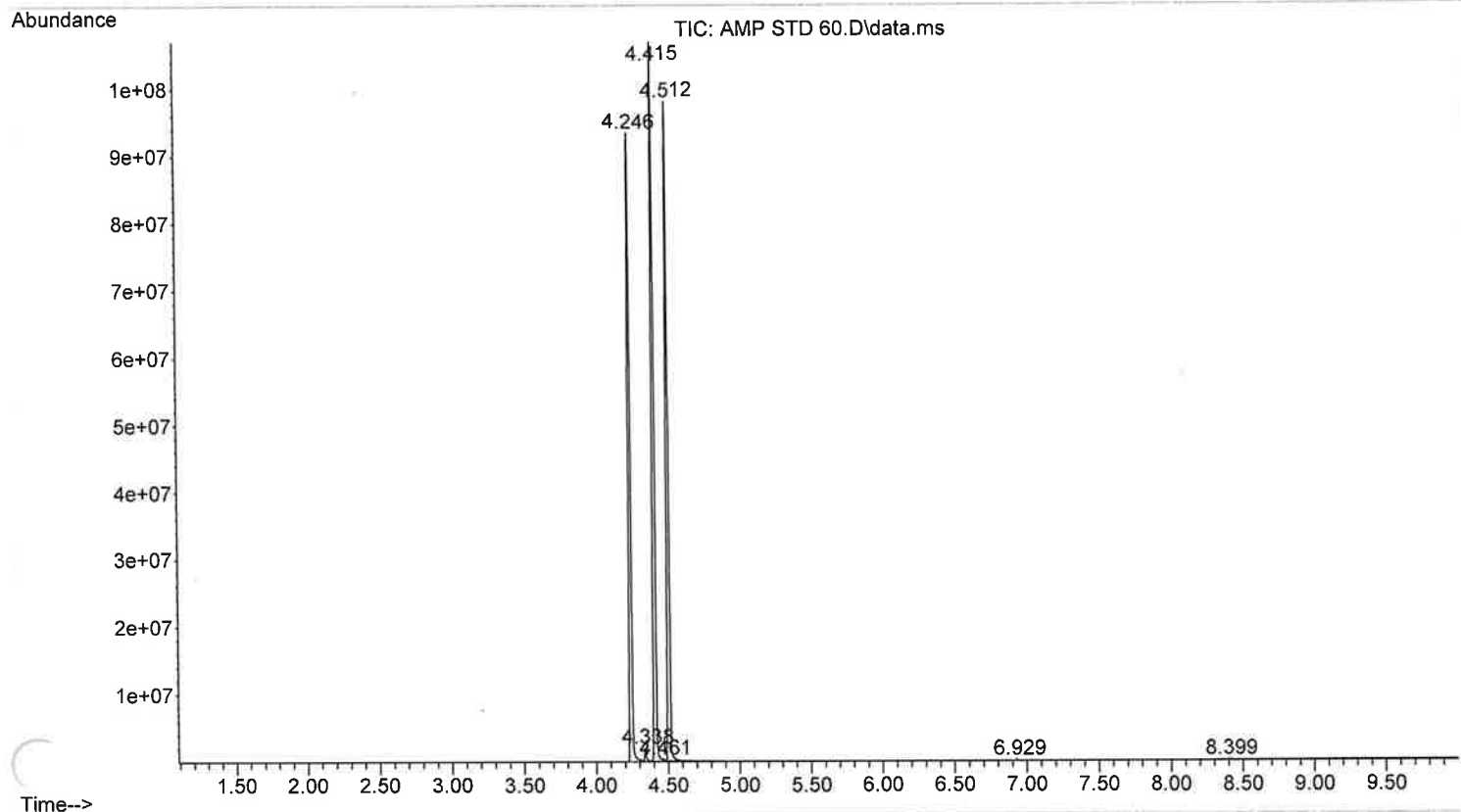
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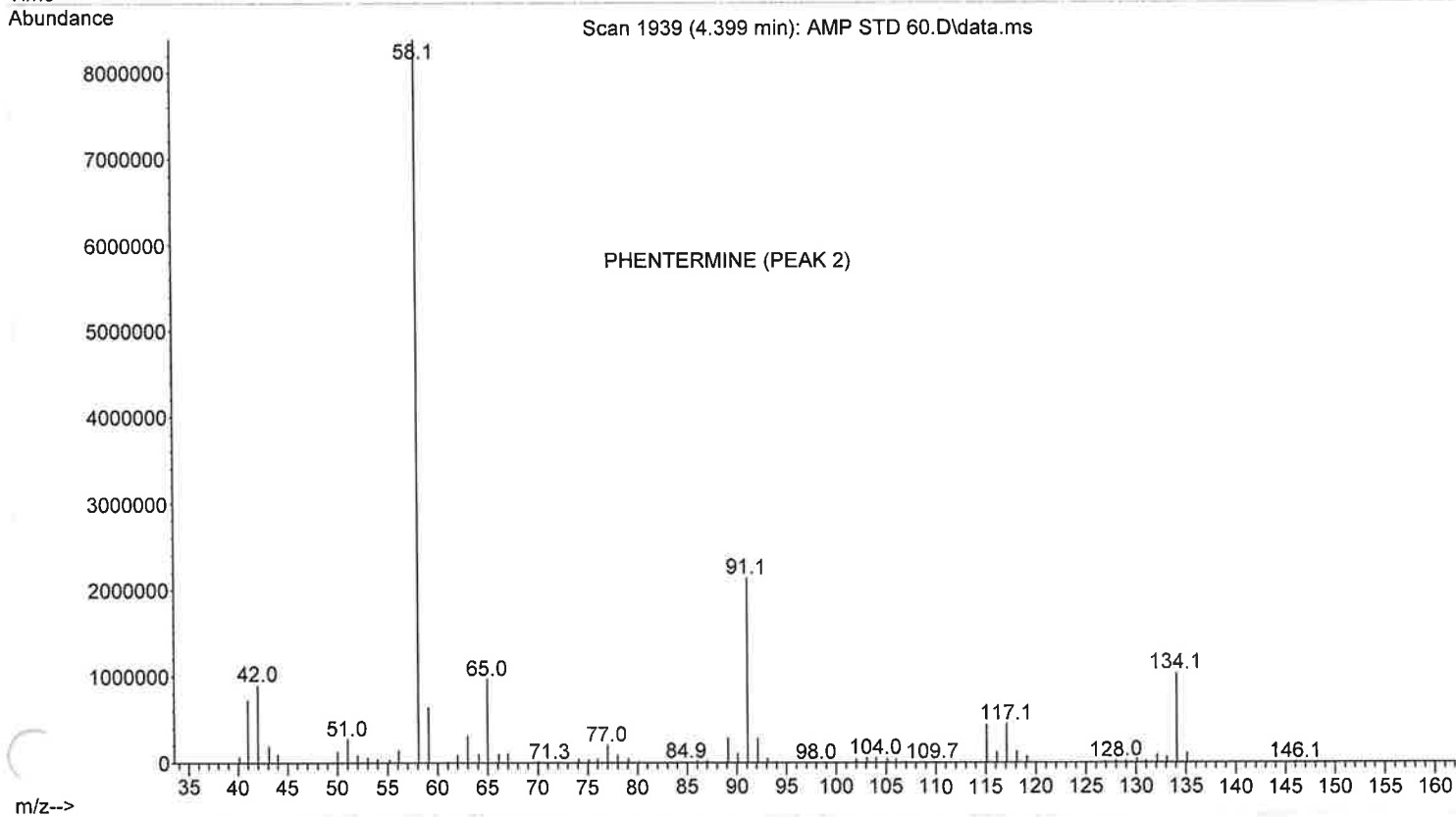
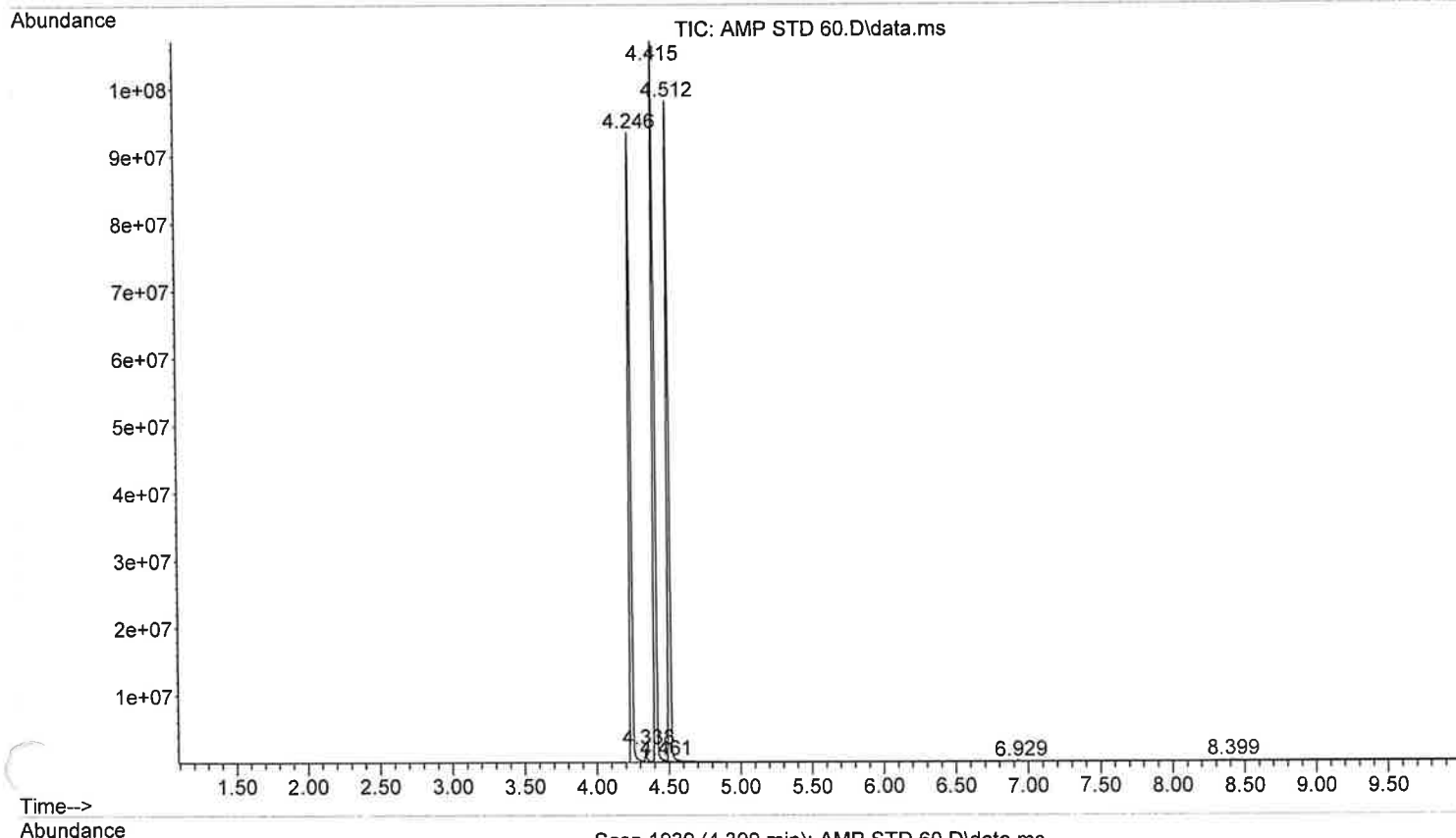
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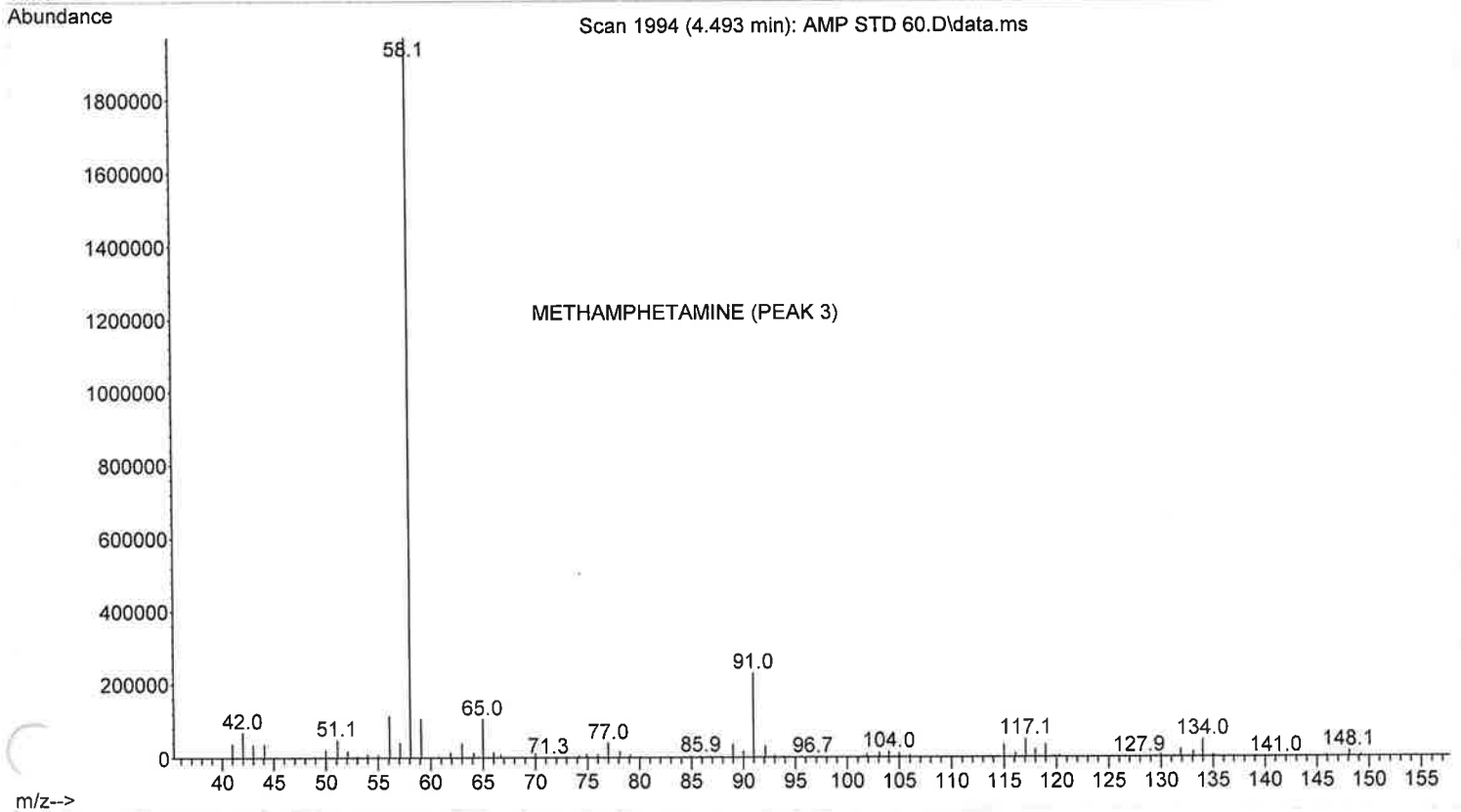
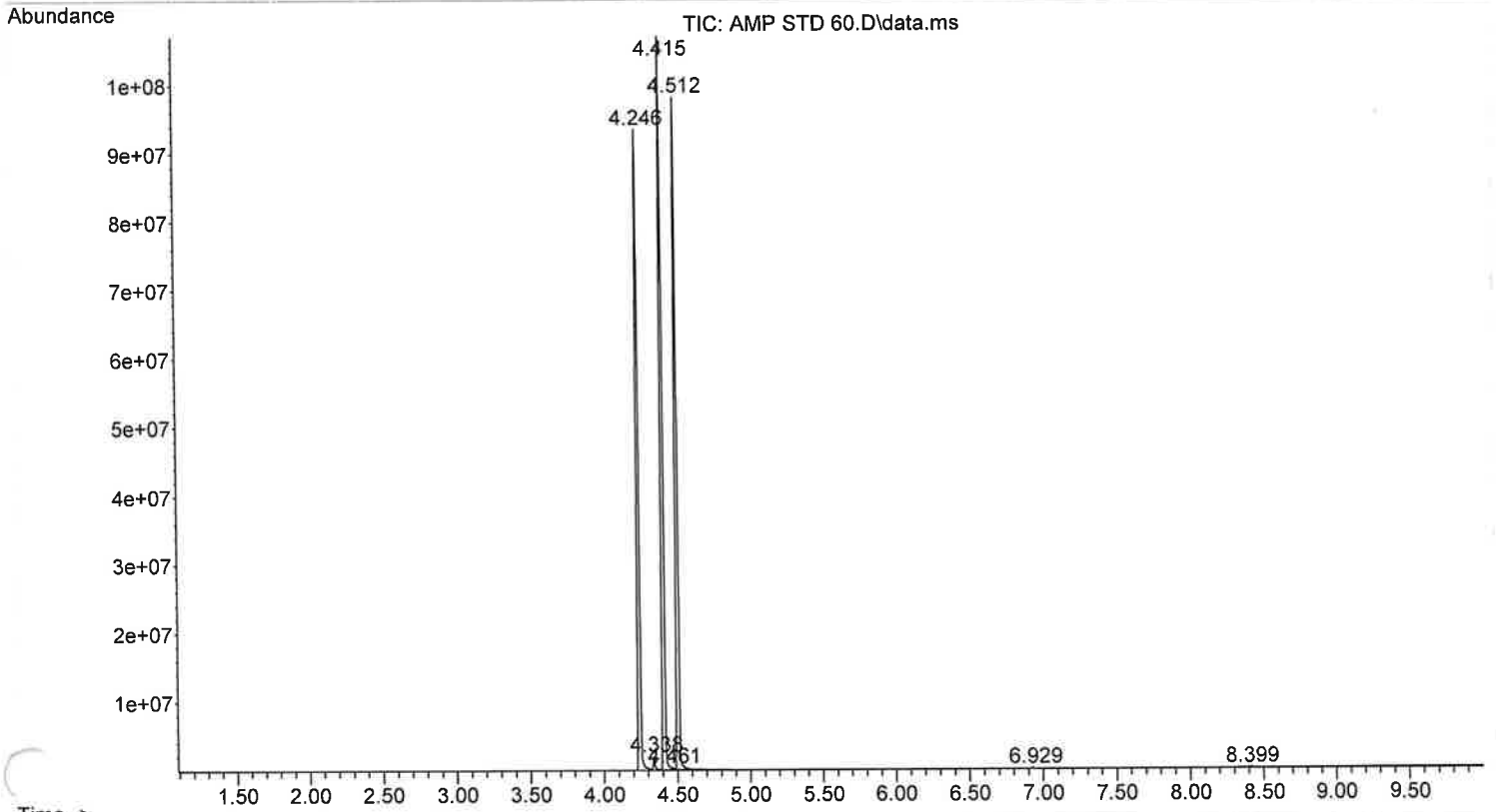
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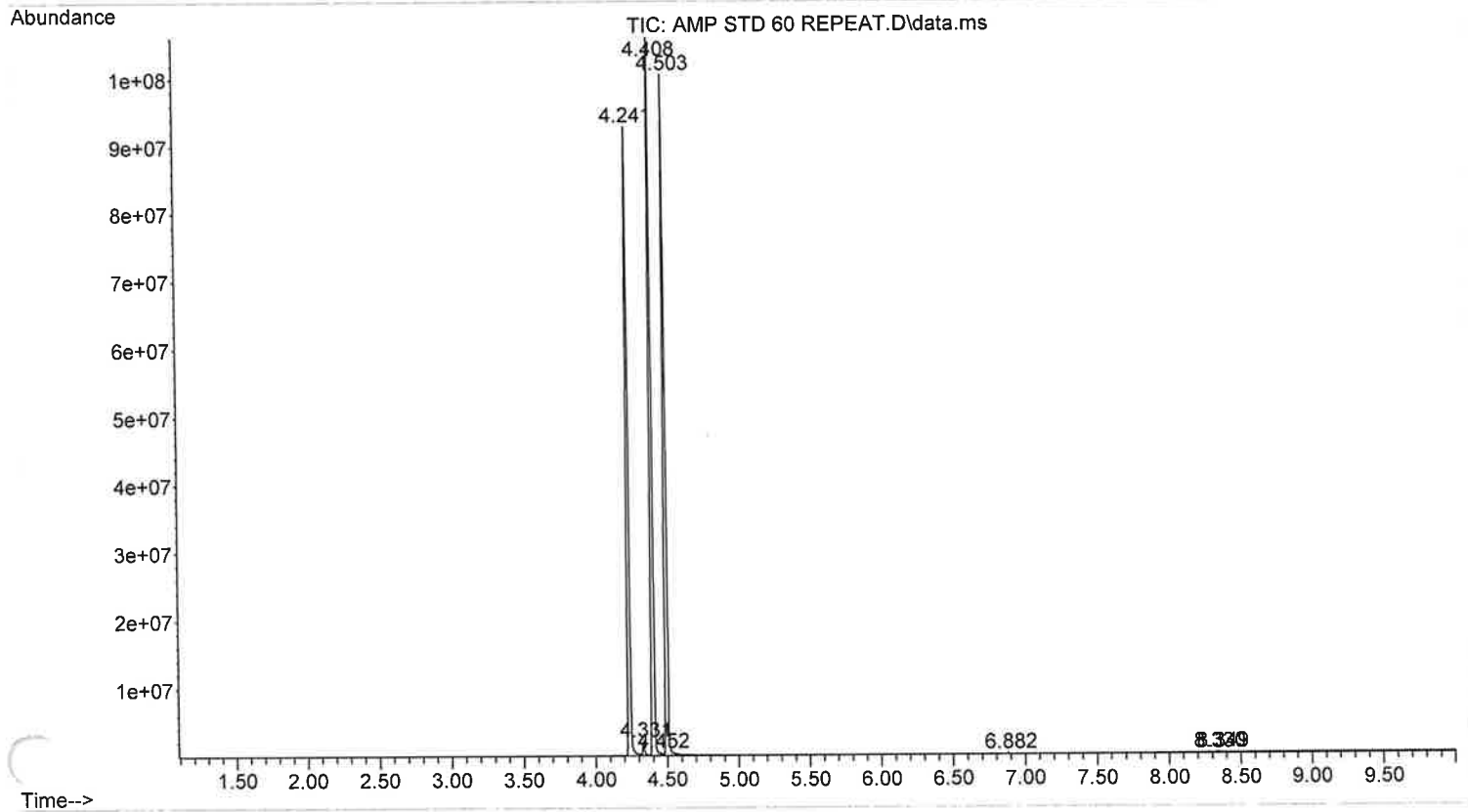
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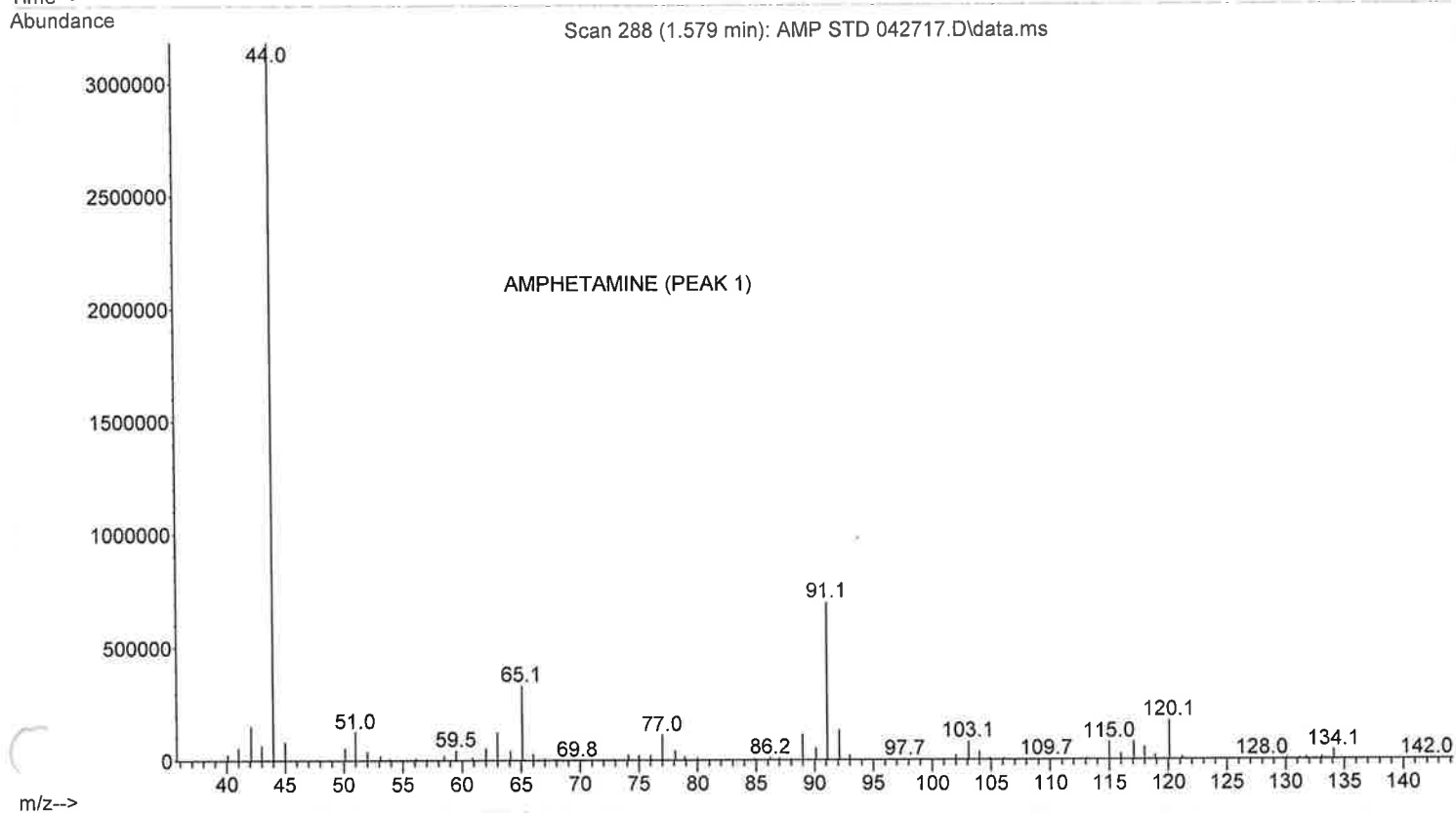
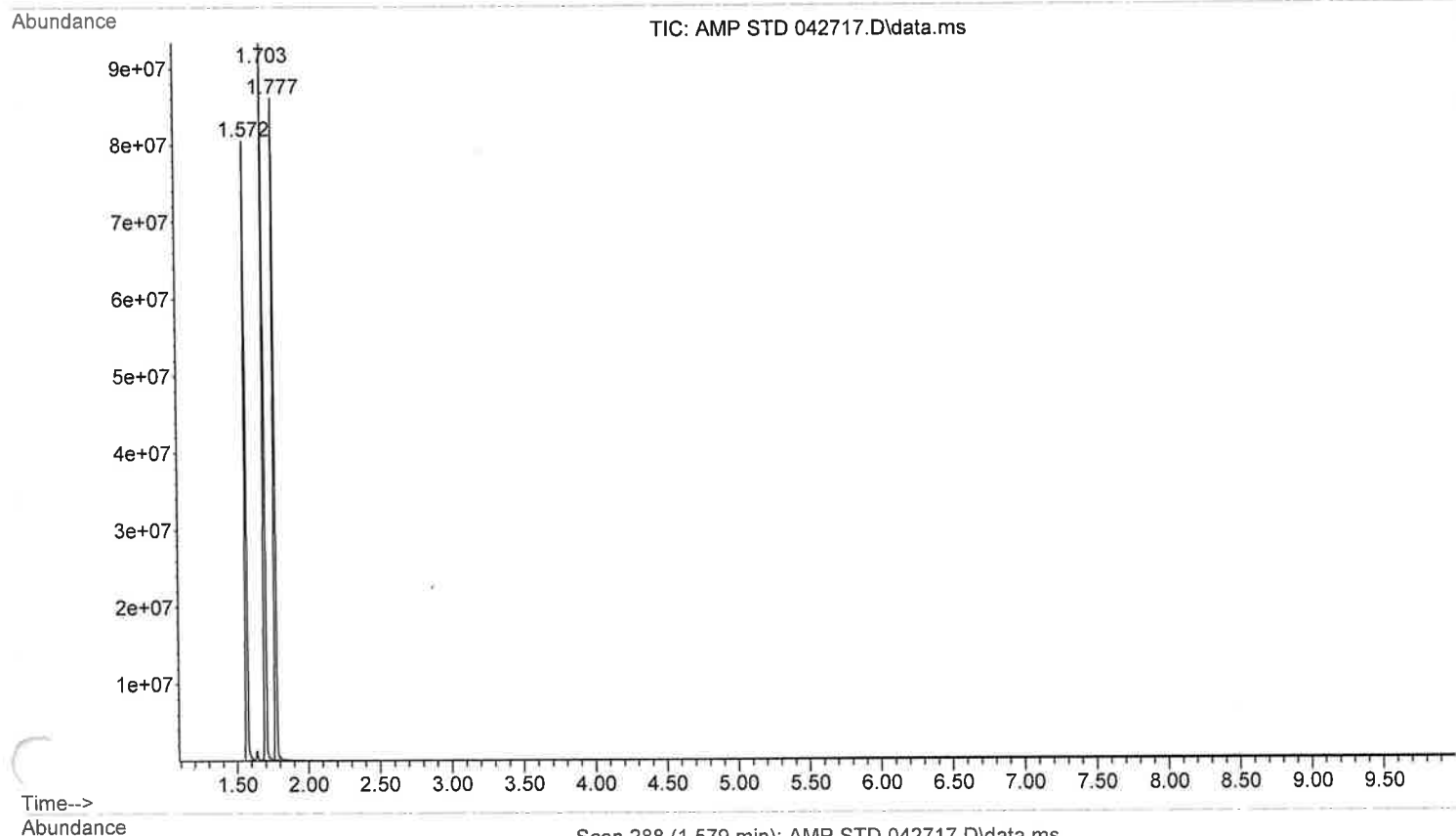
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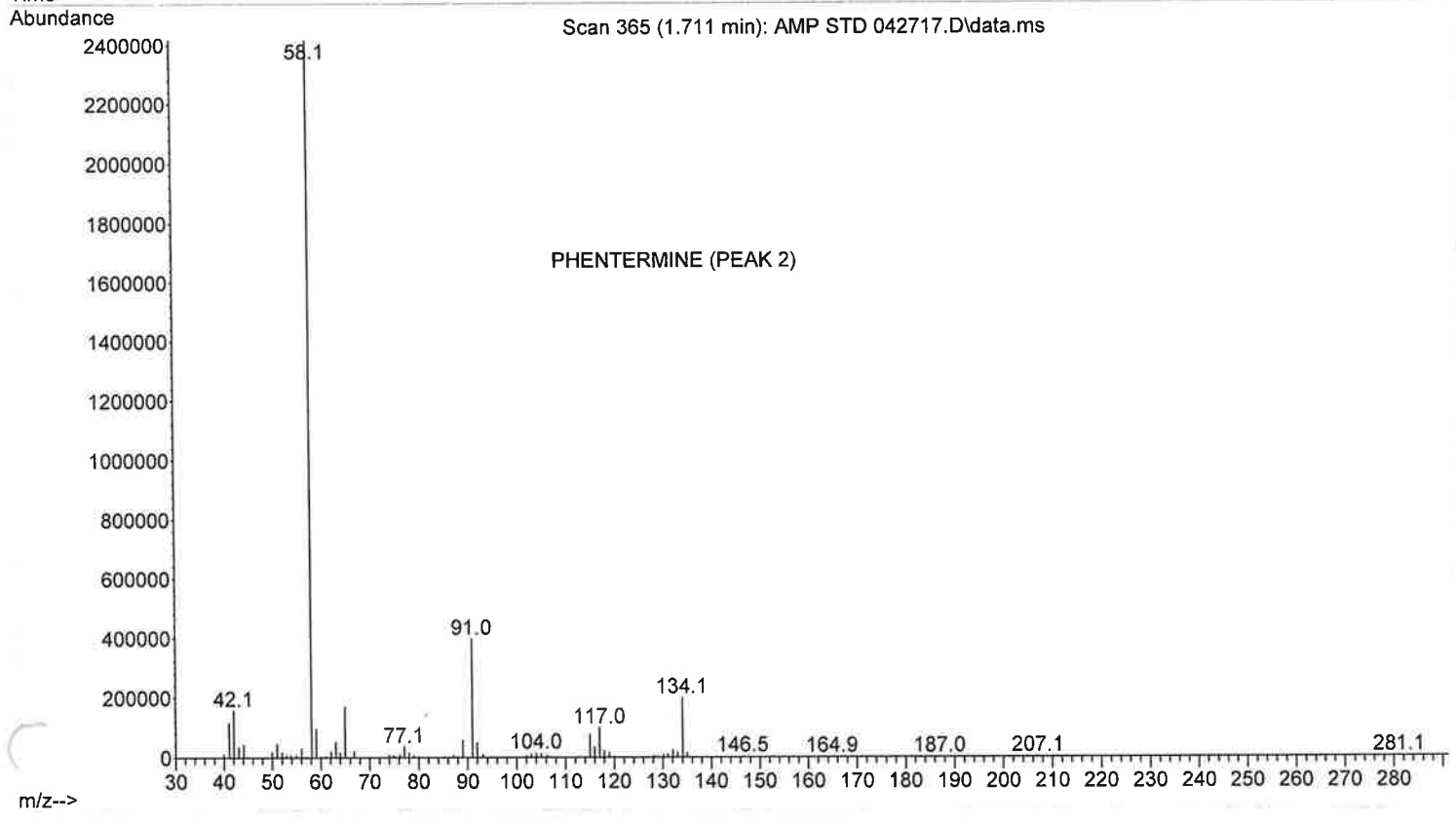
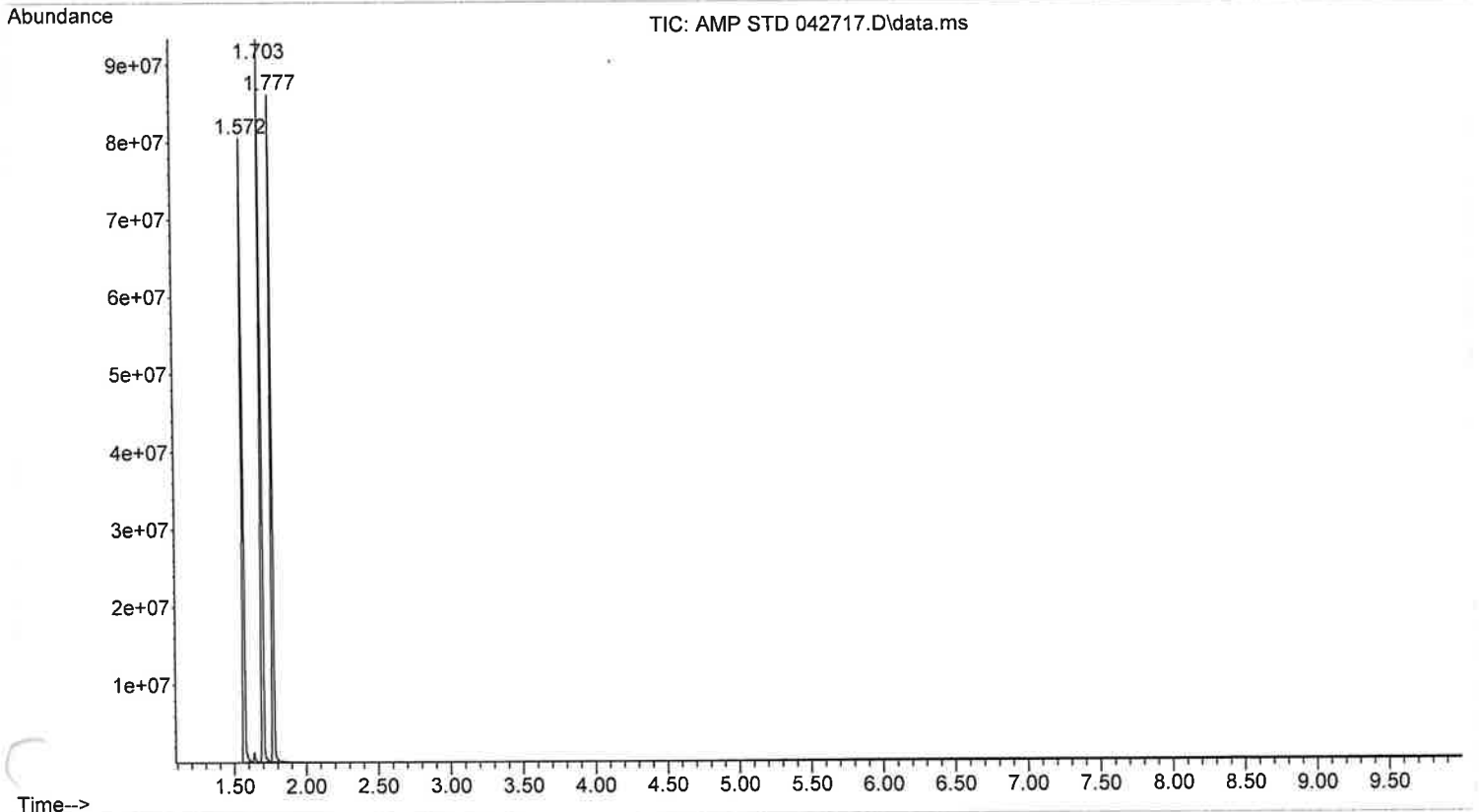
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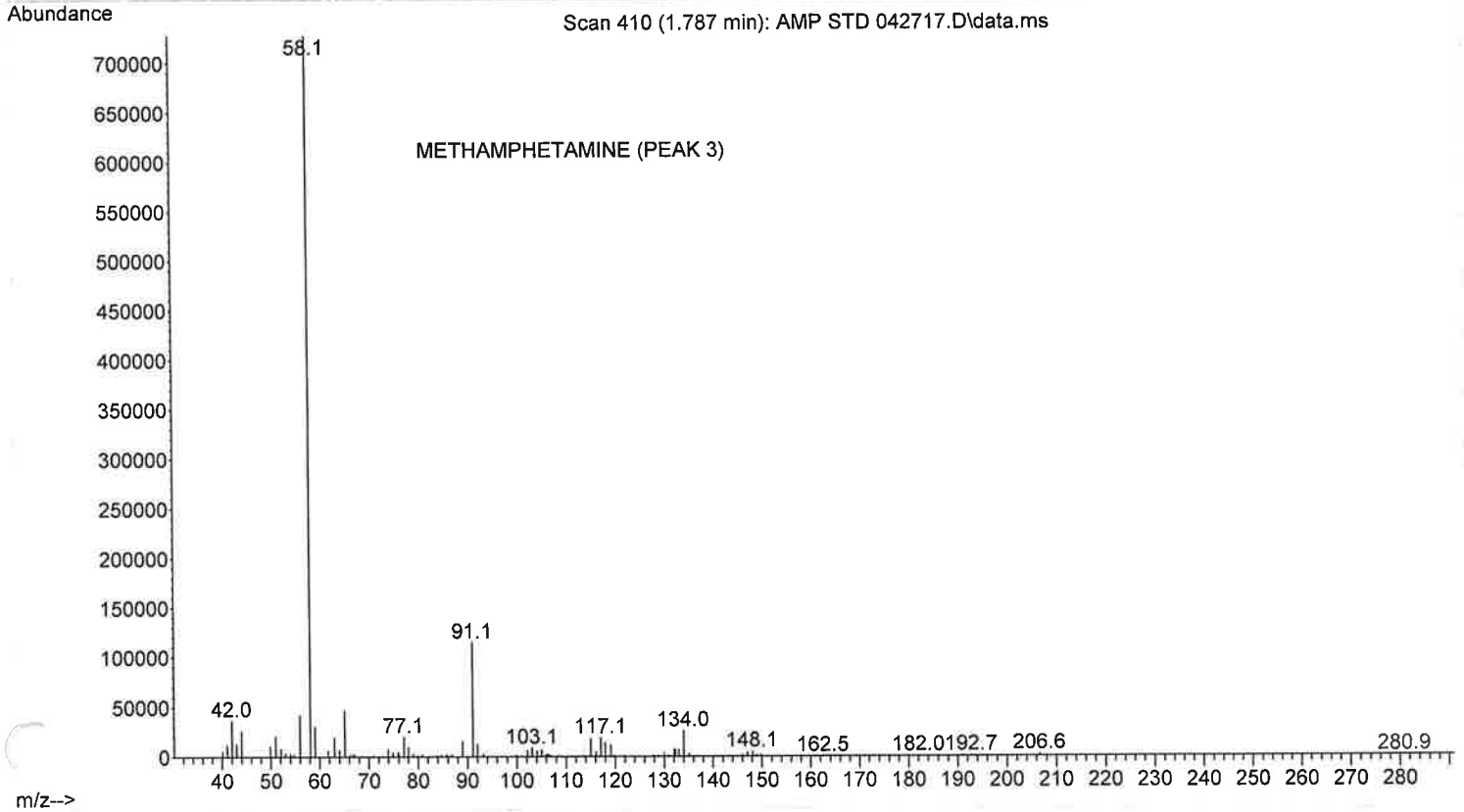
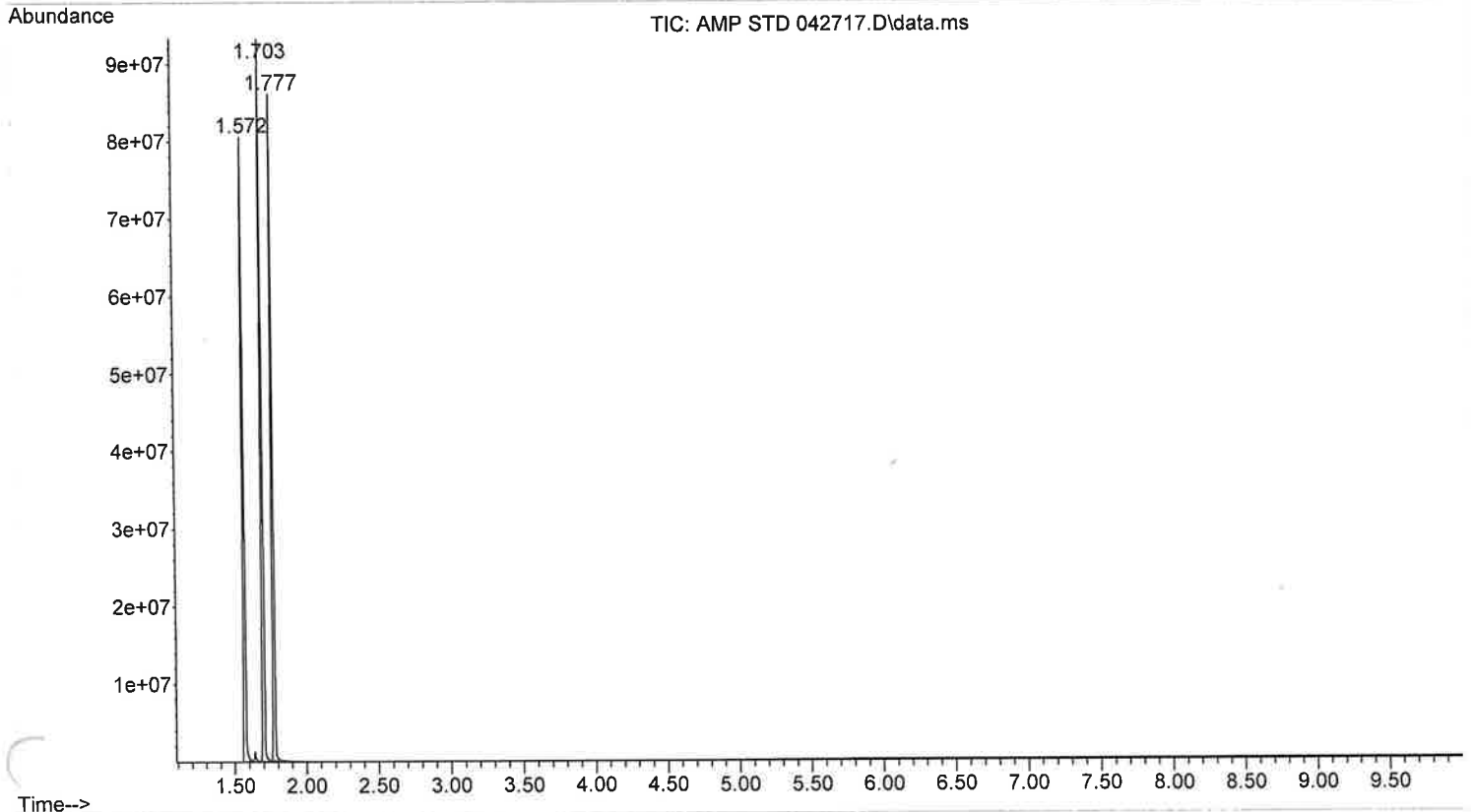
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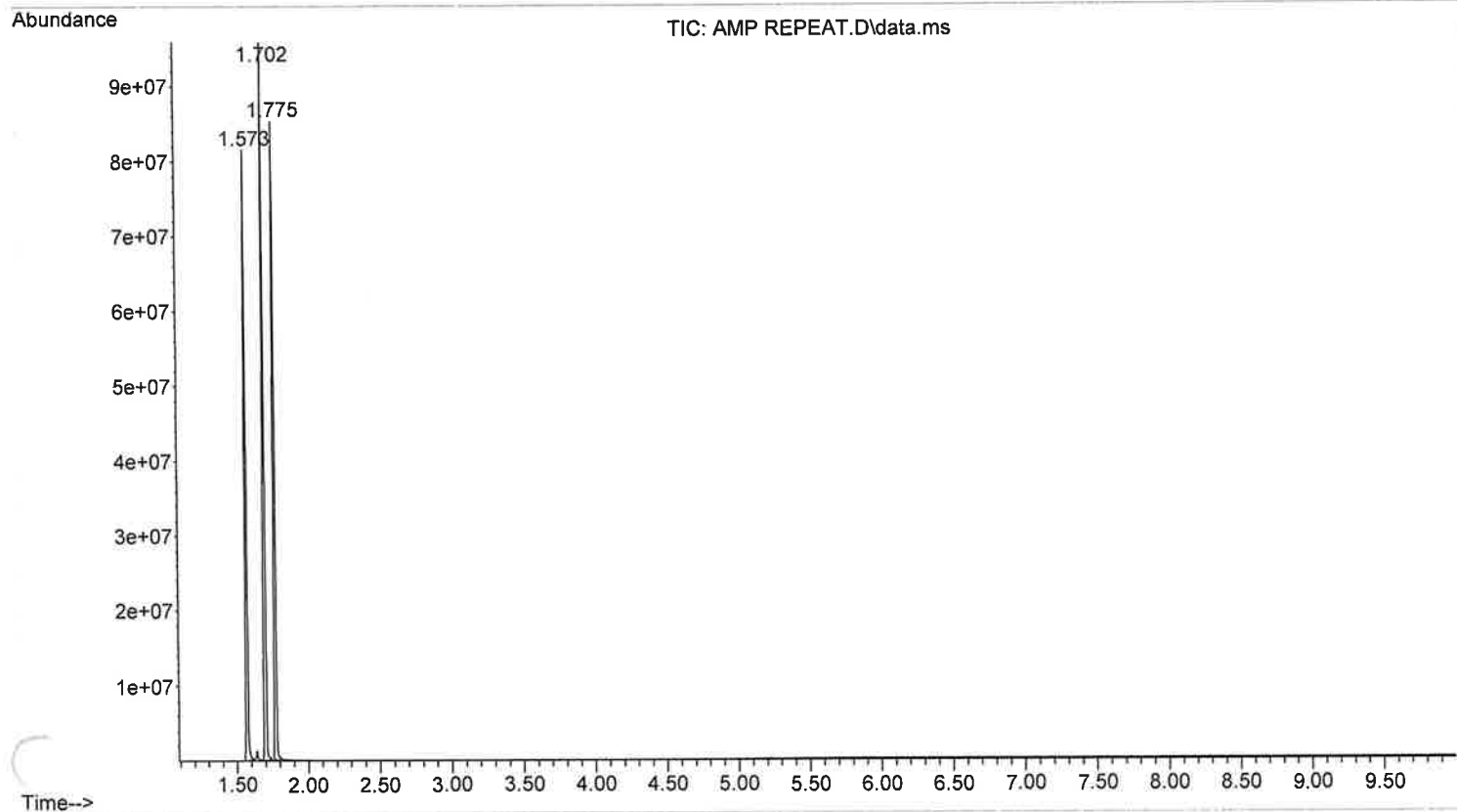
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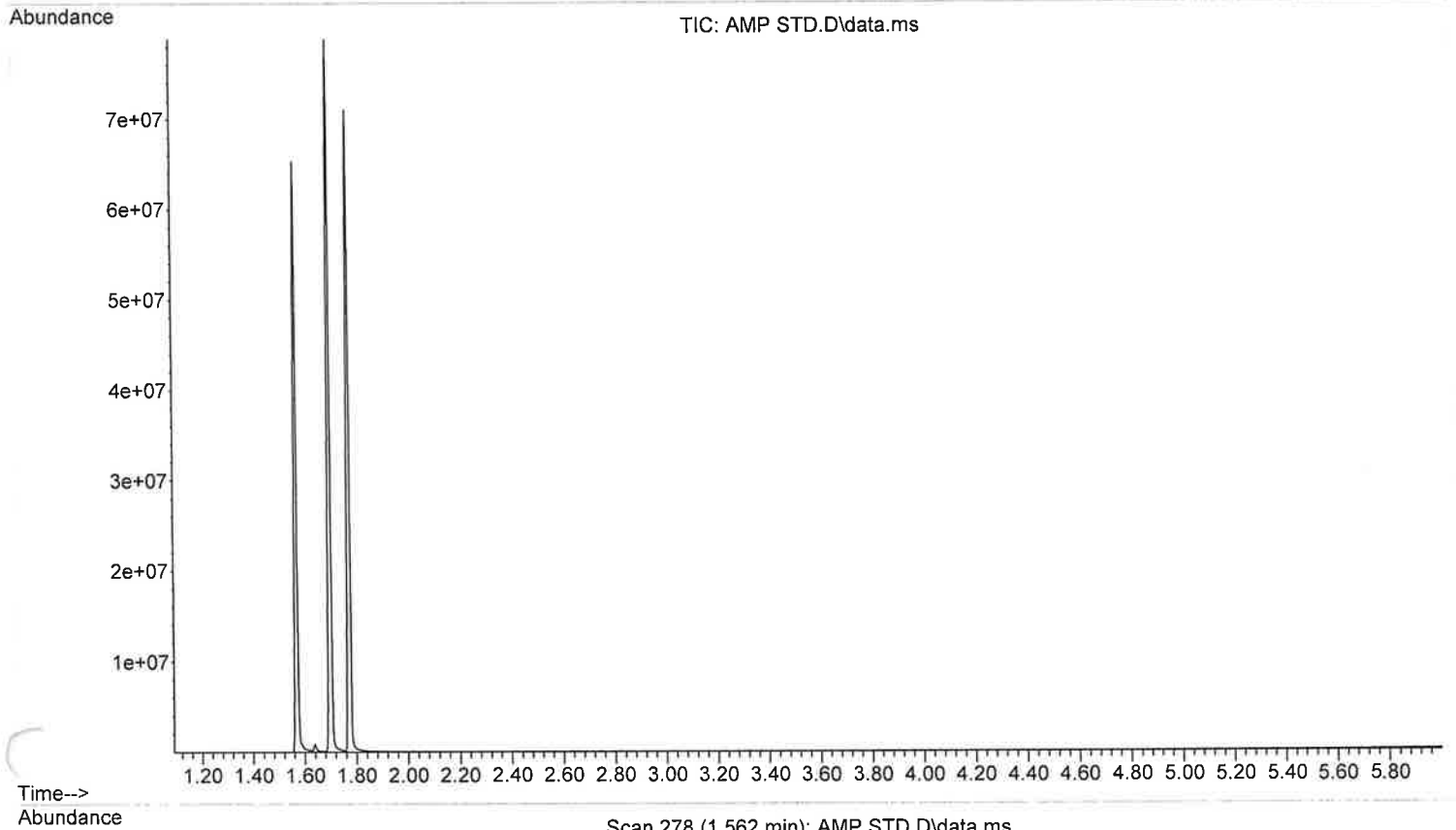
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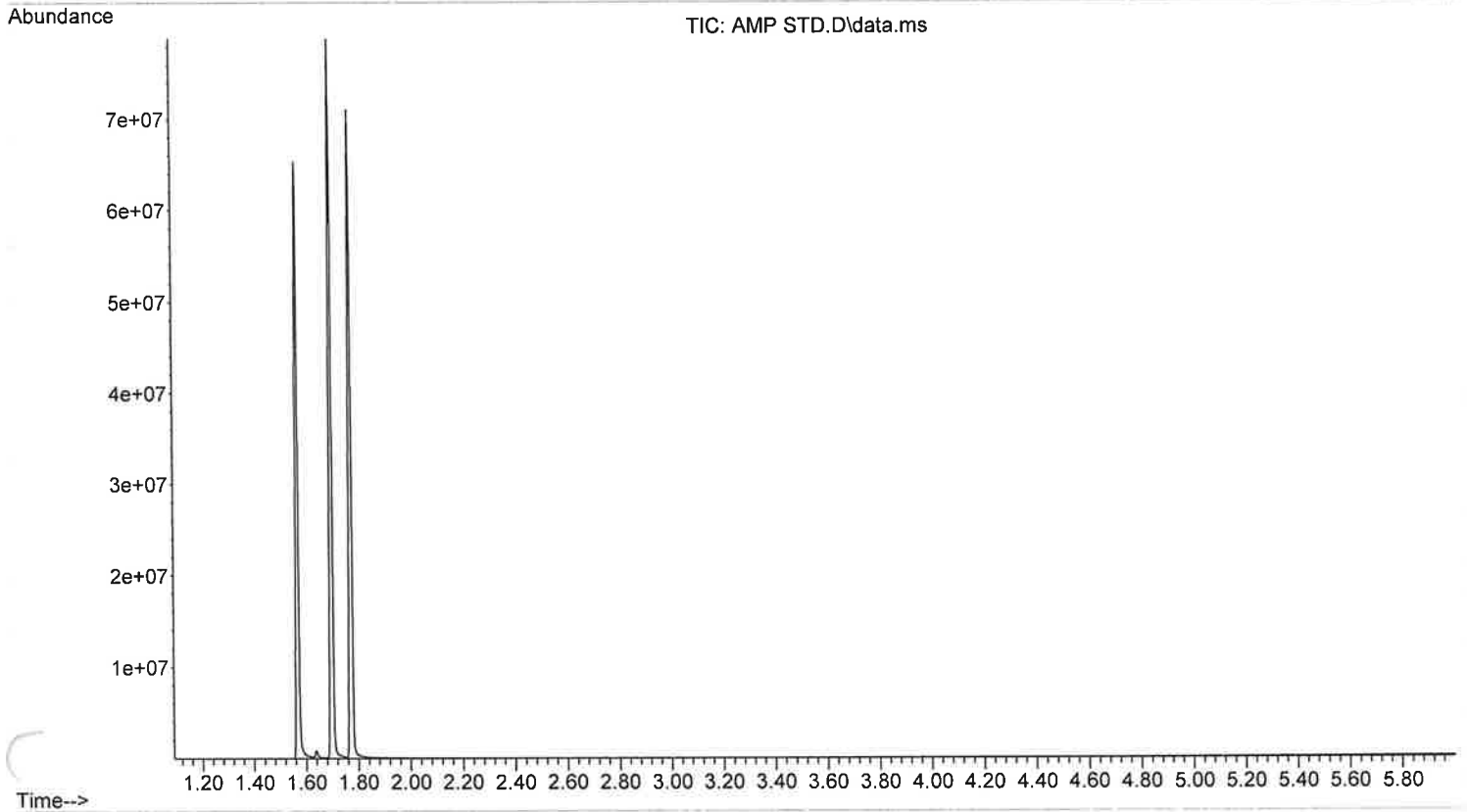
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erator :
quired : 27 Apr 2017 12:41 using AcqMethod MSDRUGS100.M
strument : Heisenberg
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se Info : 0.5N NAOH/CHCL3
umber: 1



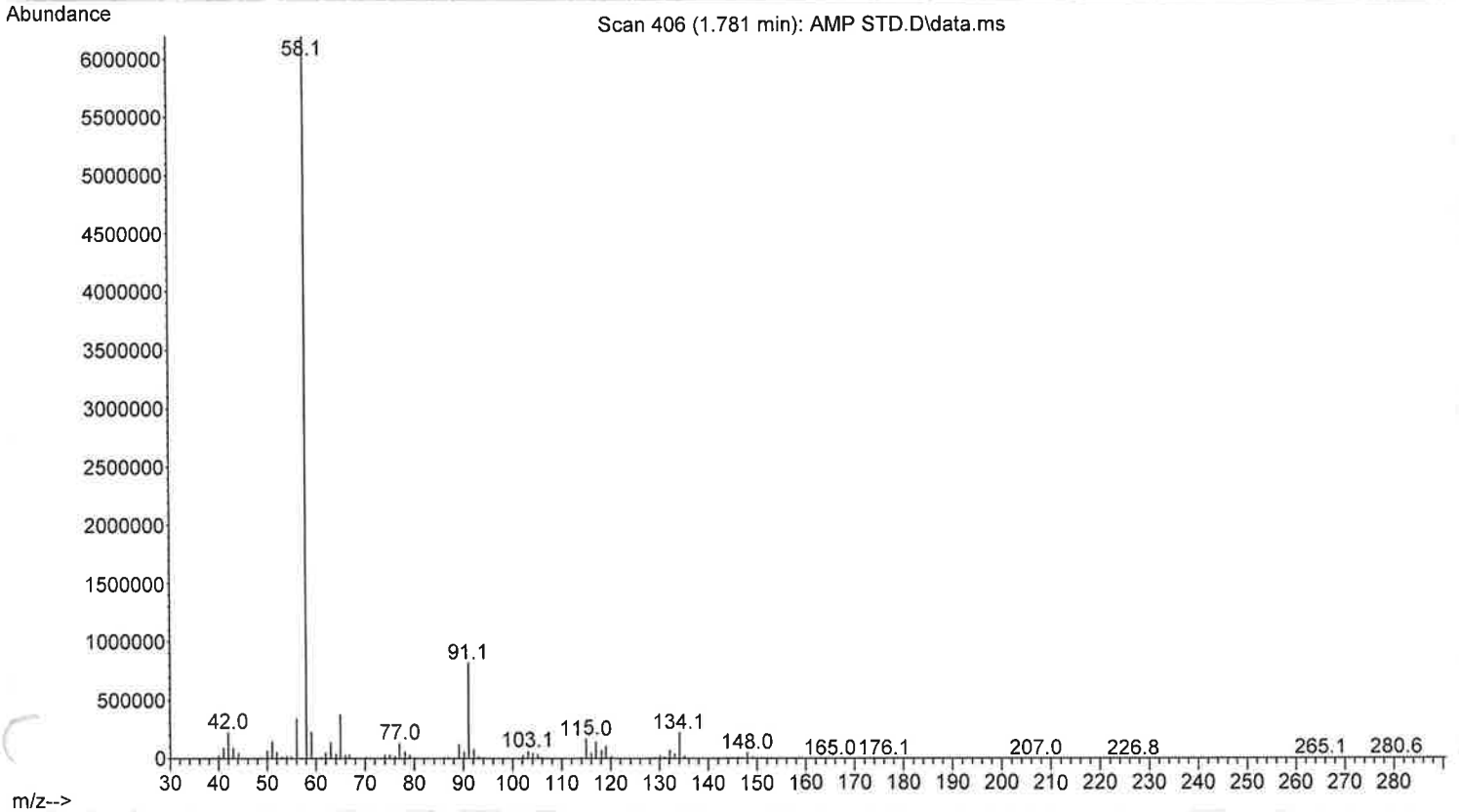
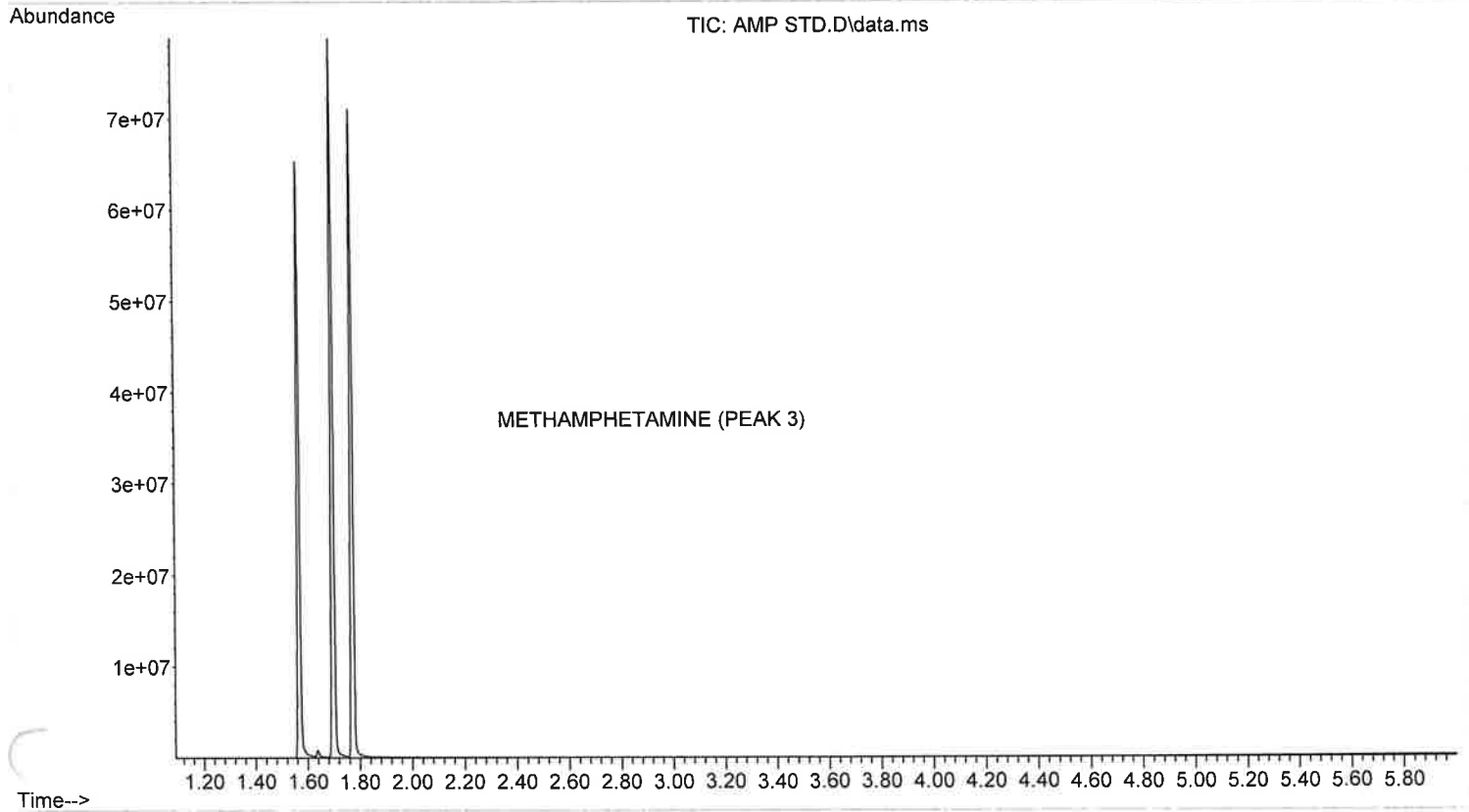
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Info : 0.5N NAOH/CHCL3
umber: 1



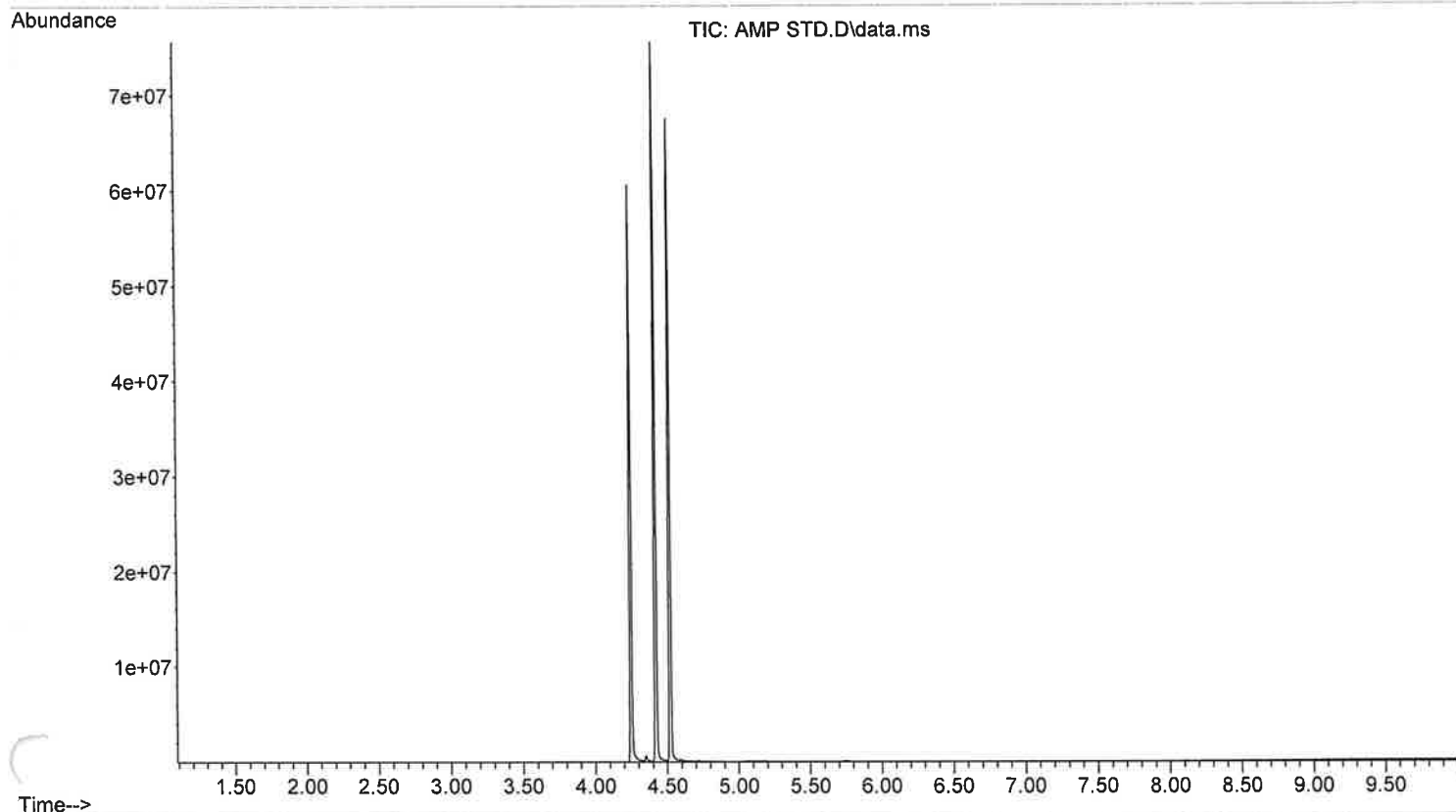
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Solvent Info : 0.5N NAOH/CHCL3
Injection Number: 1



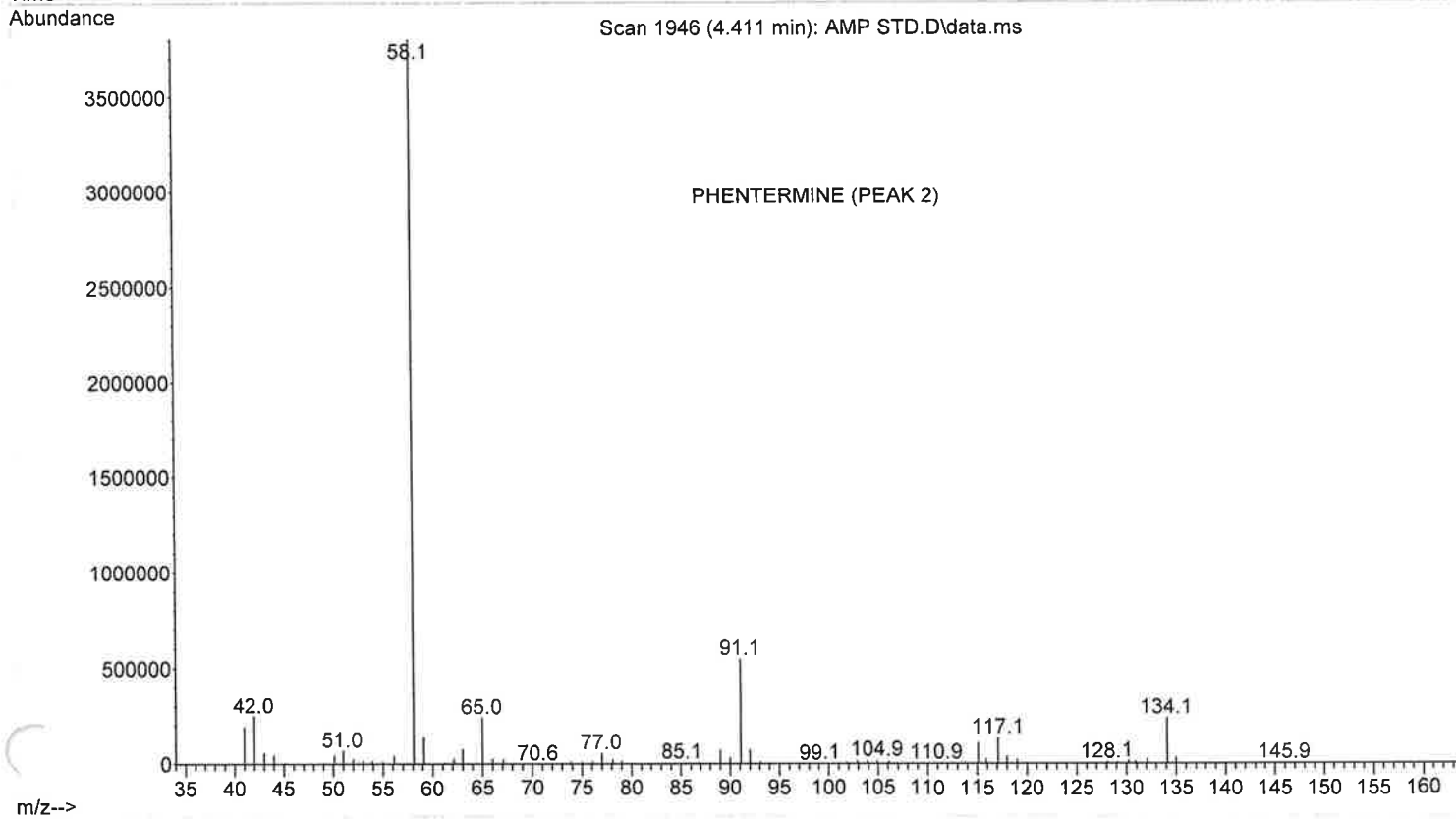
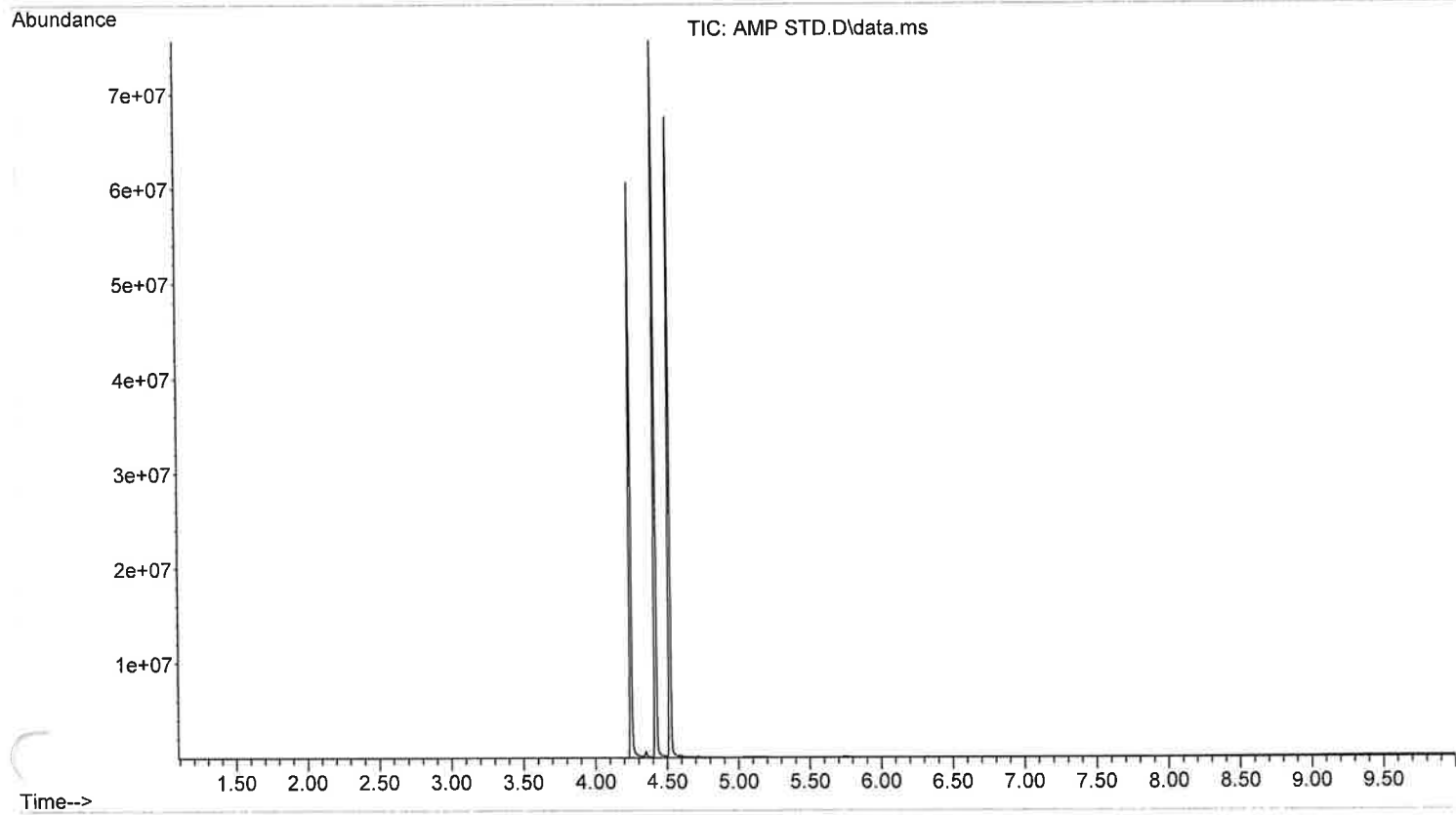
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Instrument : Heisenberg
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Solvent : 0.5N NAOH/CHCL3
Injection Number: 1



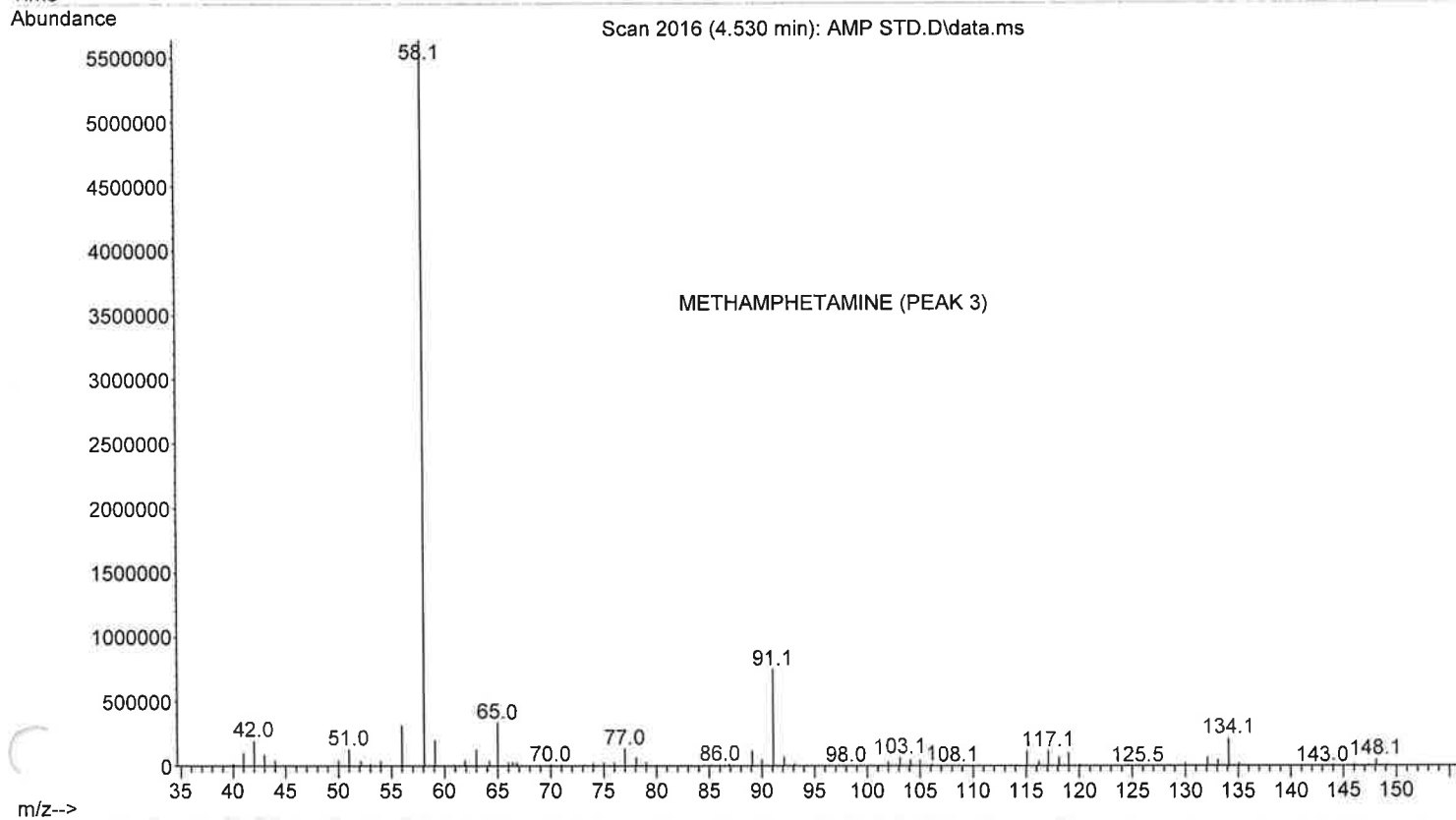
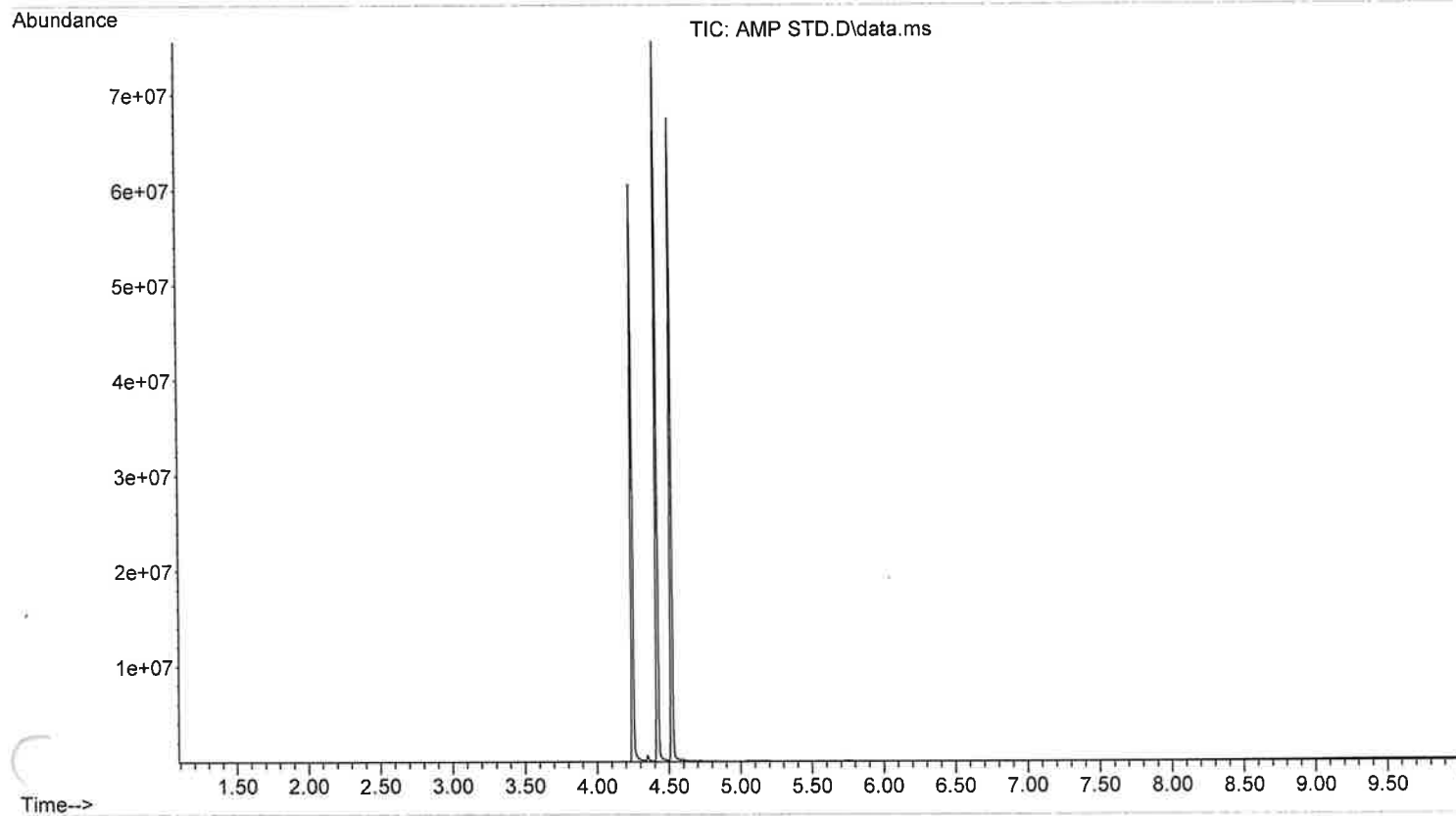
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Instrument : Heisenberg
Sample Name :
Sample Info : 0.5N NaOH/CHCL3
Sample Number : 0



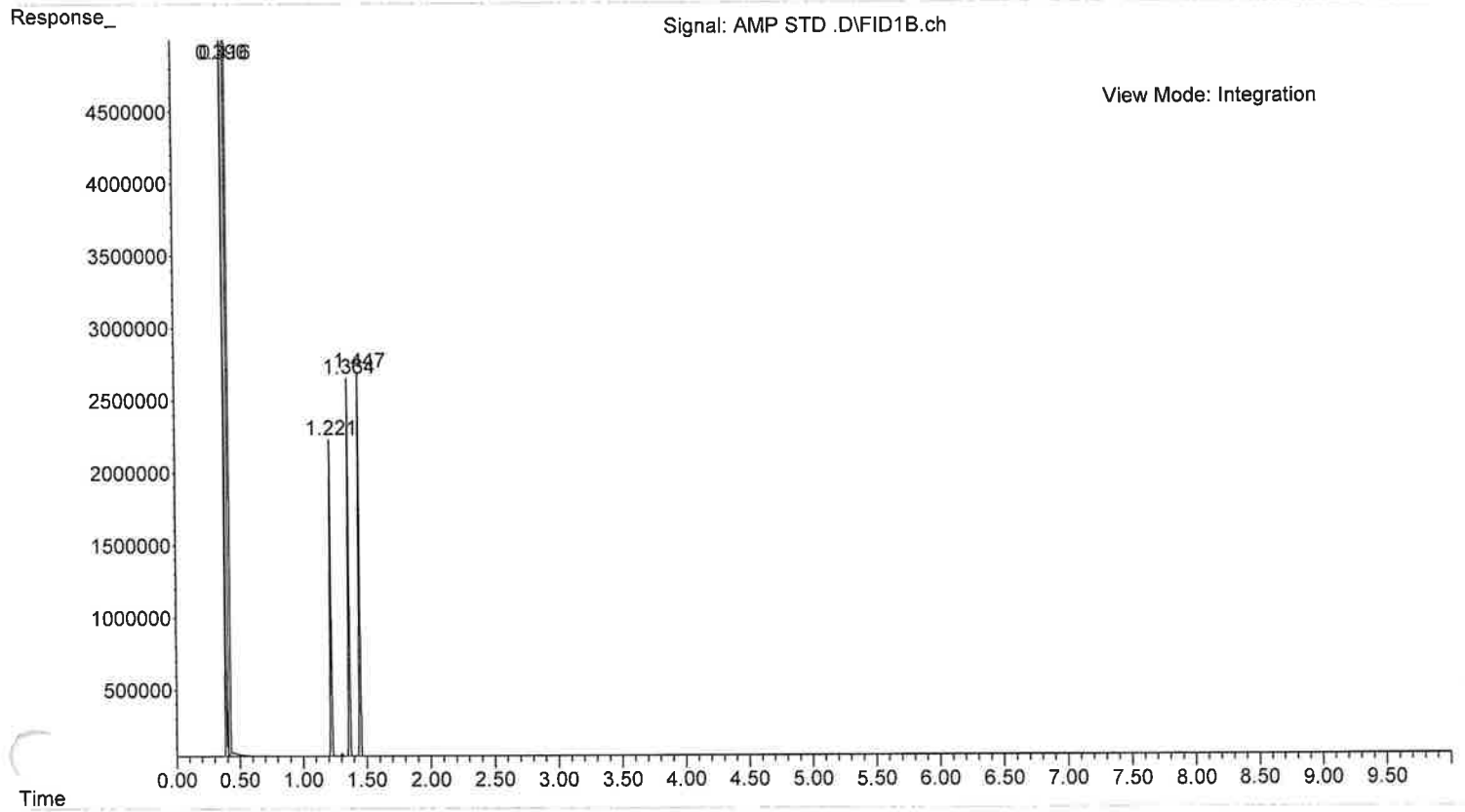
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mple Name:
s Info : 0.5N NAOH/CHCL3
umber: 0



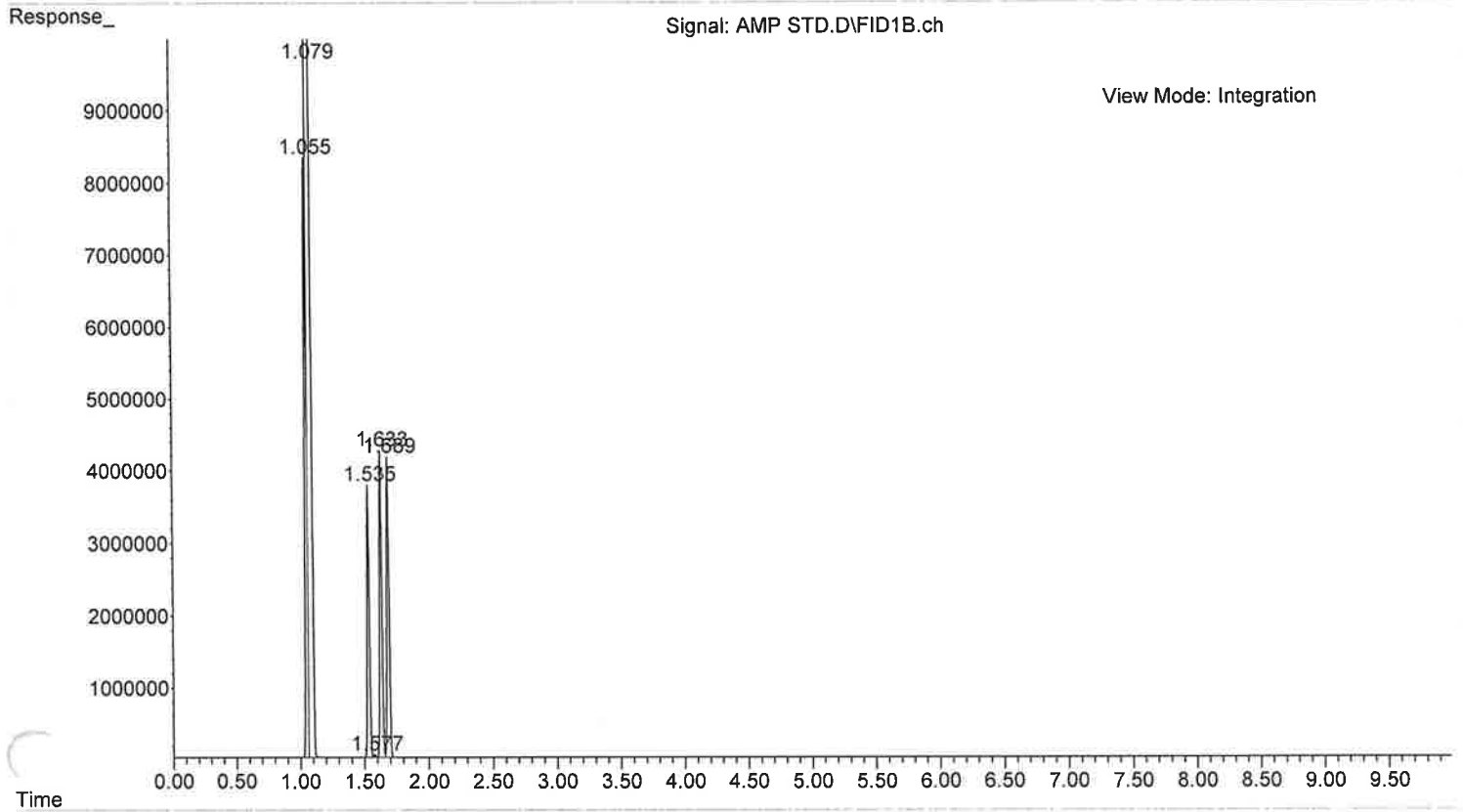
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Instrument : Heisenberg
Sample Name :
Sample Info : 0.5N NaOH/CHCL3
Sample Number : 0



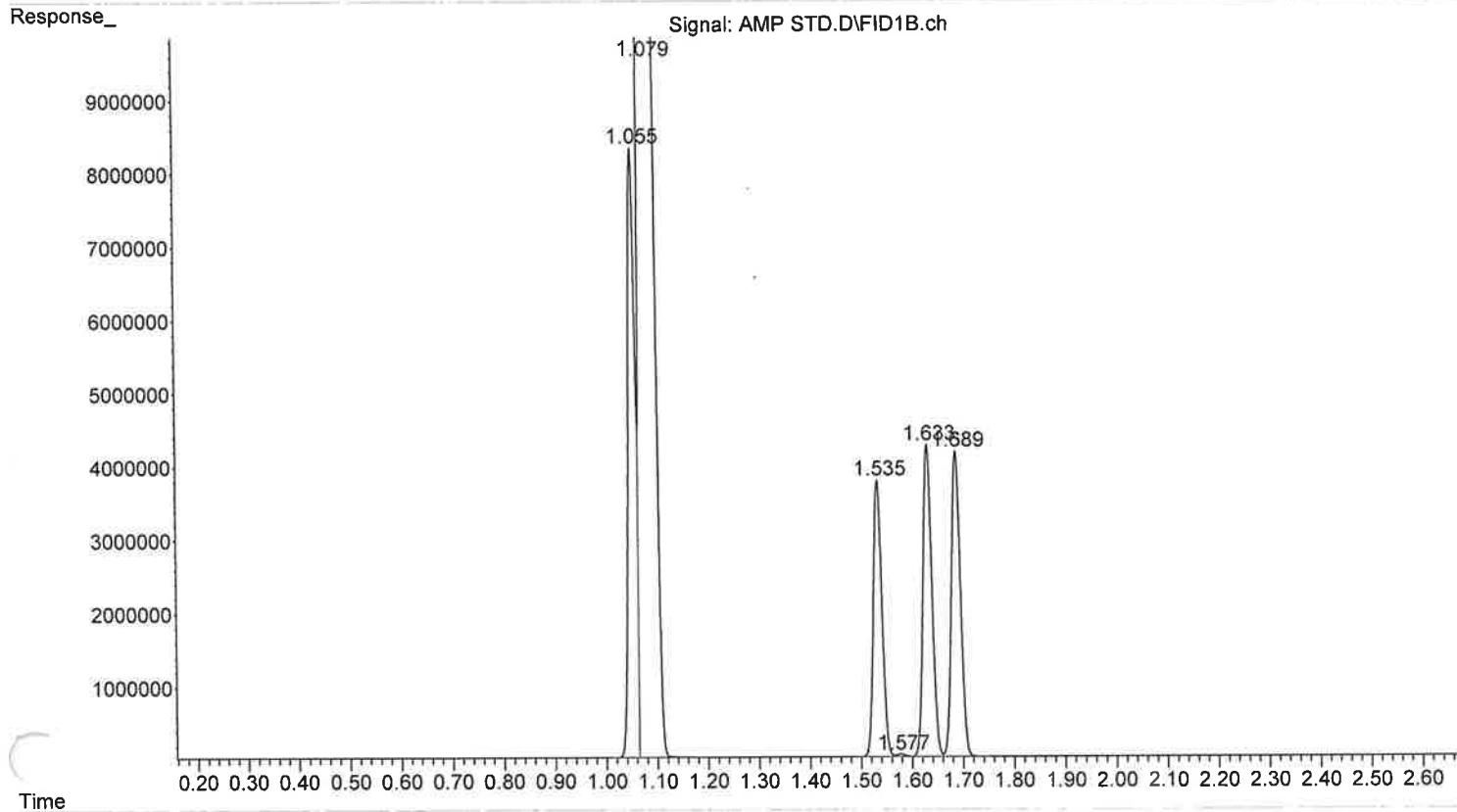
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s Info : 0.5 NAOH/CHCL3
umber: 1



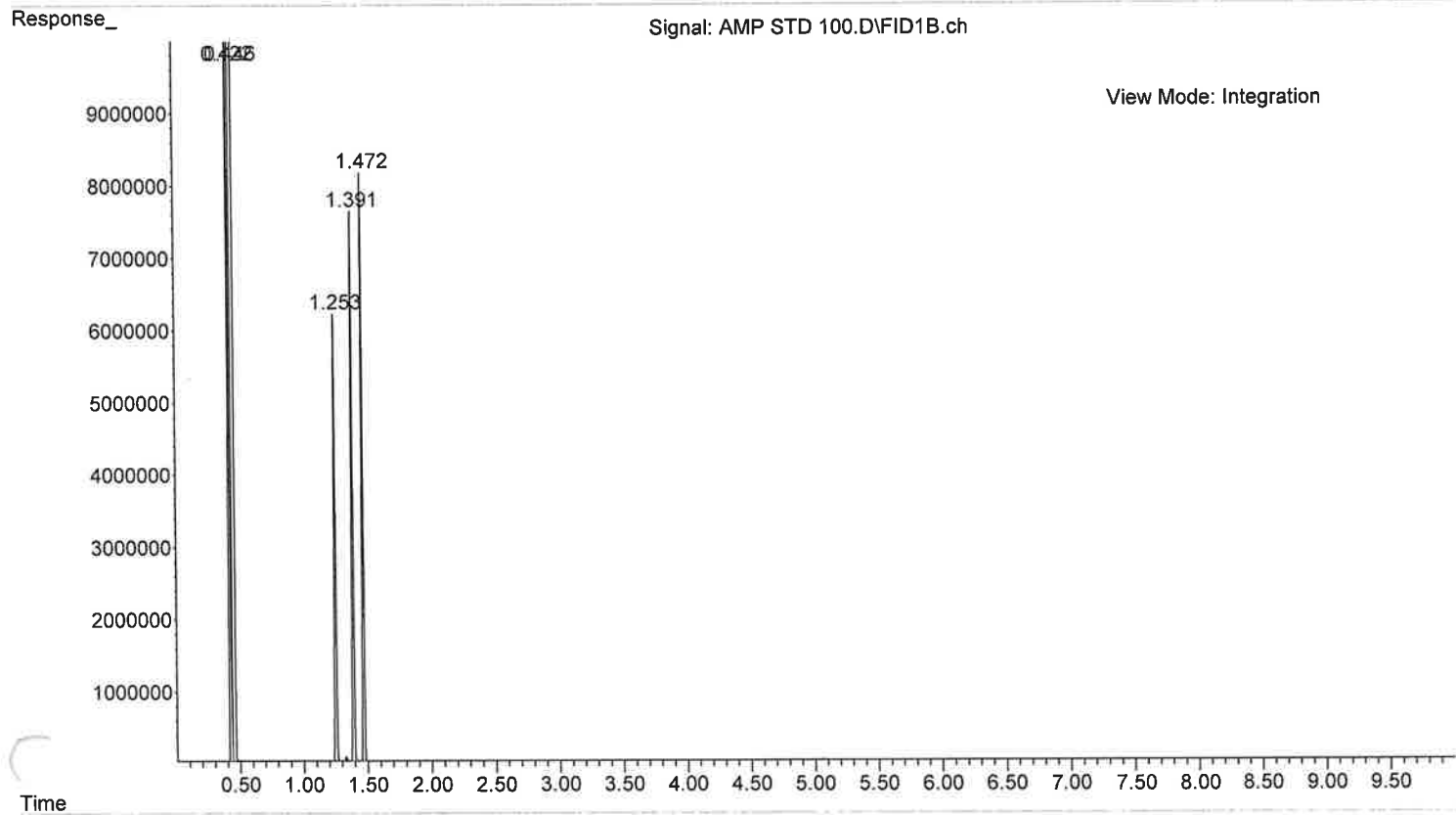
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Operator : EMC
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Sample Name: AMPHETAMINE, METHAMPHETAMINE, PHENTERMINE
Solvent Info : 0.5N NAOH/CHCL3
Injection Number: 1



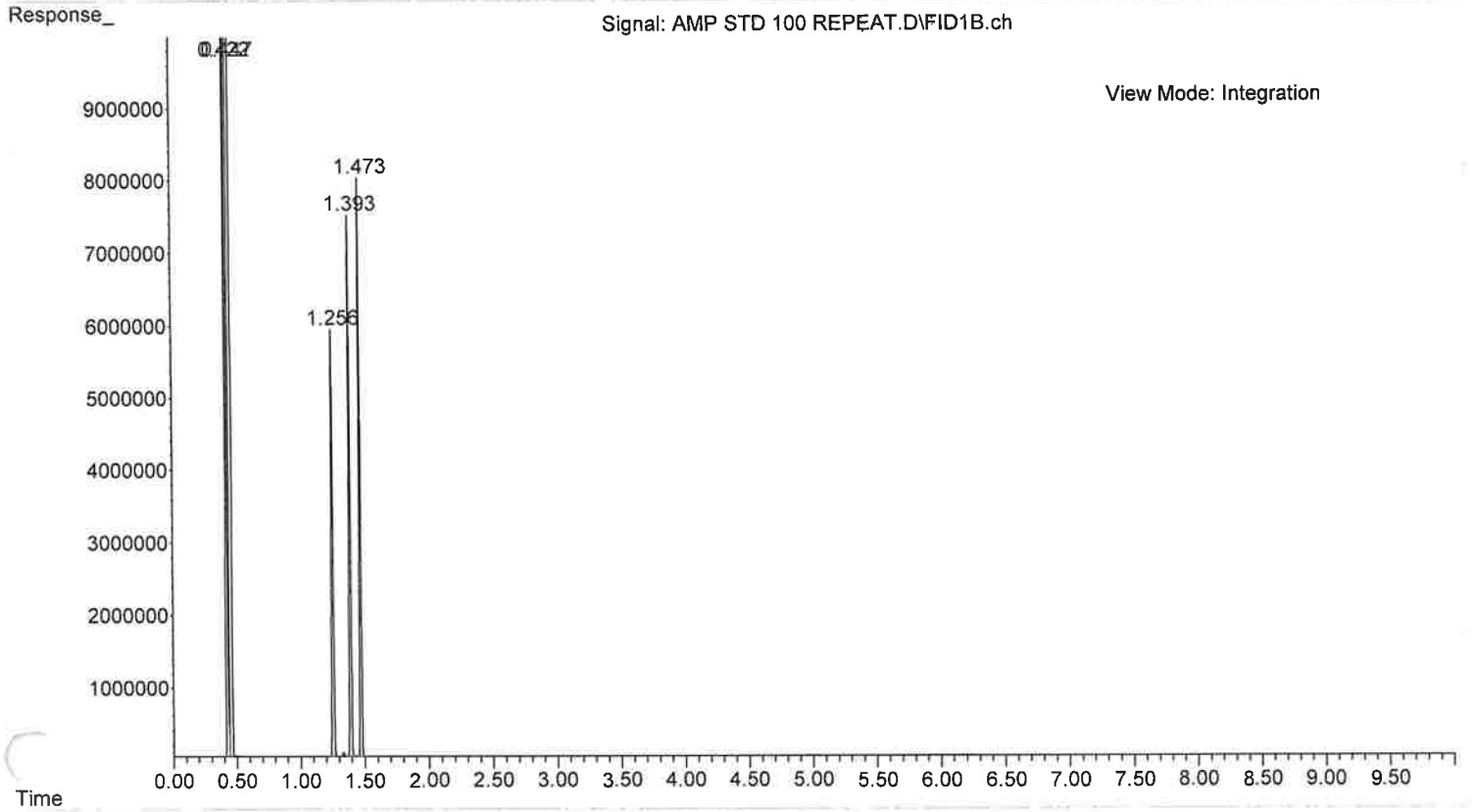
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Solvent Info : 0.5N NAOH/CHCL3
Injection Number: 1



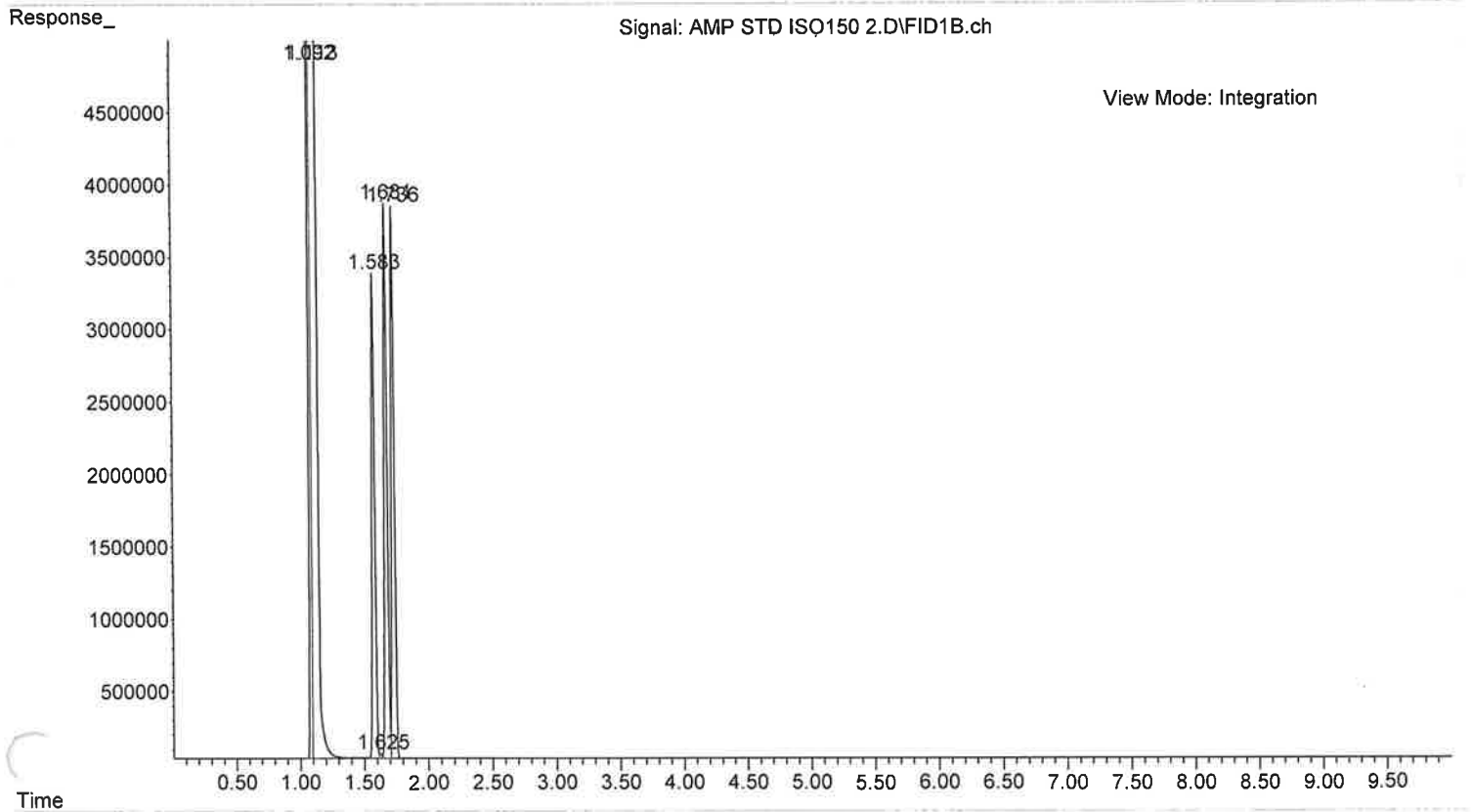
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Sample Name: AMPHETAMINE, METHAMPHETAMINE, PHENTERMINE
Info : 0.5N NAOH/CHCL3



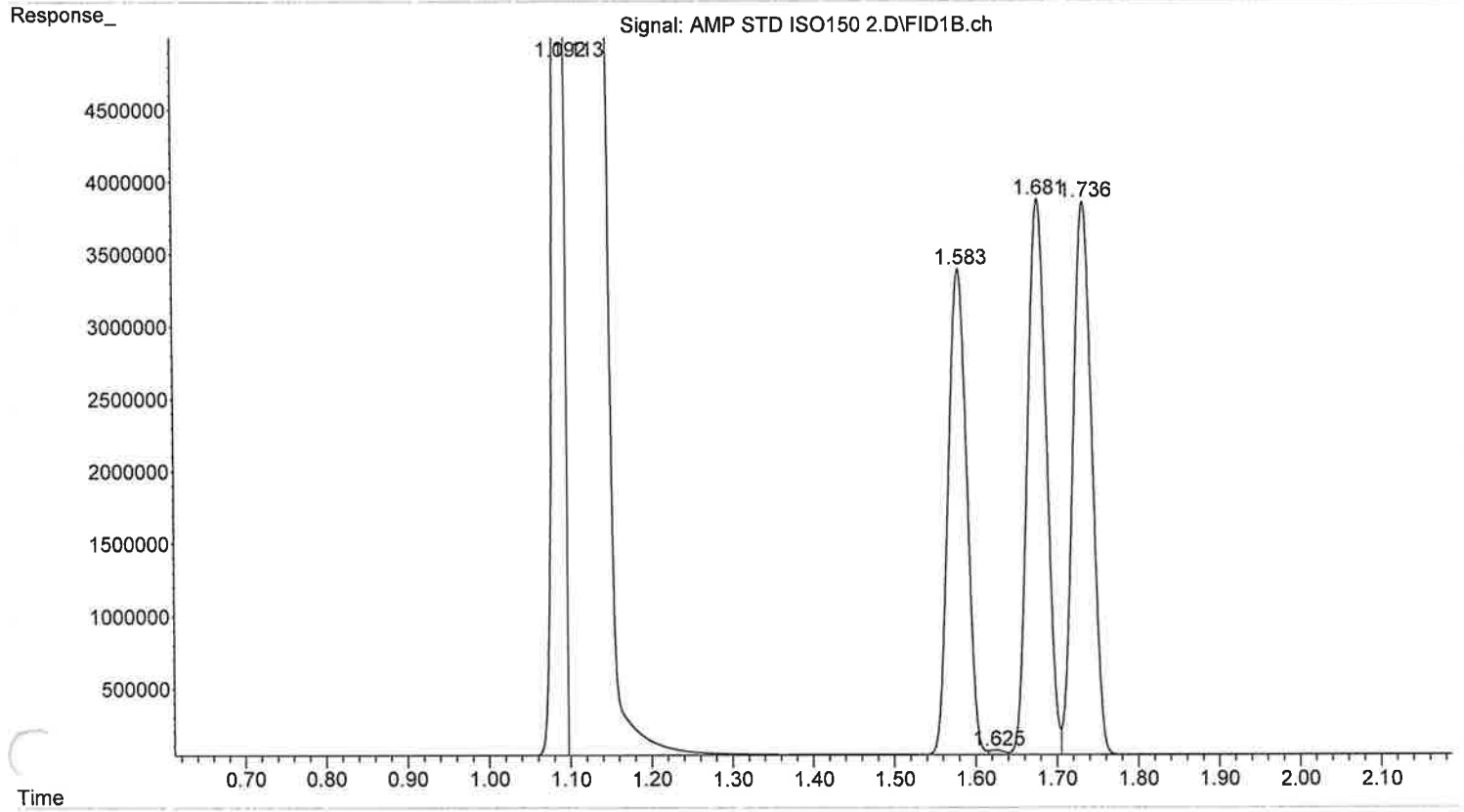
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Sample Name: AMPHETAMINE, METHAMPHETAMINE, PHENTERMINE
Info : 0.5N NAOH/CHCL3



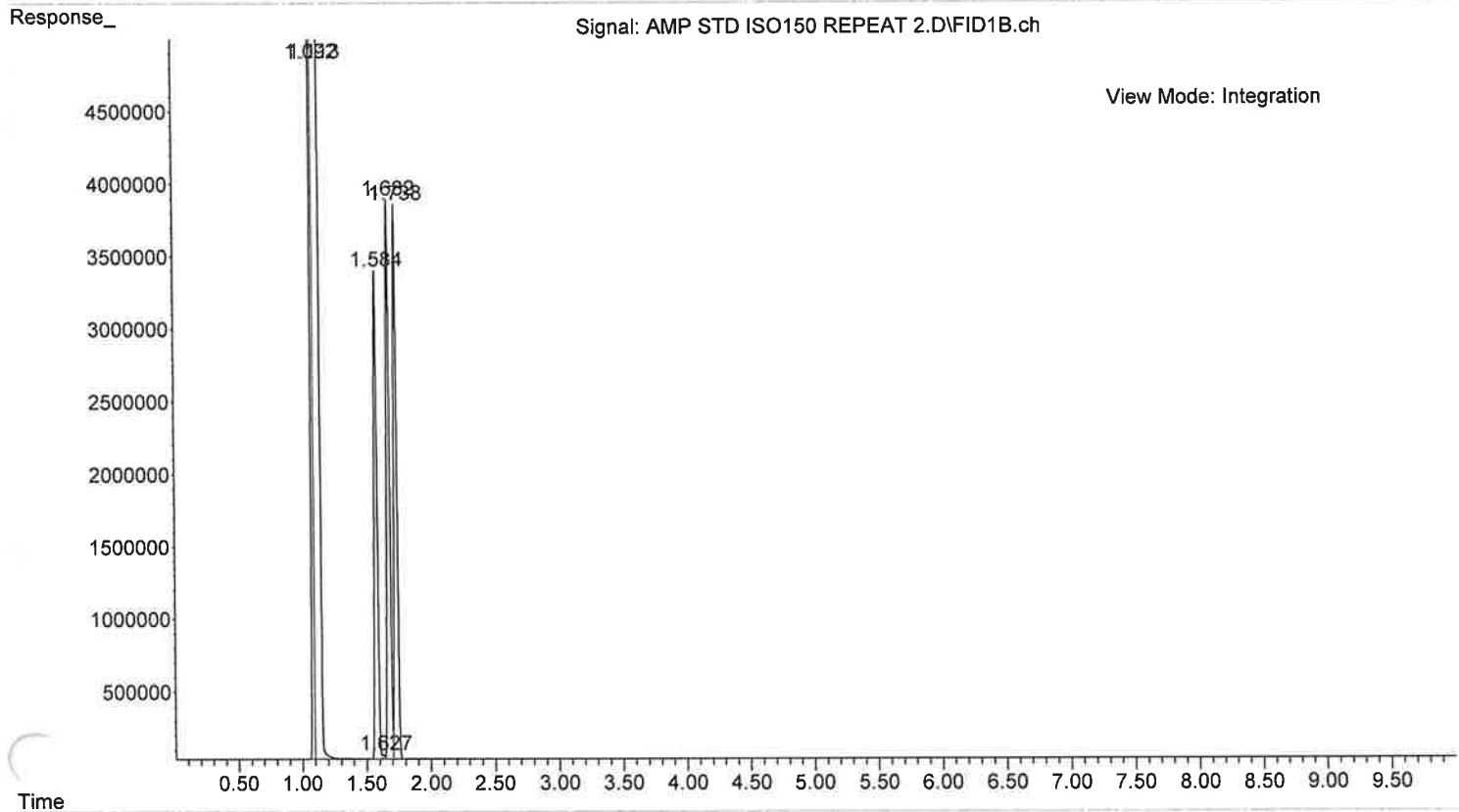
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instrument : Heisenberg
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sample Name: AMPHETAMINE, METHAMPHETAMINE, PHENTERMINE
info : 0.5N NAOH/CHCL3



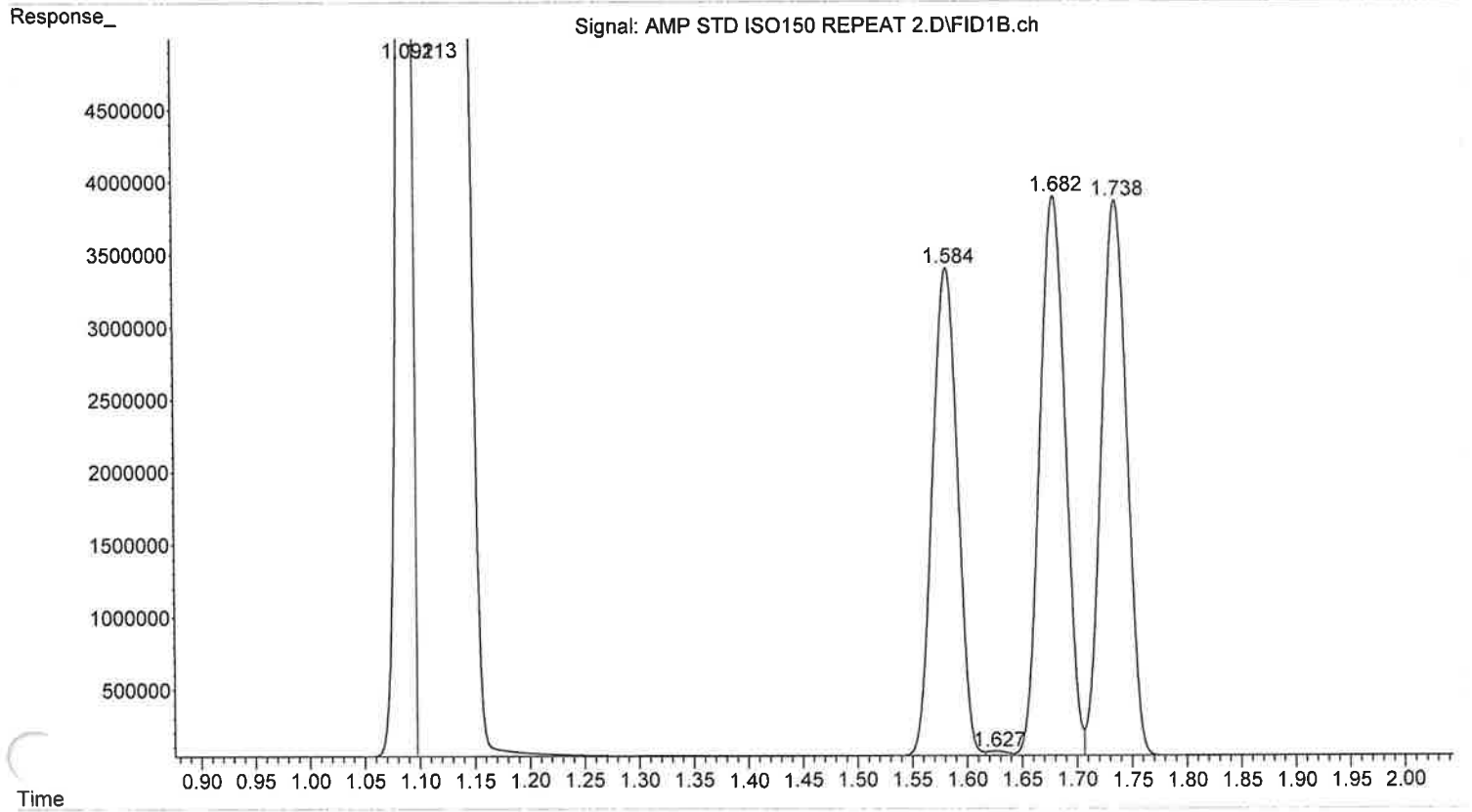
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Sample Name: AMPHETAMINE, METHAMPHETAMINE, PHENTERMINE
Info : 0.5N NAOH/CHCL3



File : D:\MassHunter\GCMS\1\data\Validation\ASGCVALIDATION\AMP STD
ISO150 REPEAT 2.D
Operator : EMC
Instrument : Heisenberg
Acquired : 04 May 2017 11:28 using AcqMethod ASGC150ISO.M
Sample Name: AMPHETAMINE, METHAMPHETAMINE, PHENTERMINE
Info : 0.5N NaOH/CHCL3



File : D:\MassHunter\GCMS\1\data\Validation\ASGCVALIDATION\AMP STD
ISO150 REPEAT 2.D
Operator : EMC
Instrument : Heisenberg
Acquired : 04 May 2017 11:28 using AcqMethod ASGC150ISO.M
Sample Name: AMPHETAMINE, METHAMPHETAMINE, PHENTERMINE
Info : 0.5N NAOH/CHCL3



Forensic Chemistry Performance Verification

Gas Chromatograph (Model 7890B Serial Number CN16483010)

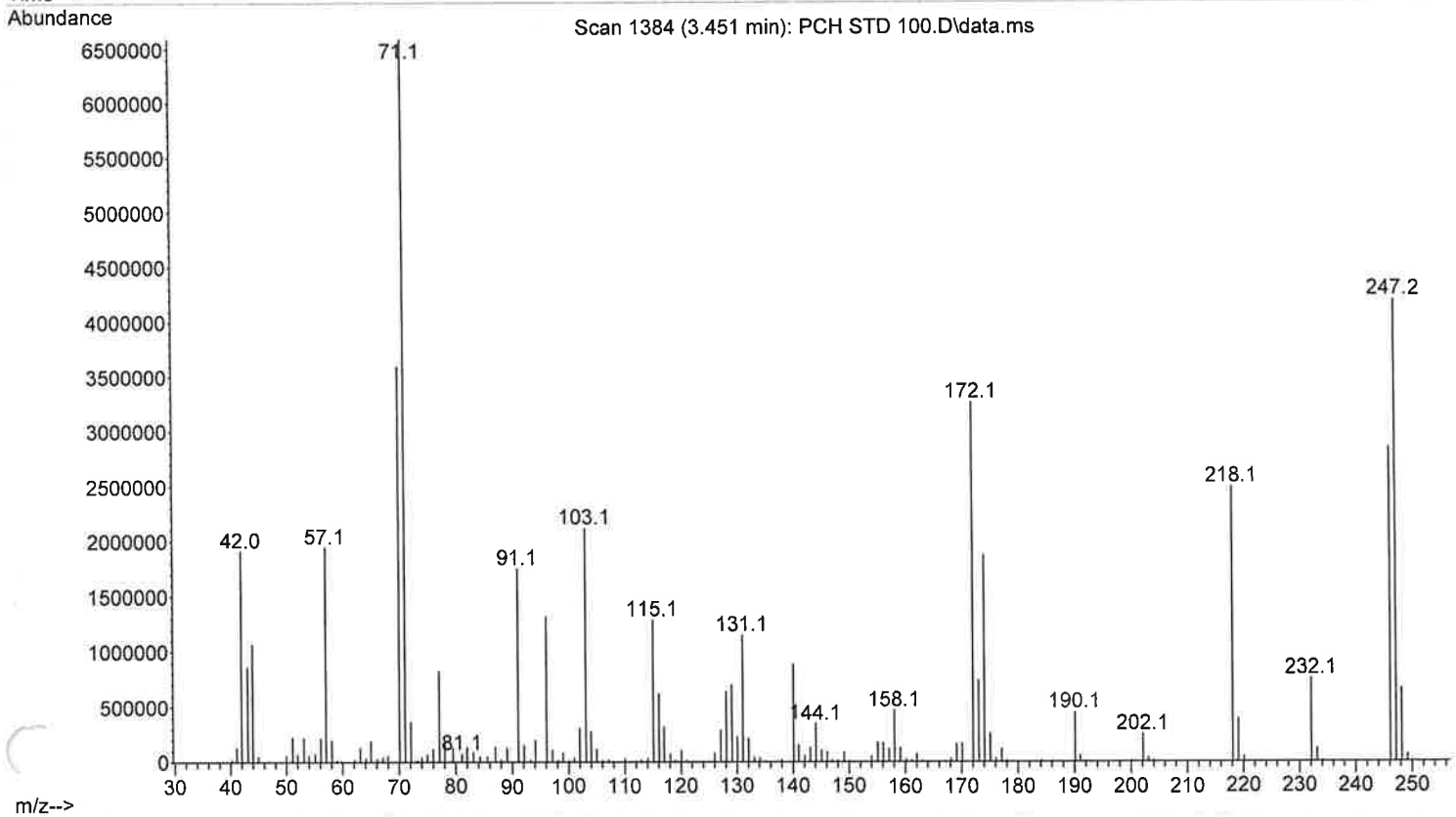
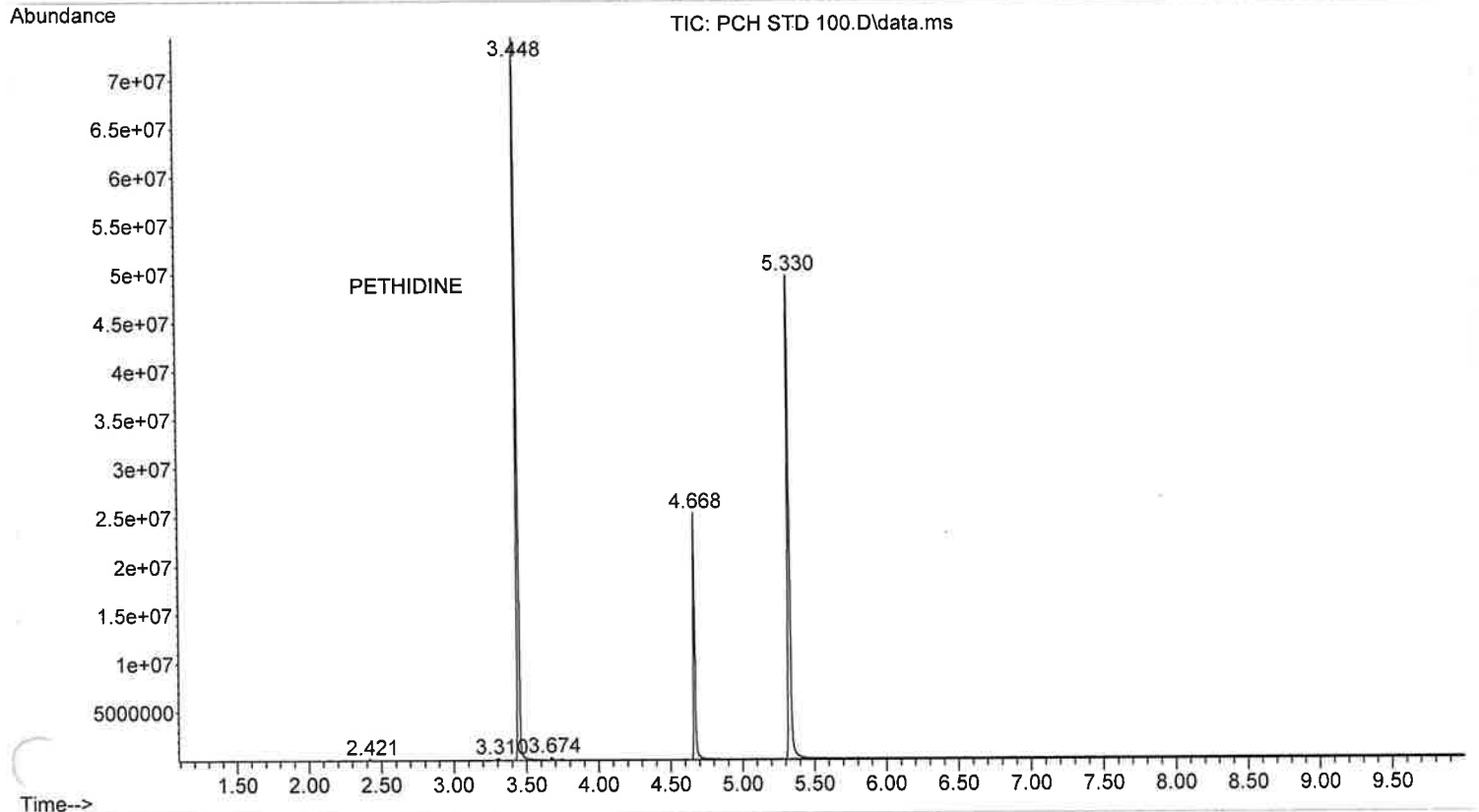
Mass Spectrometer (Model 5977B Serial Number US1648M021)

TBI FCU ID – Heisenberg

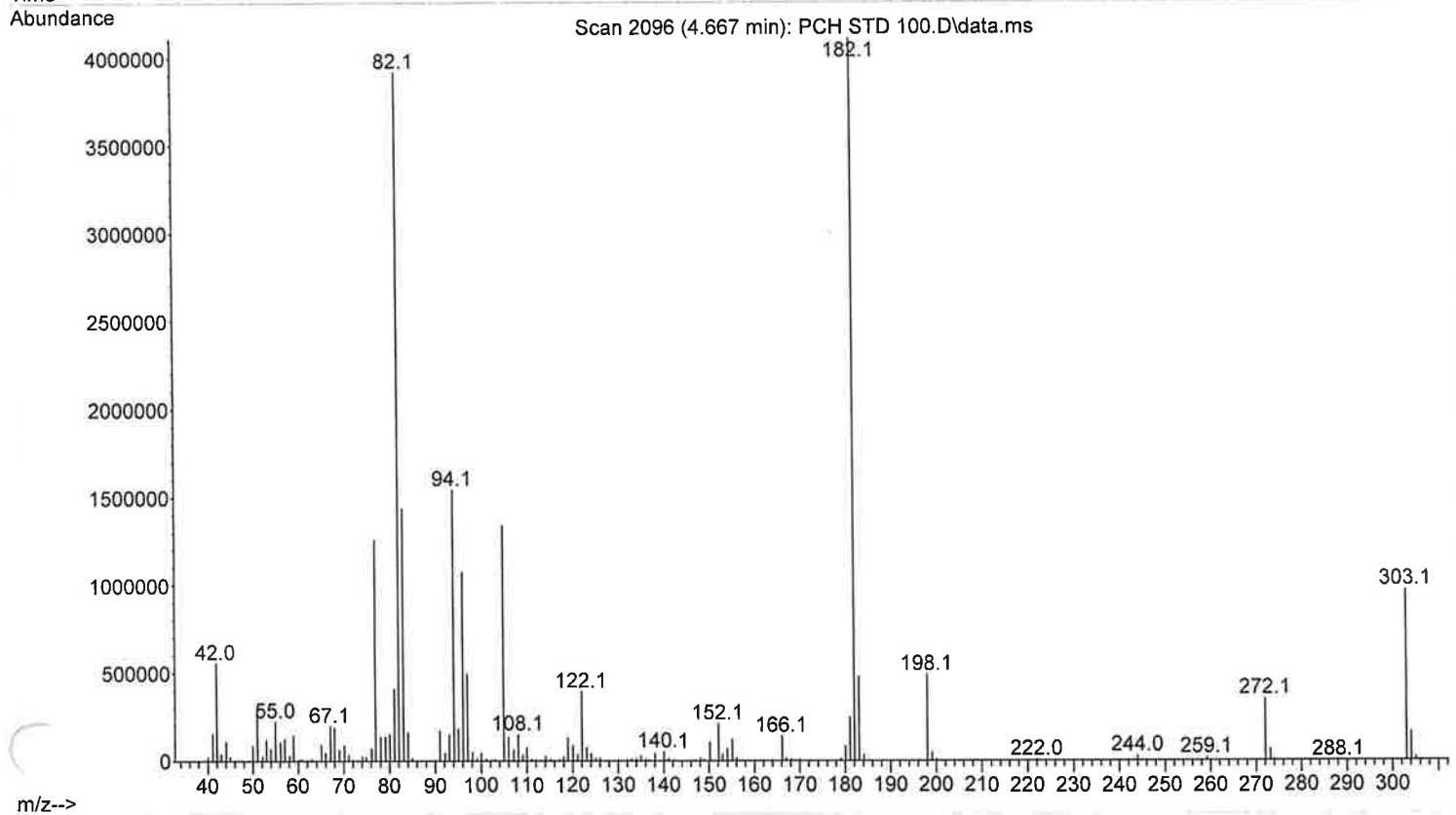
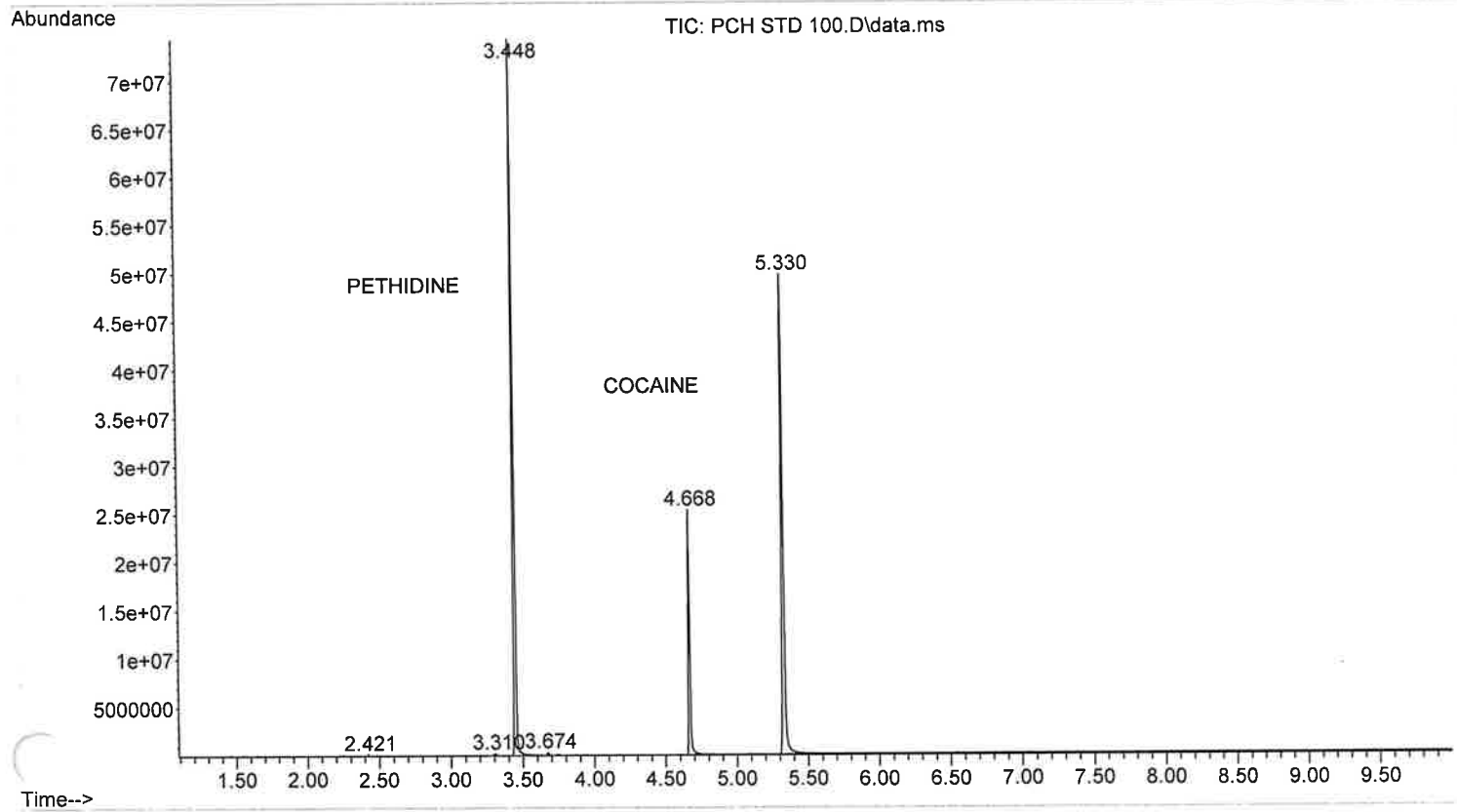
- Pethidine, Cocaine, and Hydrocodone Standard RT Comparisons*

Method	Compound	RT	Acceptable variance (±2%)	Repeat RT
MSDRUGS100	Pethidine	3.412	±0.068	3.403
	Cocaine	4.614	±0.092	4.596
	Hydrocodone	5.263	±0.105	5.242
ASMSDRUGS100	Pethidine	3.448	±0.069	3.429
	Cocaine	4.668	±0.093	4.629
	Hydrocodone	5.330	±0.107	5.282
ASMSDRUGS200	Pethidine	1.292	±0.026	1.292
	Cocaine	2.308	±0.046	2.297
	Hydrocodone	2.884	±0.058	2.864
ASMS100TR	Pethidine	3.480	±0.070	3.439
	Cocaine	4.726	±0.095	4.651
	Hydrocodone	5.402	±0.108	5.310
ASMS200TR	Pethidine	1.293	±0.026	1.294
	Cocaine	2.305	±0.046	2.296
	Hydrocodone	2.877	±0.058	2.861
ASMSDRUGS60	Pethidine	6.405	±0.128	6.362
	Cocaine	7.751	±0.155	7.688
	Hydrocodone	8.476	±0.170	8.401
ASGC100	Pethidine	3.201	±0.064	3.185
	Cocaine	4.433	±0.089	4.402
	Hydrocodone	5.085	±0.102	5.045
ASGC200	Pethidine	1.147	±0.023	1.145
	Cocaine	2.126	±0.044	2.121
	Hydrocodone	2.693	±0.054	2.681

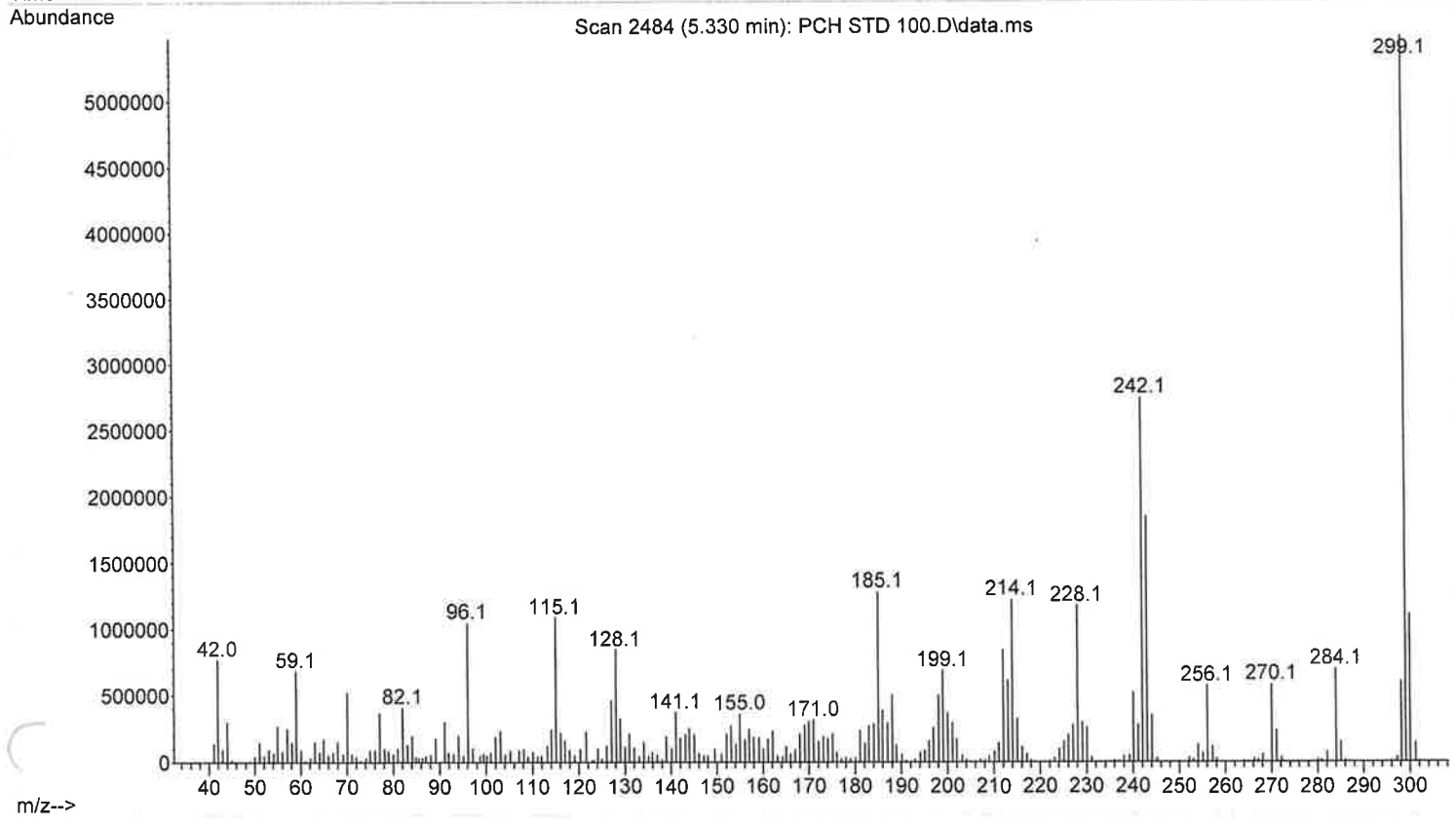
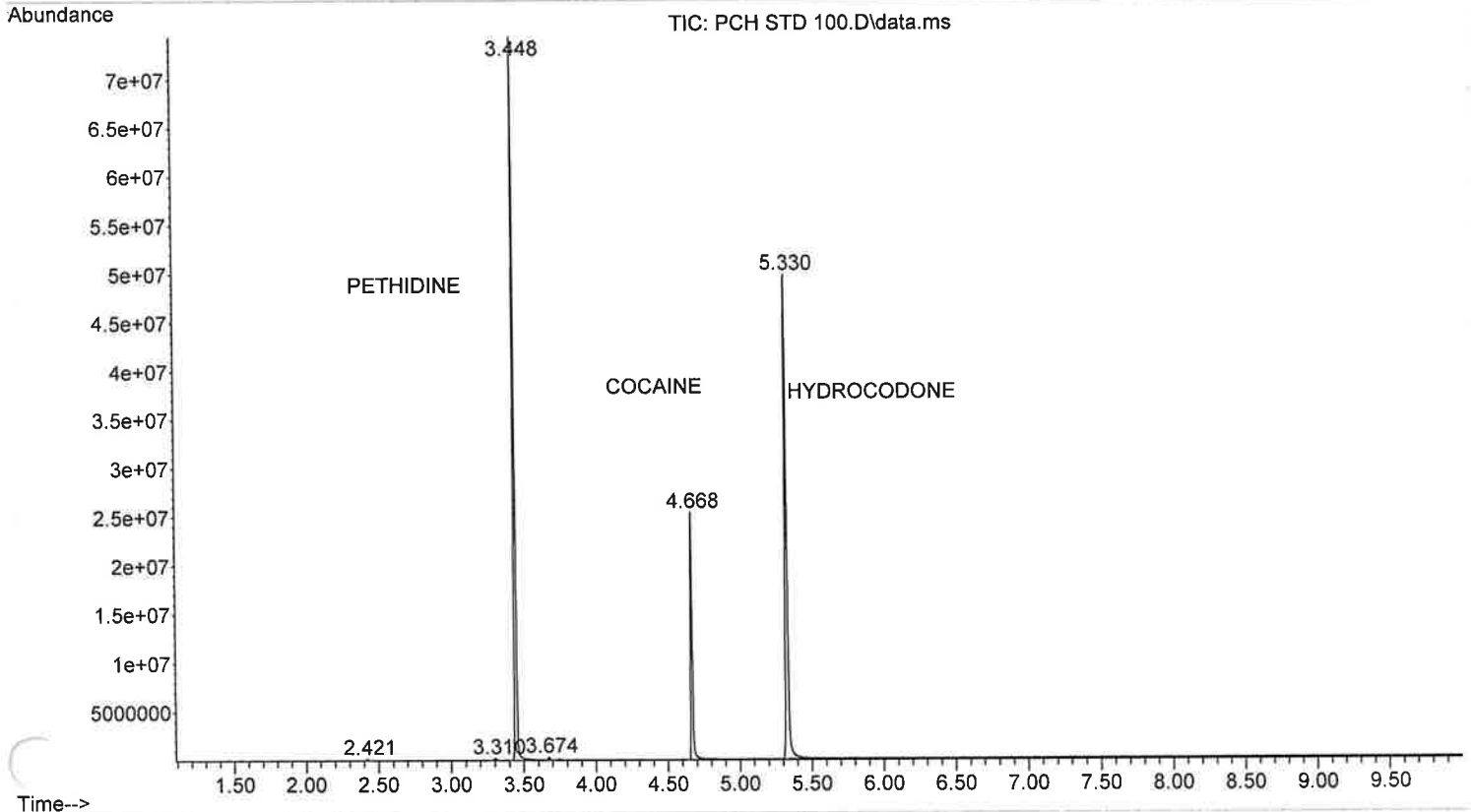
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erator : EMC
quired : 26 Apr 2017 15:26 using AcqMethod ASMSDRUGS100.M
strument : Heisenberg
mple Name: PETHIDINE, COCAINE, HYDROCODONE
s-Tnfo : MEOH
umber: 4



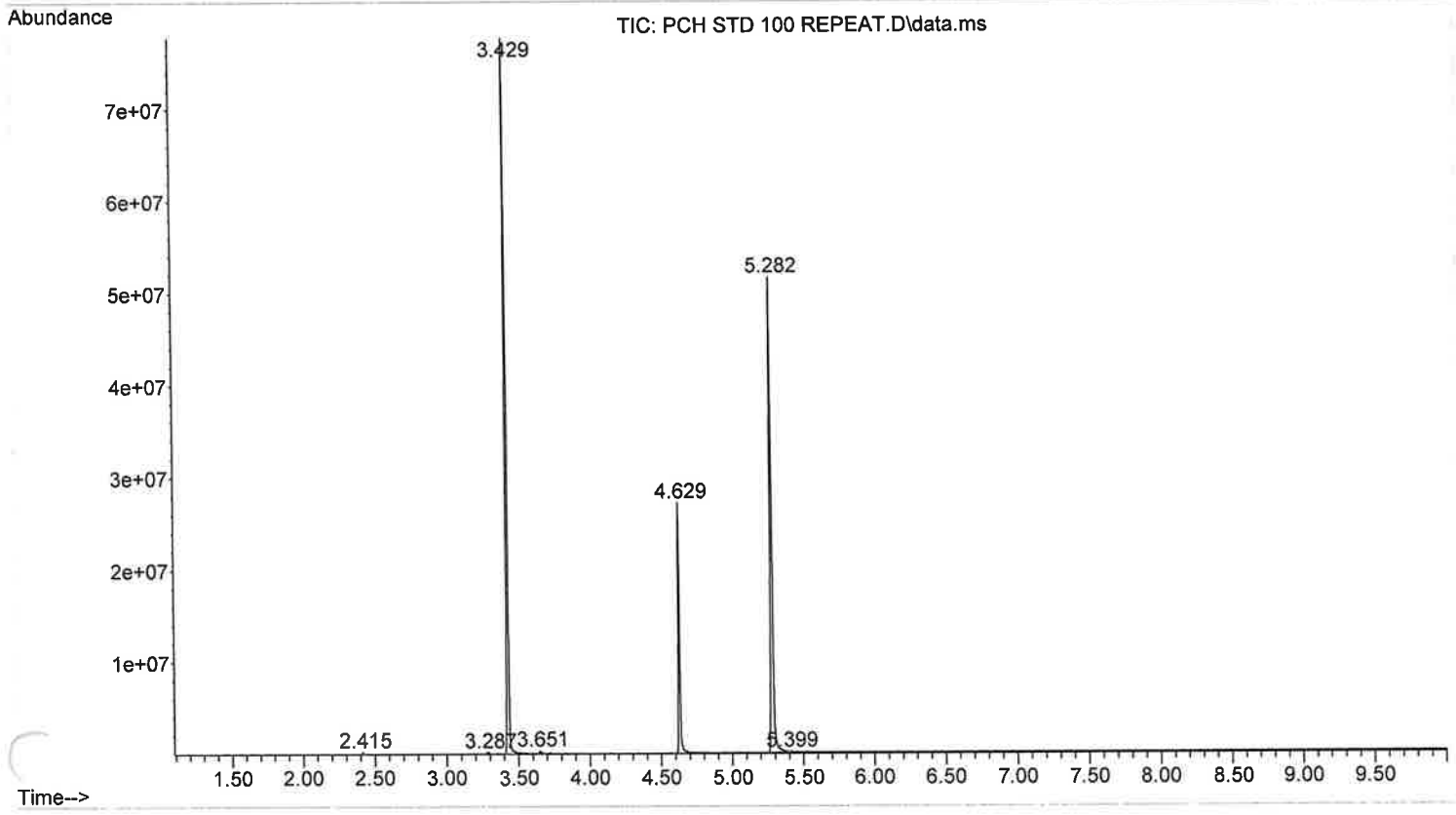
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s~Tnfo : MEOH
umber: 4



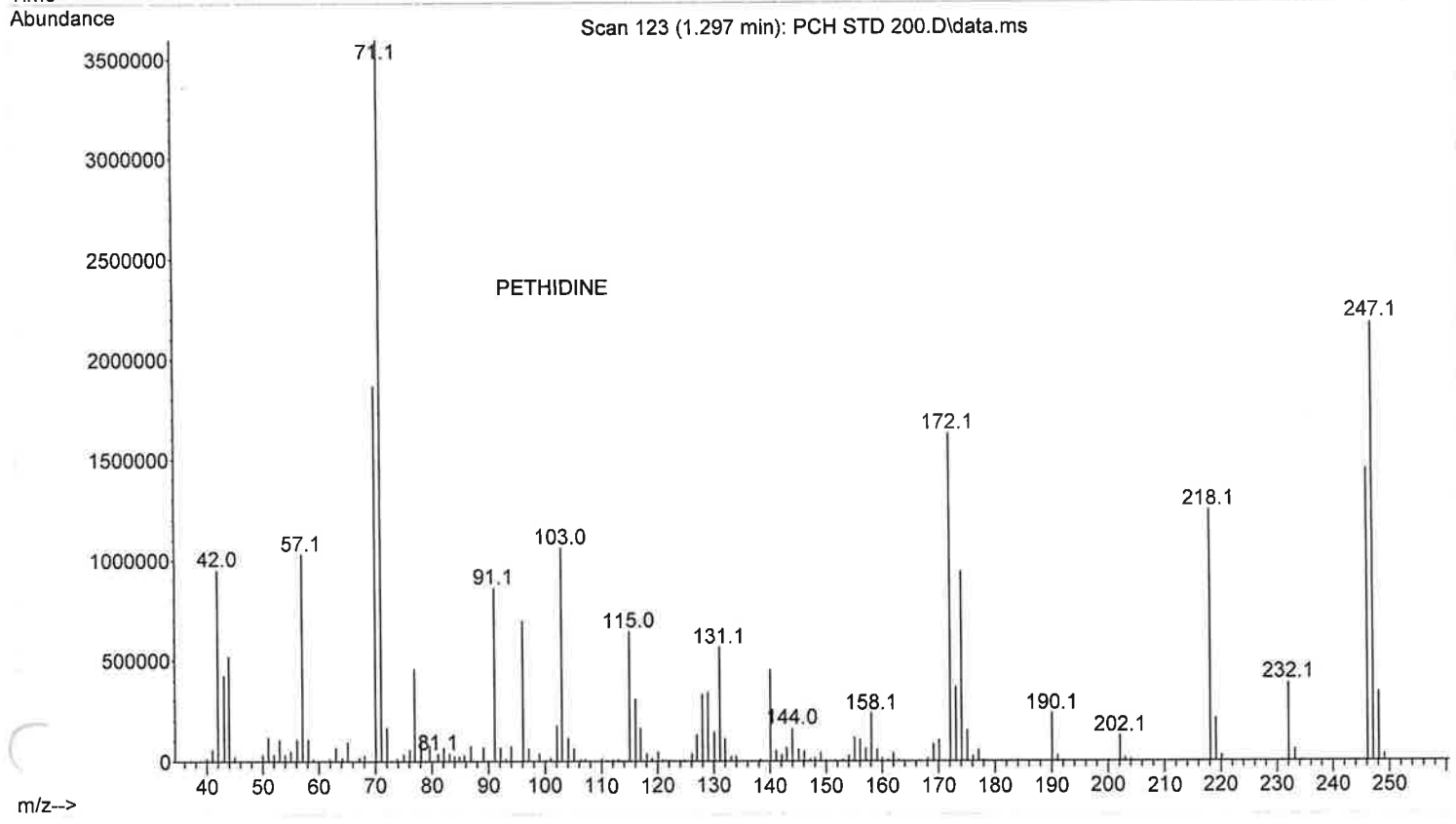
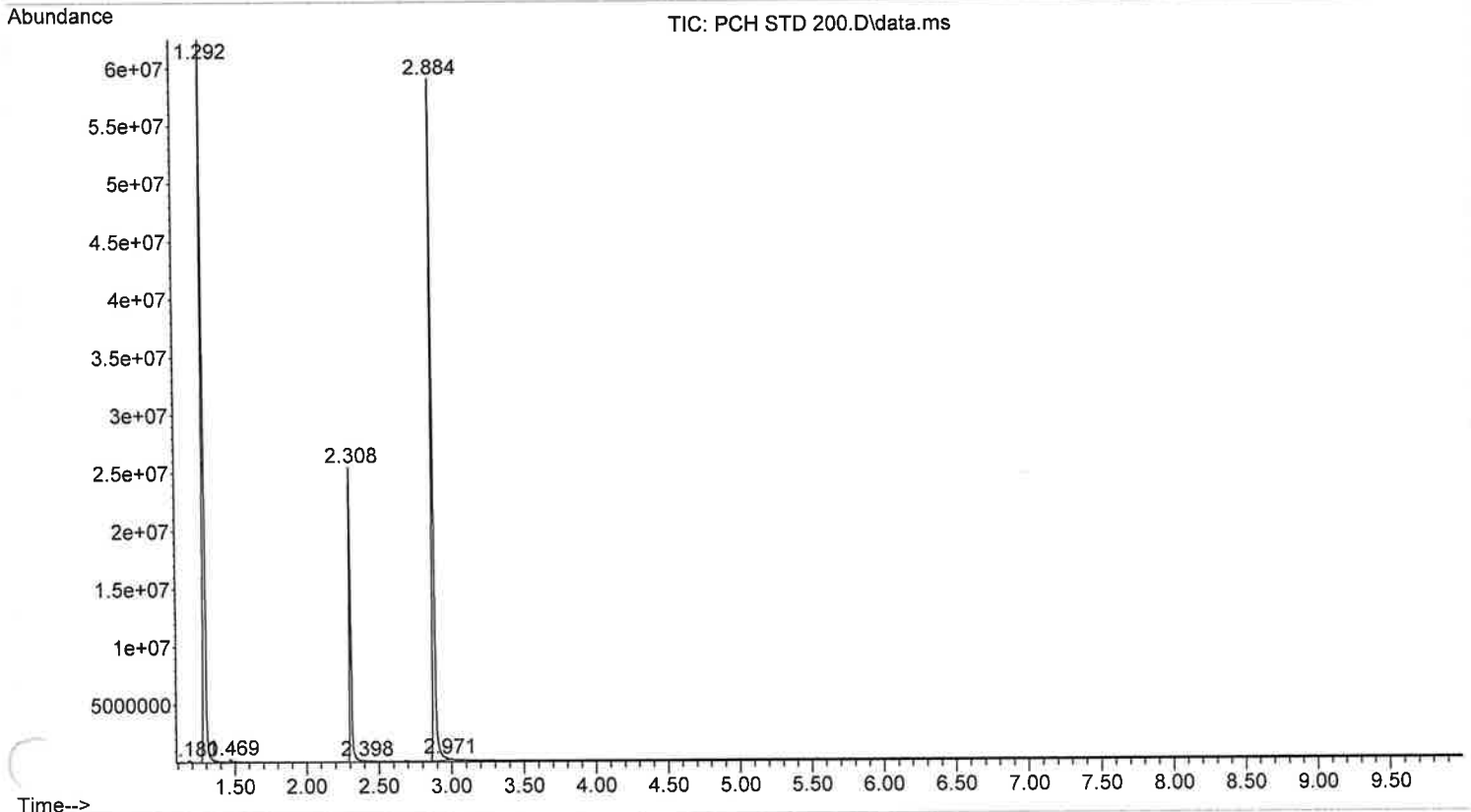
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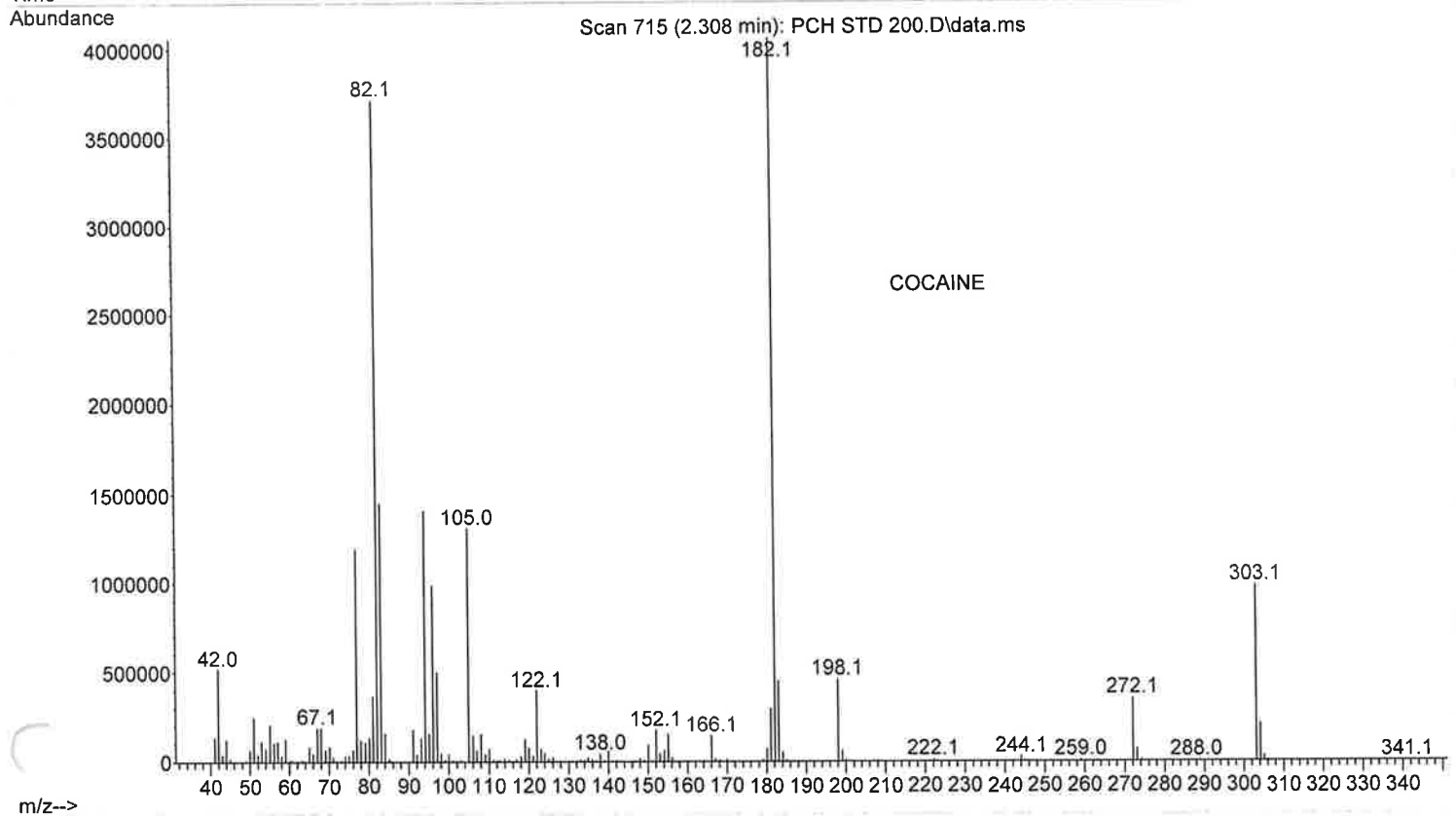
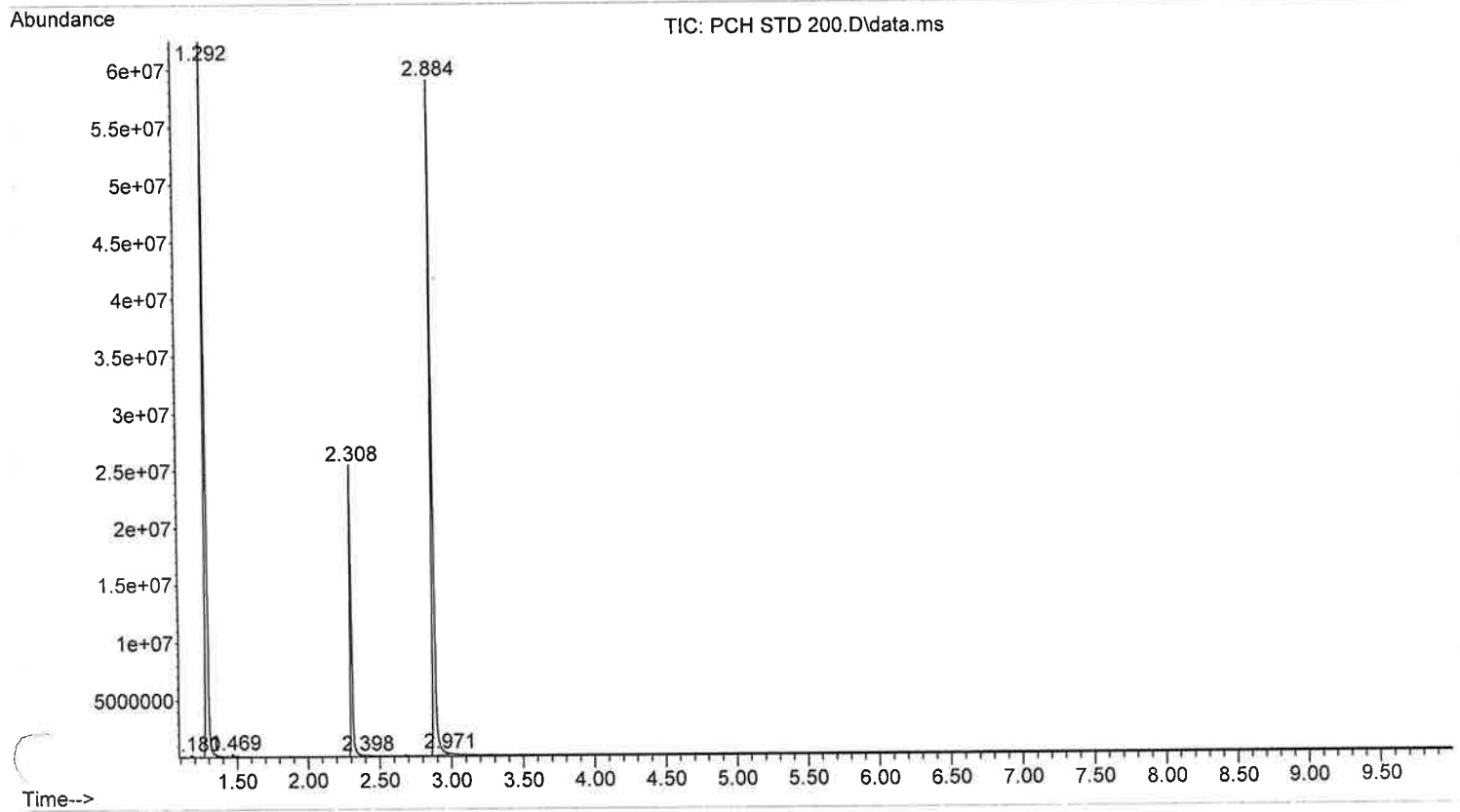
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me Name: PETHIDINE, COCAINE, HYDROCODONE
nfo : MEOH



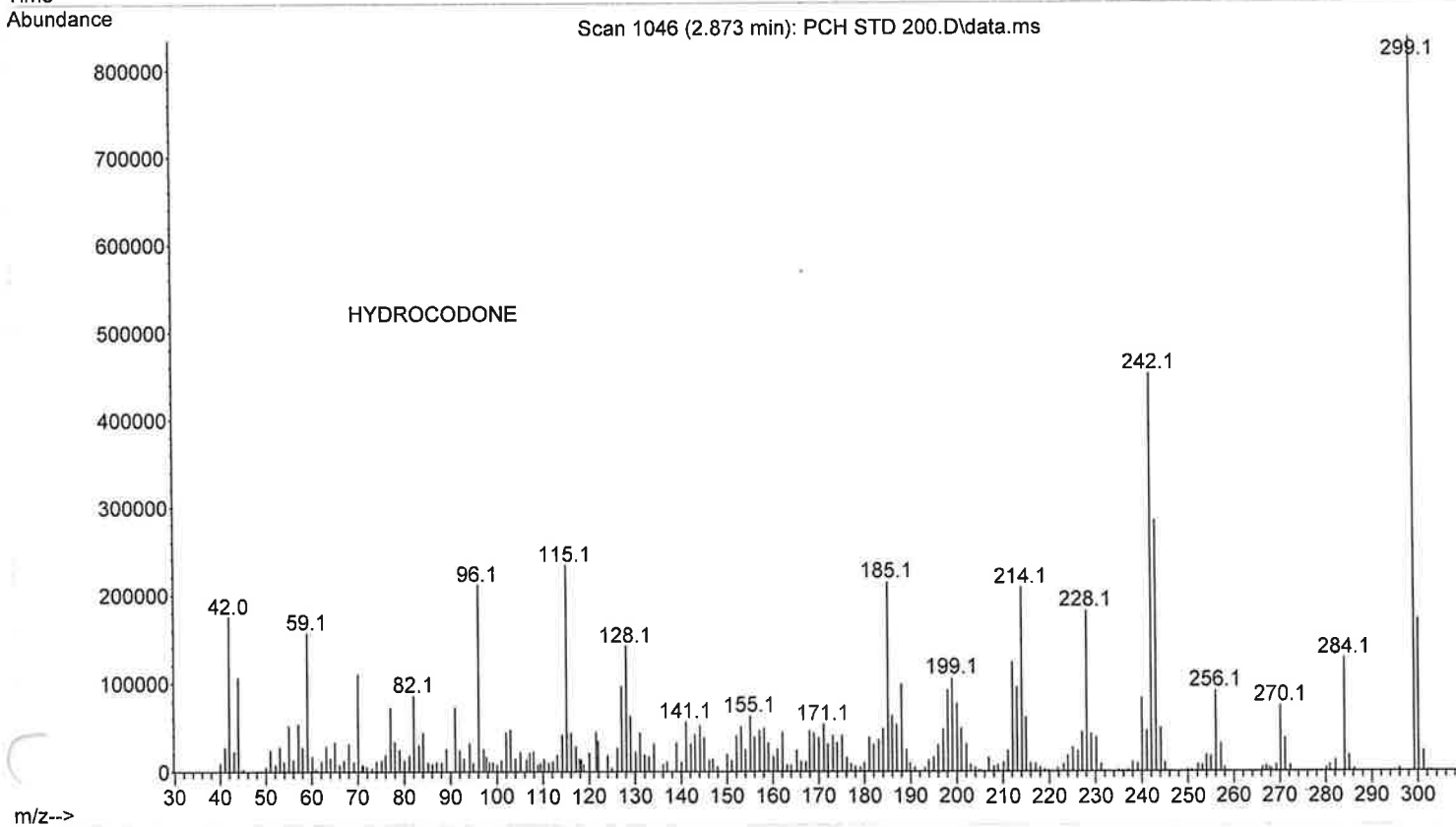
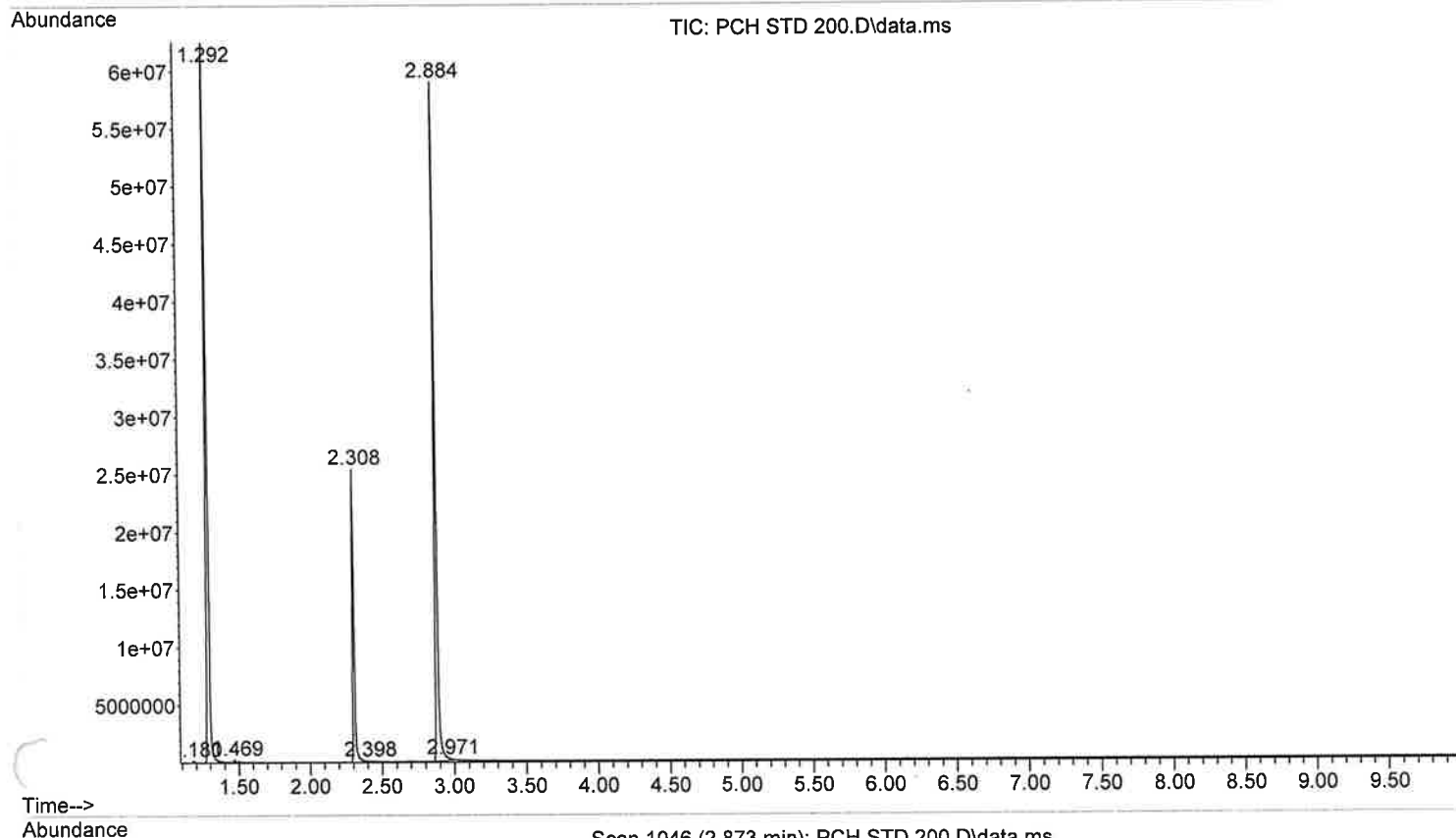
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s-Tnfo : MEOH
umber: 4



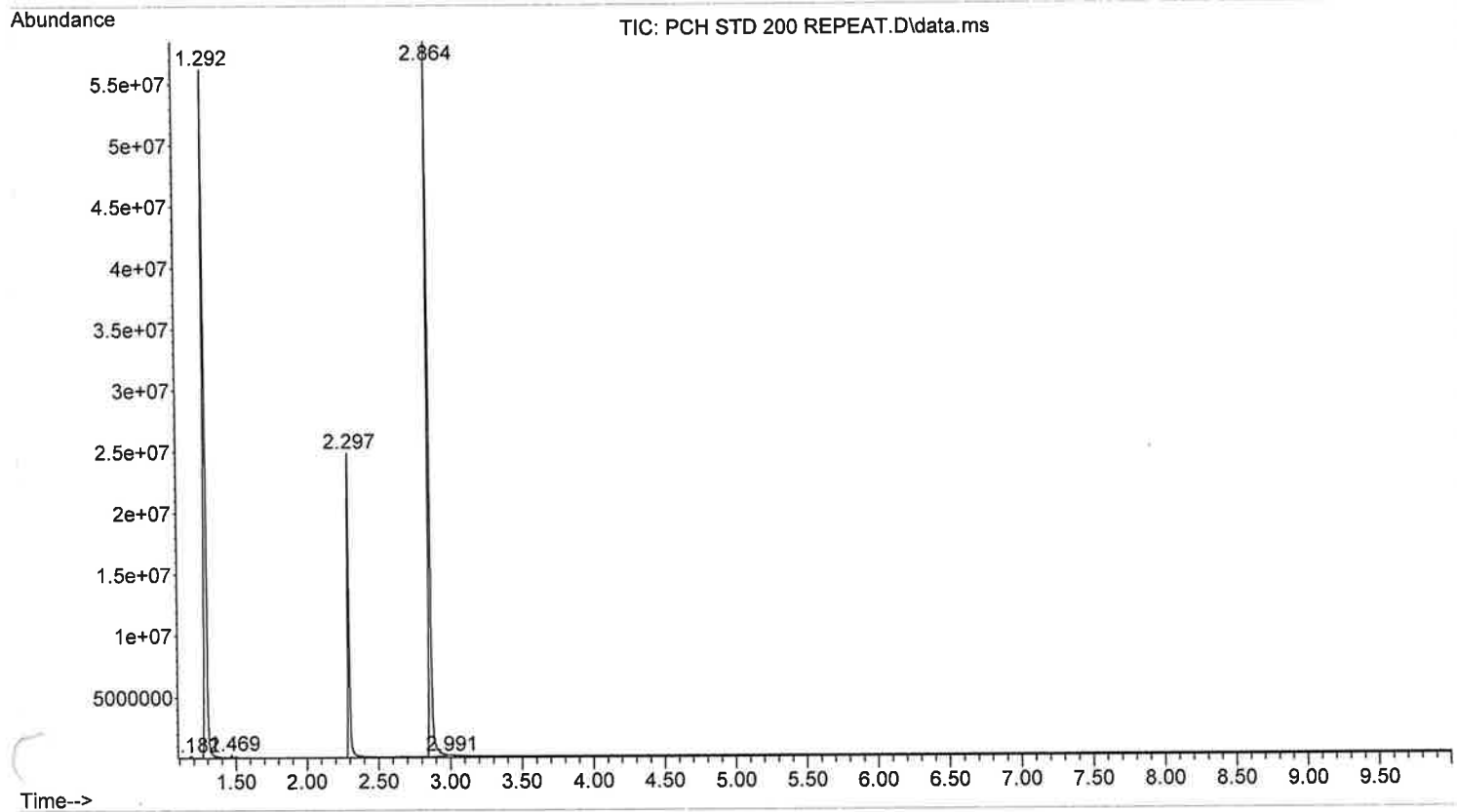
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umber: 4



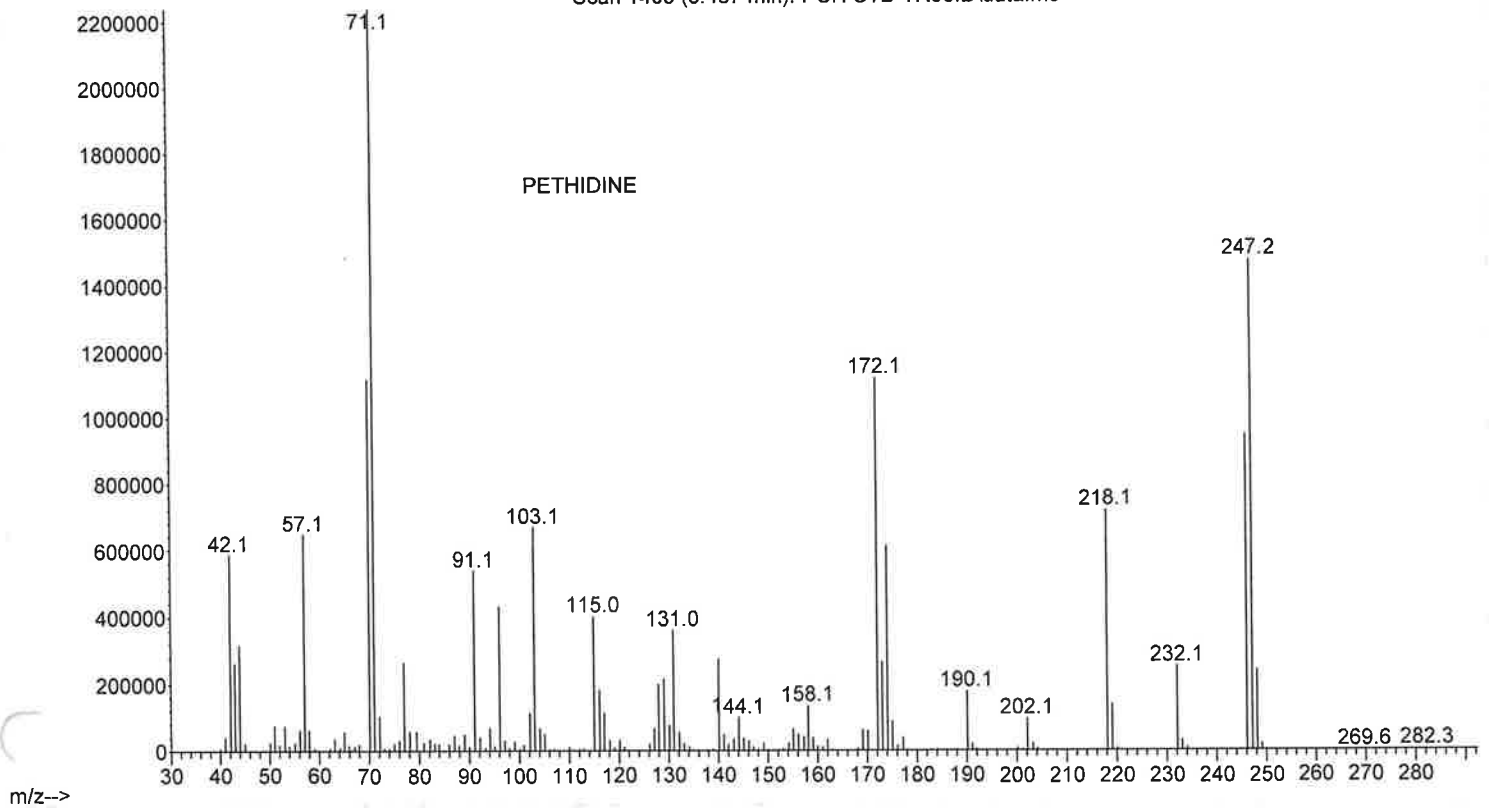
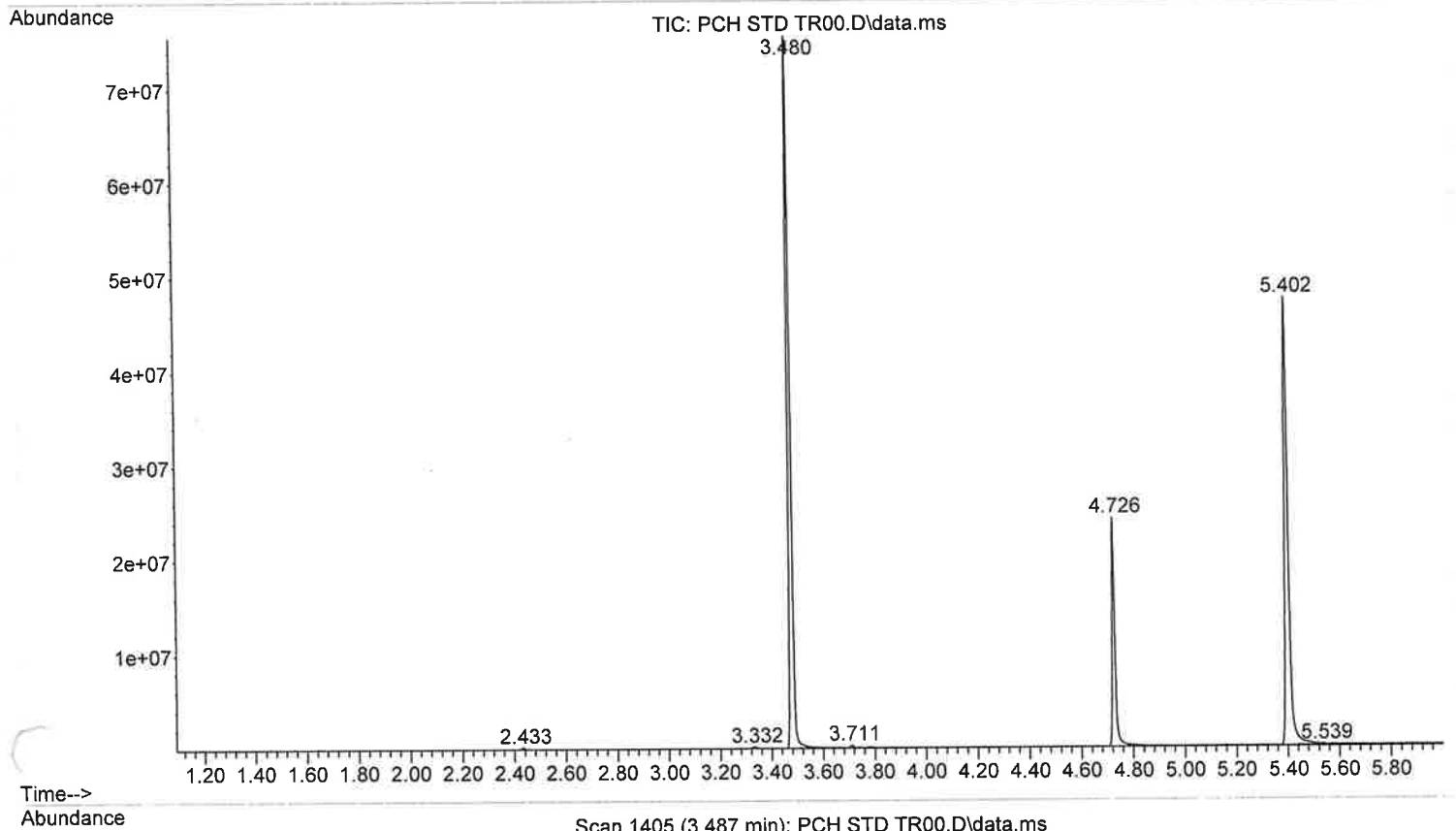
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strument : Heisenberg
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s-Tnfo : MEOH
umber: 4



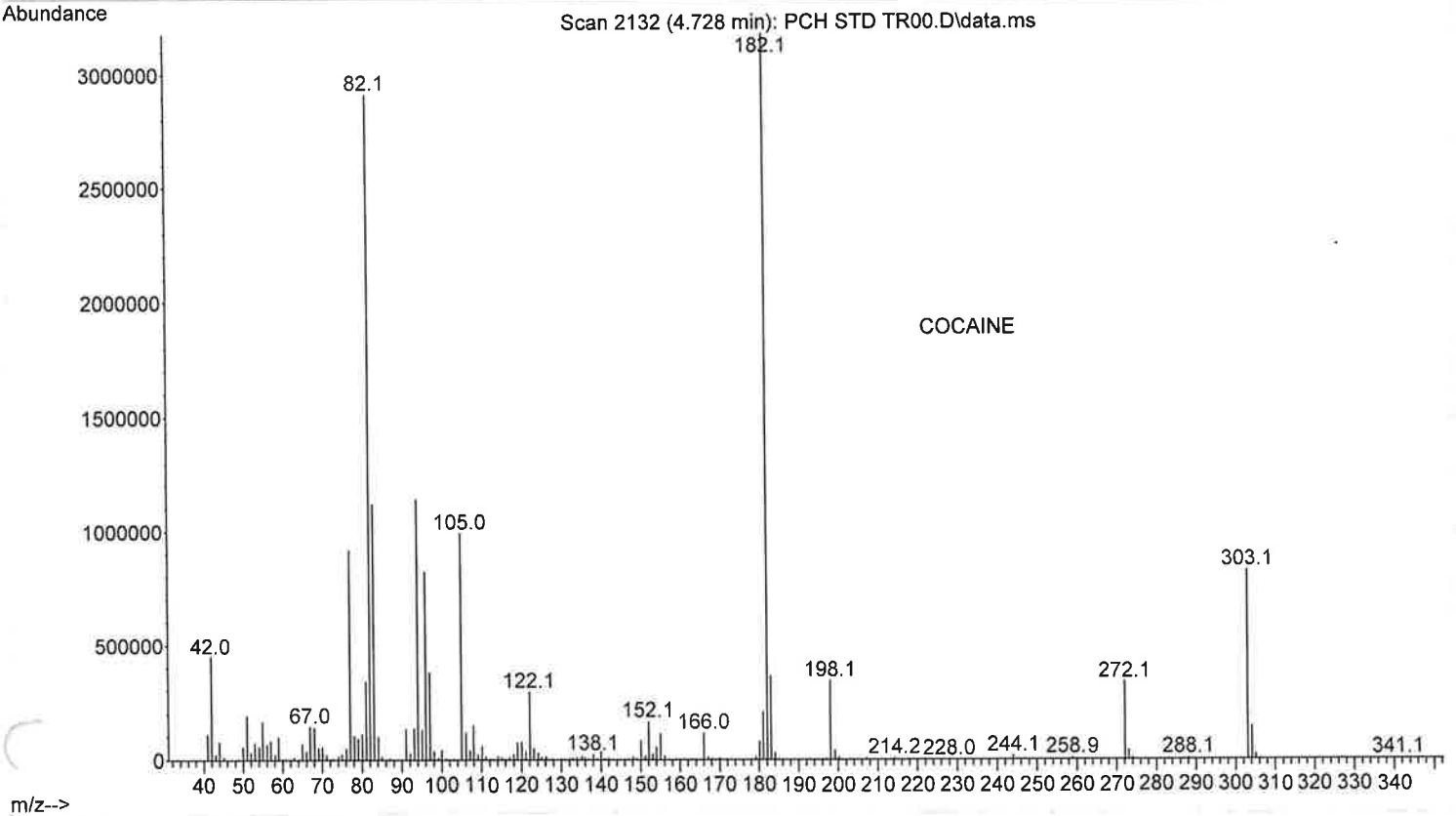
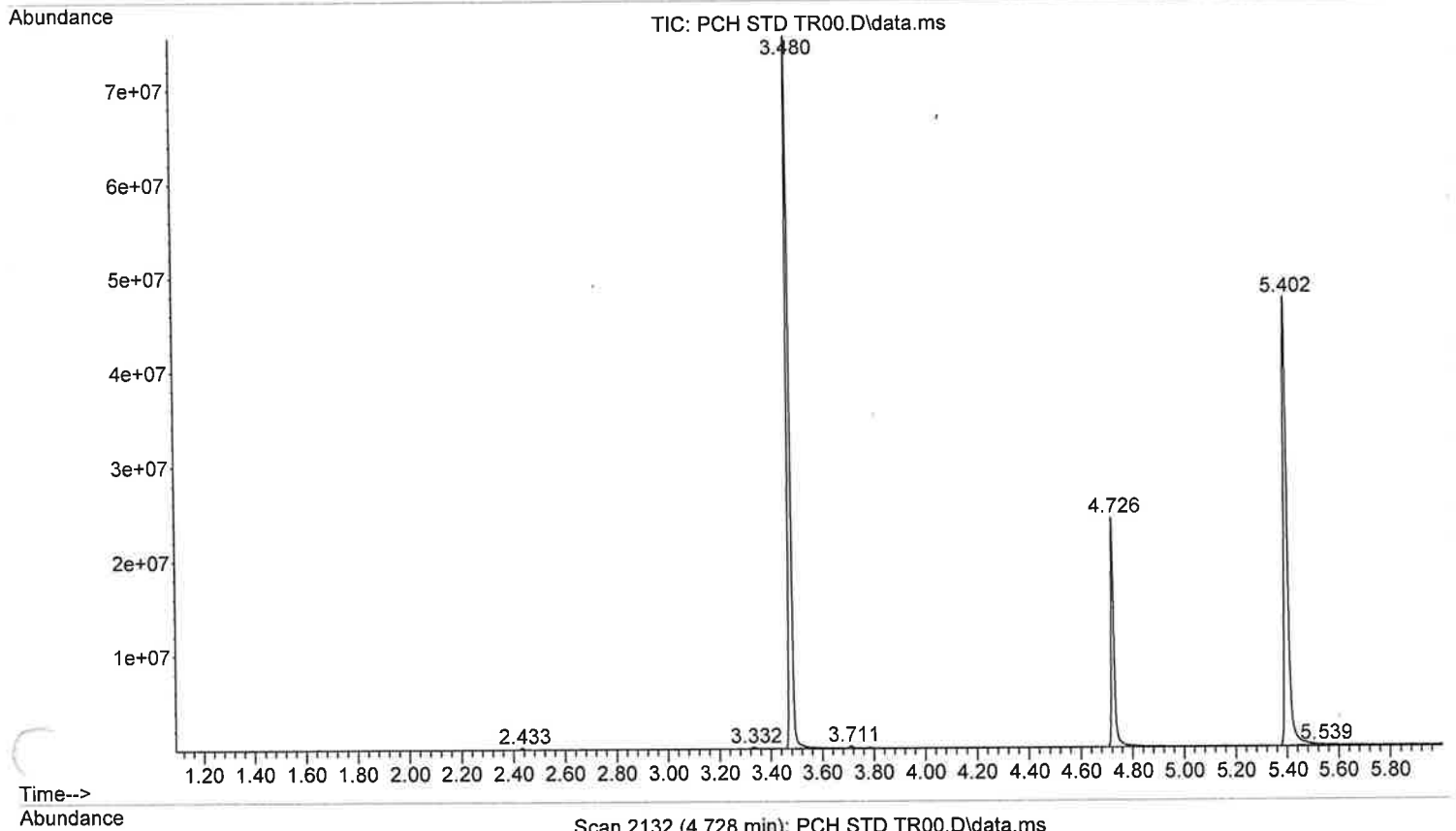
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Name: PETHIDINE, COCAINE, HYDROCODONE
Info : MEOH



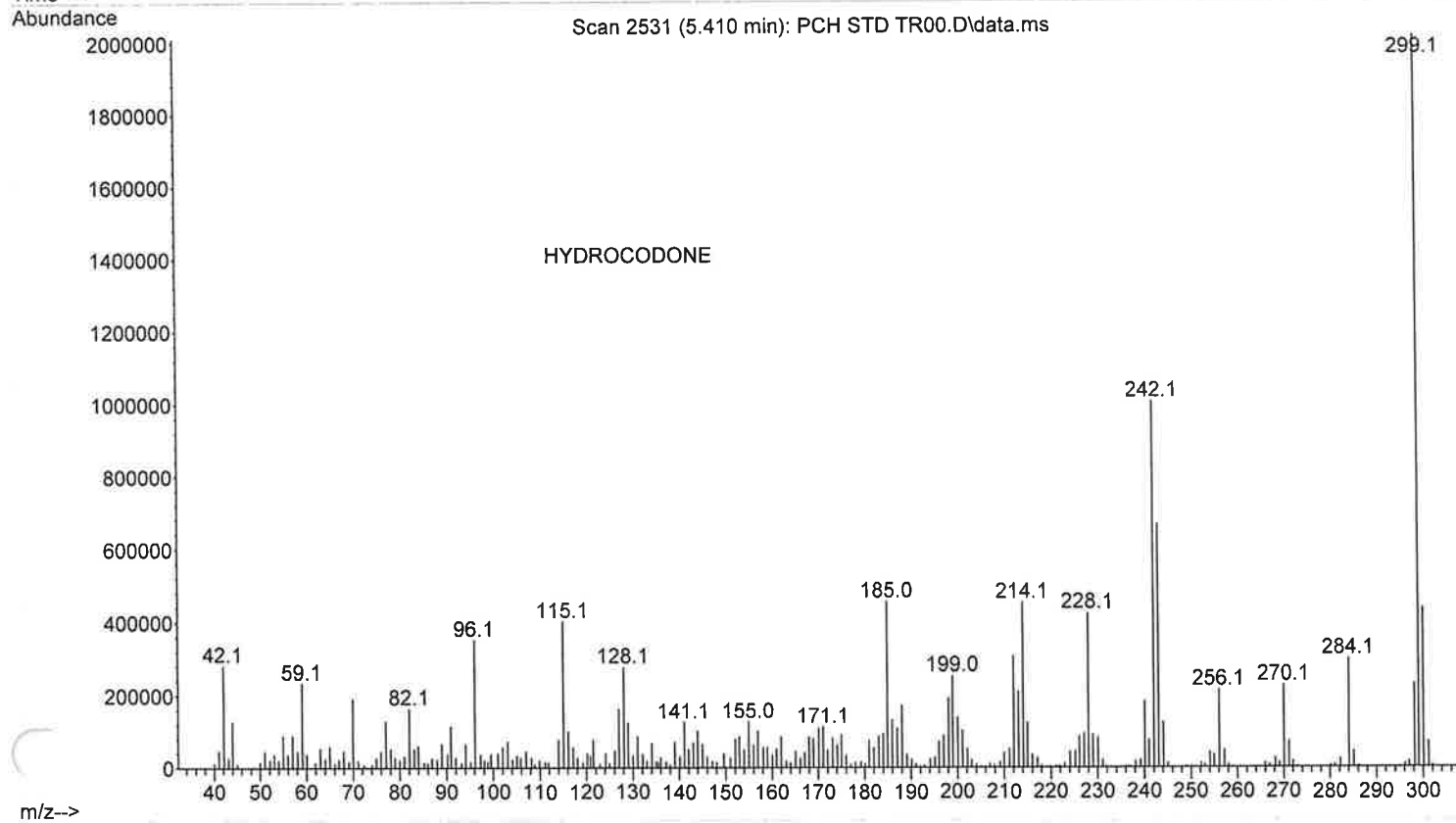
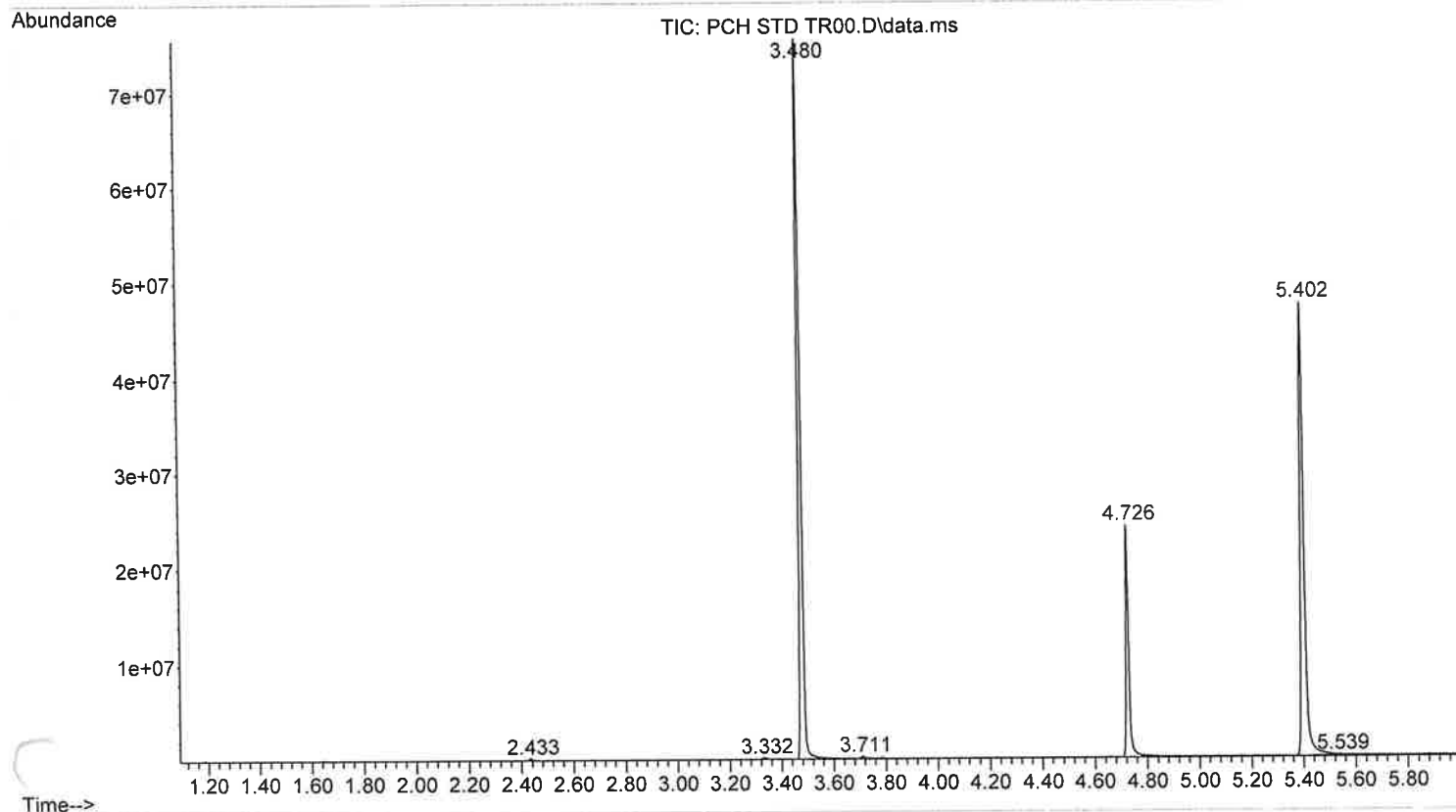
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s-Info : MEOH
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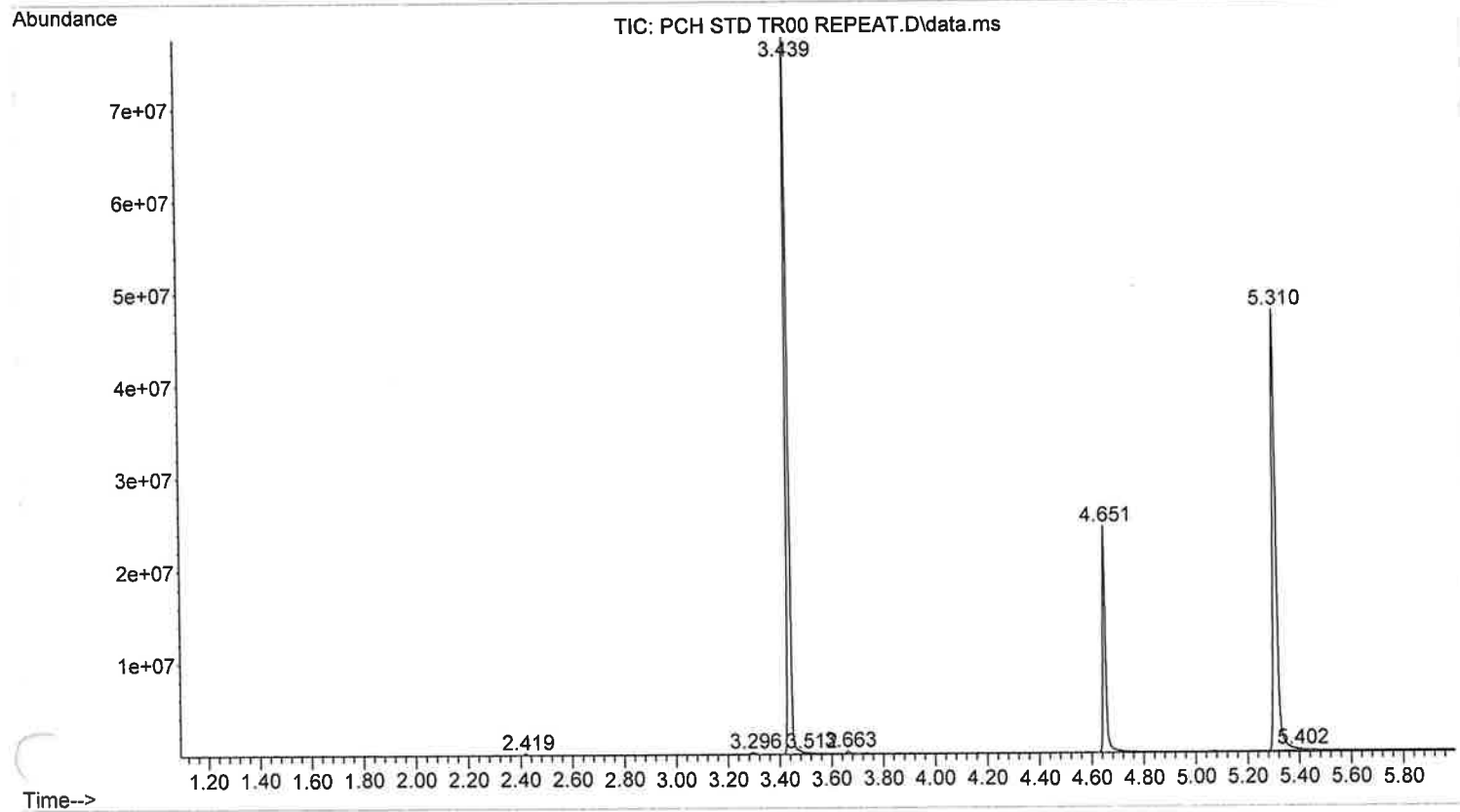
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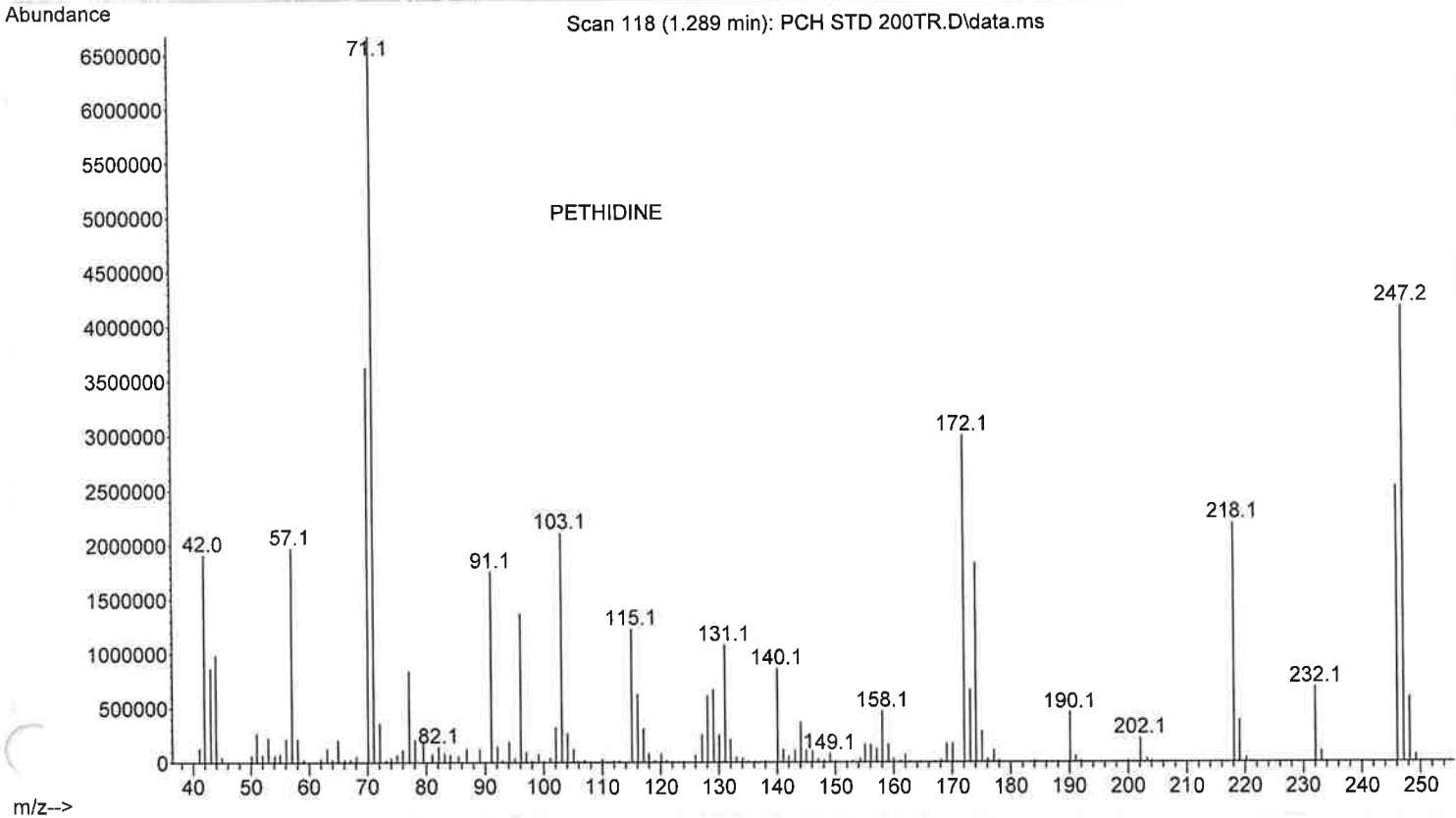
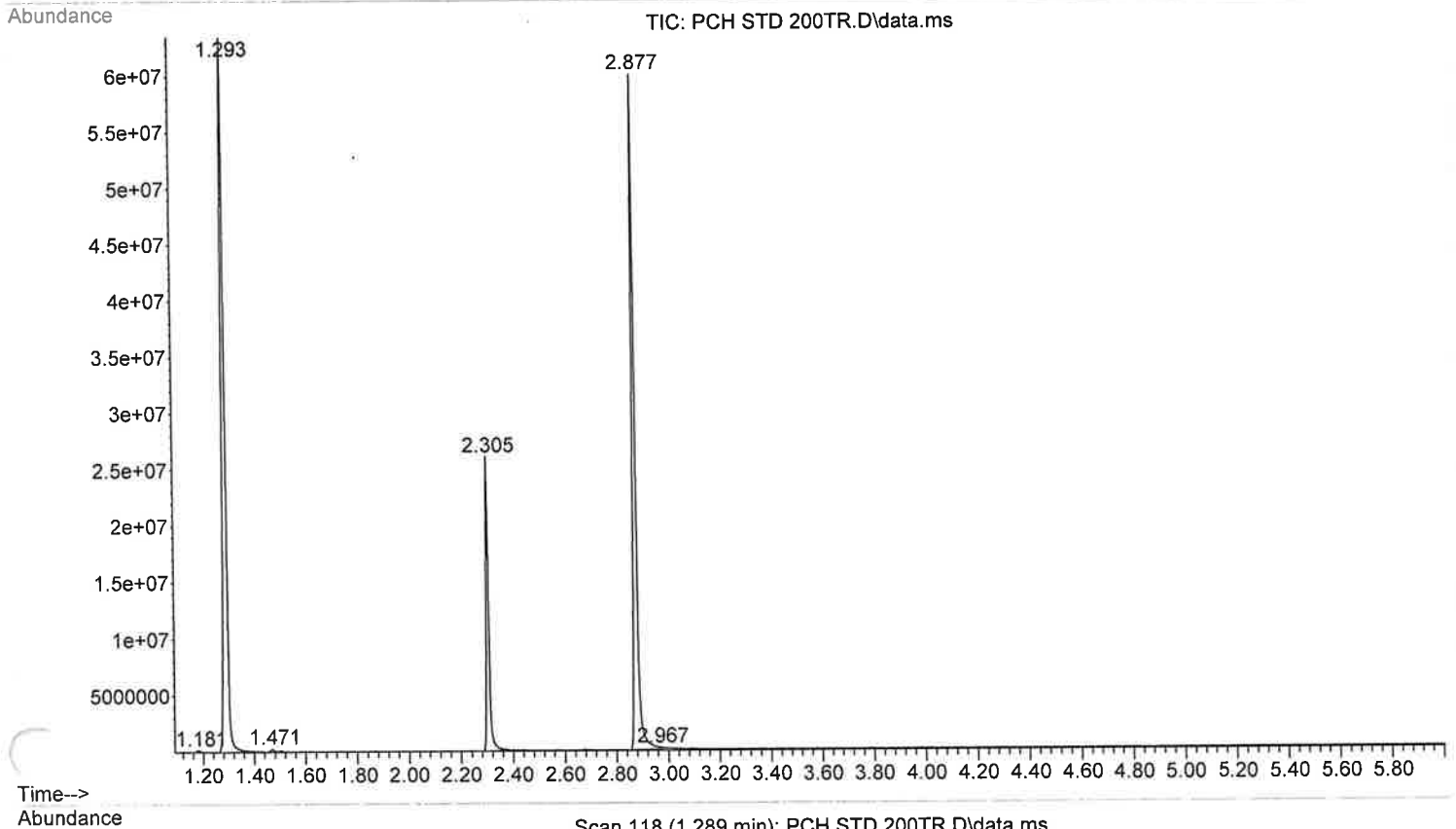
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s-Info : MEOH
umber: 4



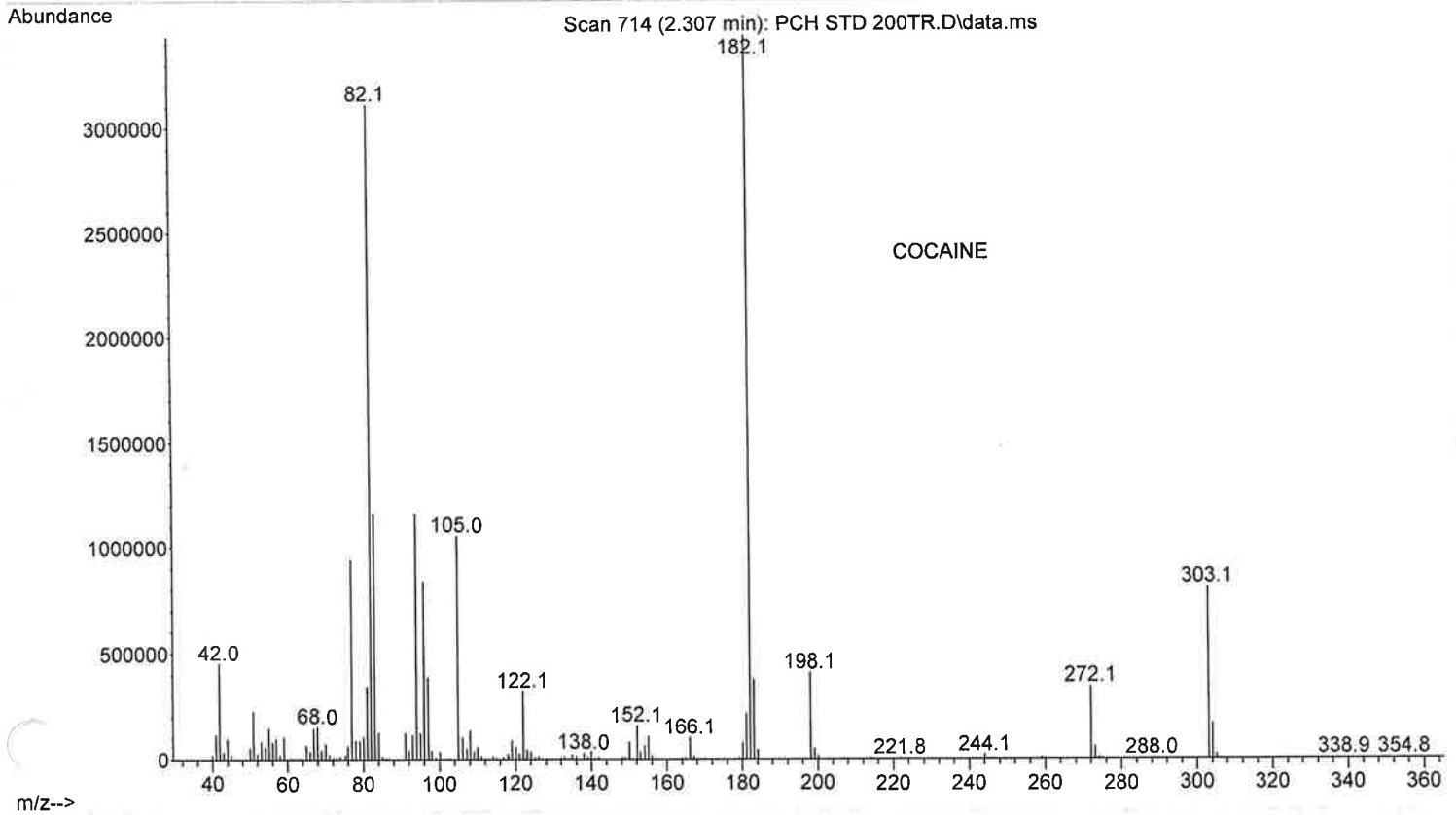
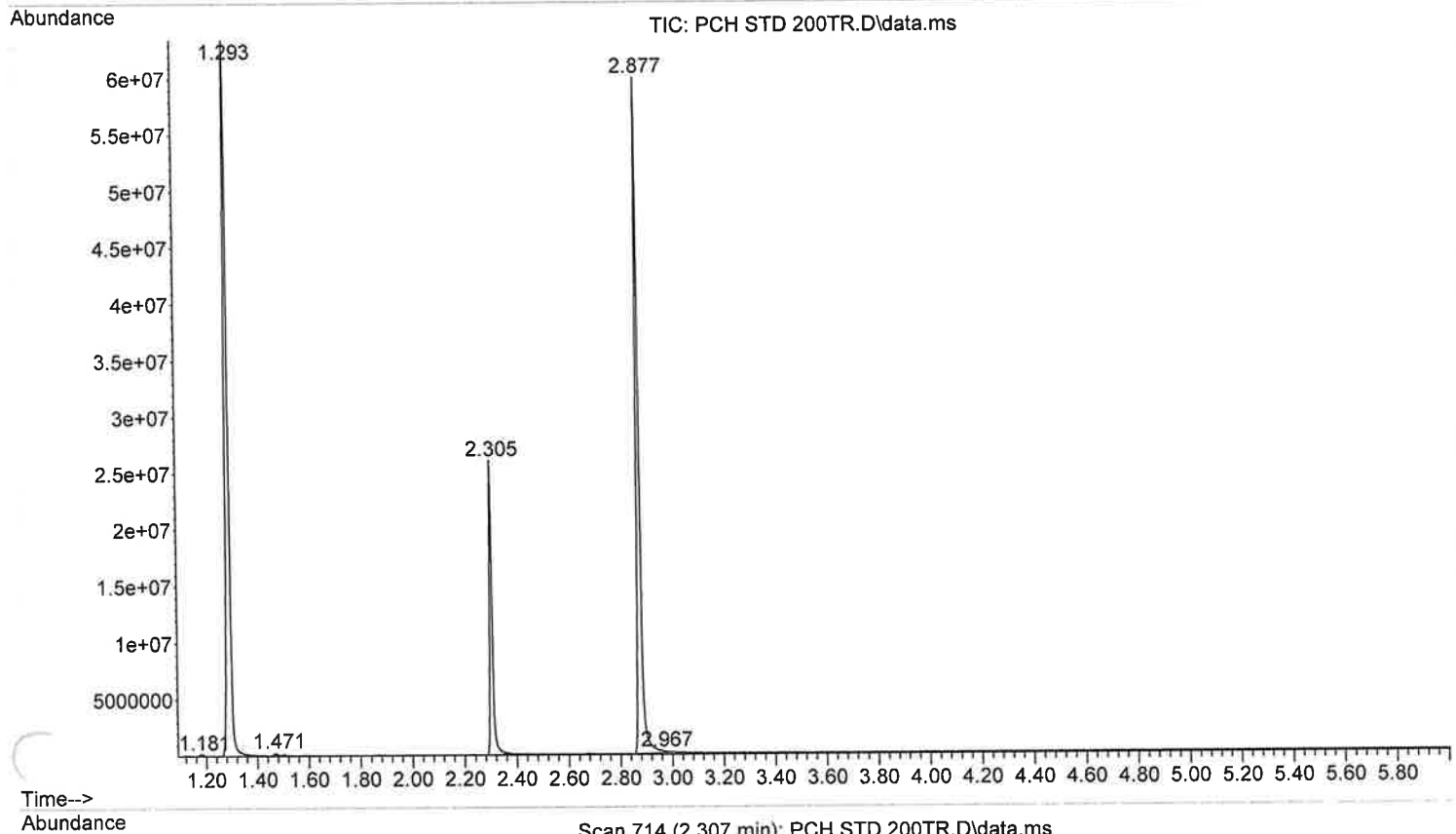
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. EPEAT.D
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Name: PETHIDINE, COCAINE, HYDROCODONE
Info : MEOH



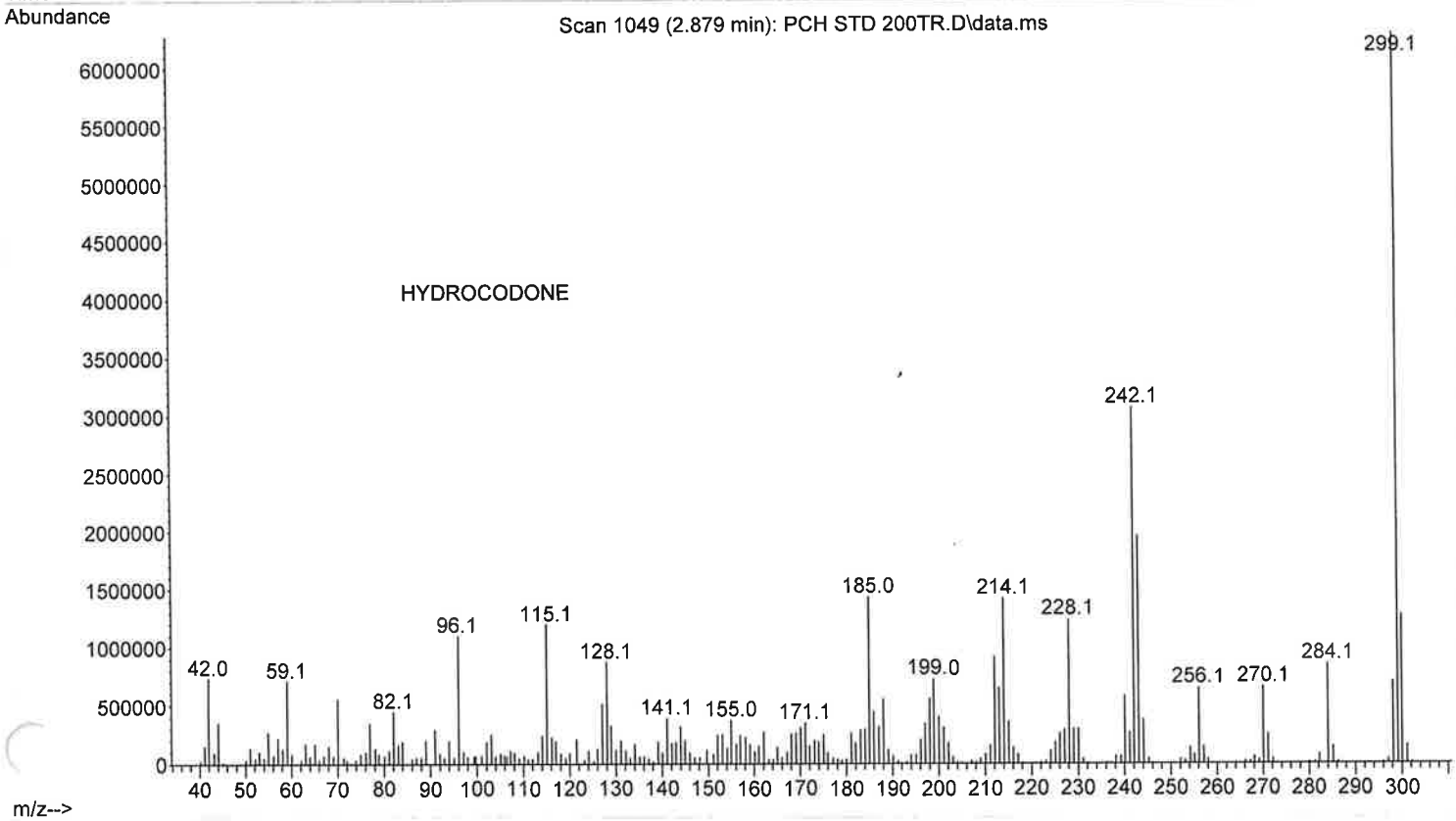
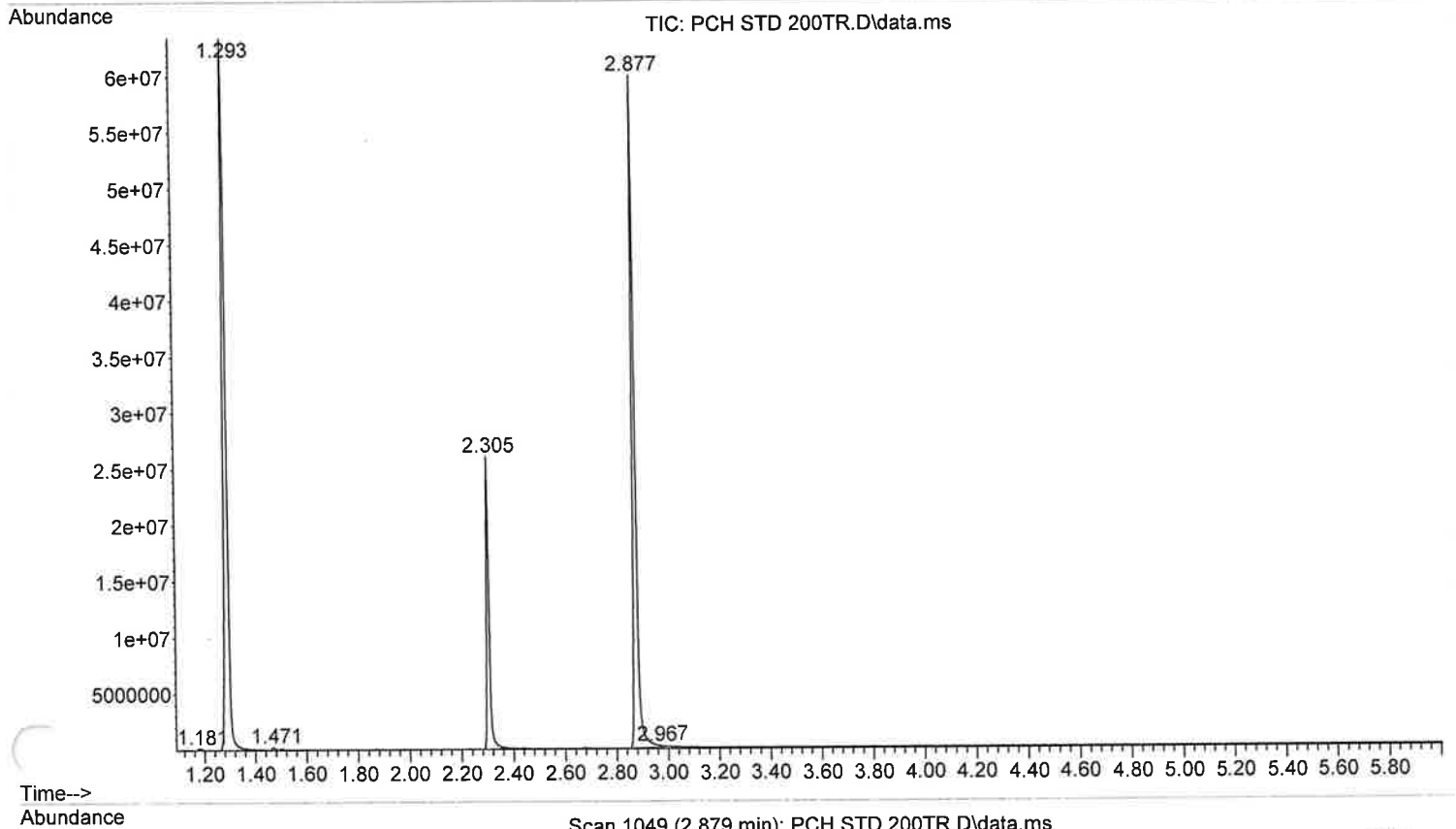
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strument : Heisenberg
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s-Tnfo : MEOH
umber: 4



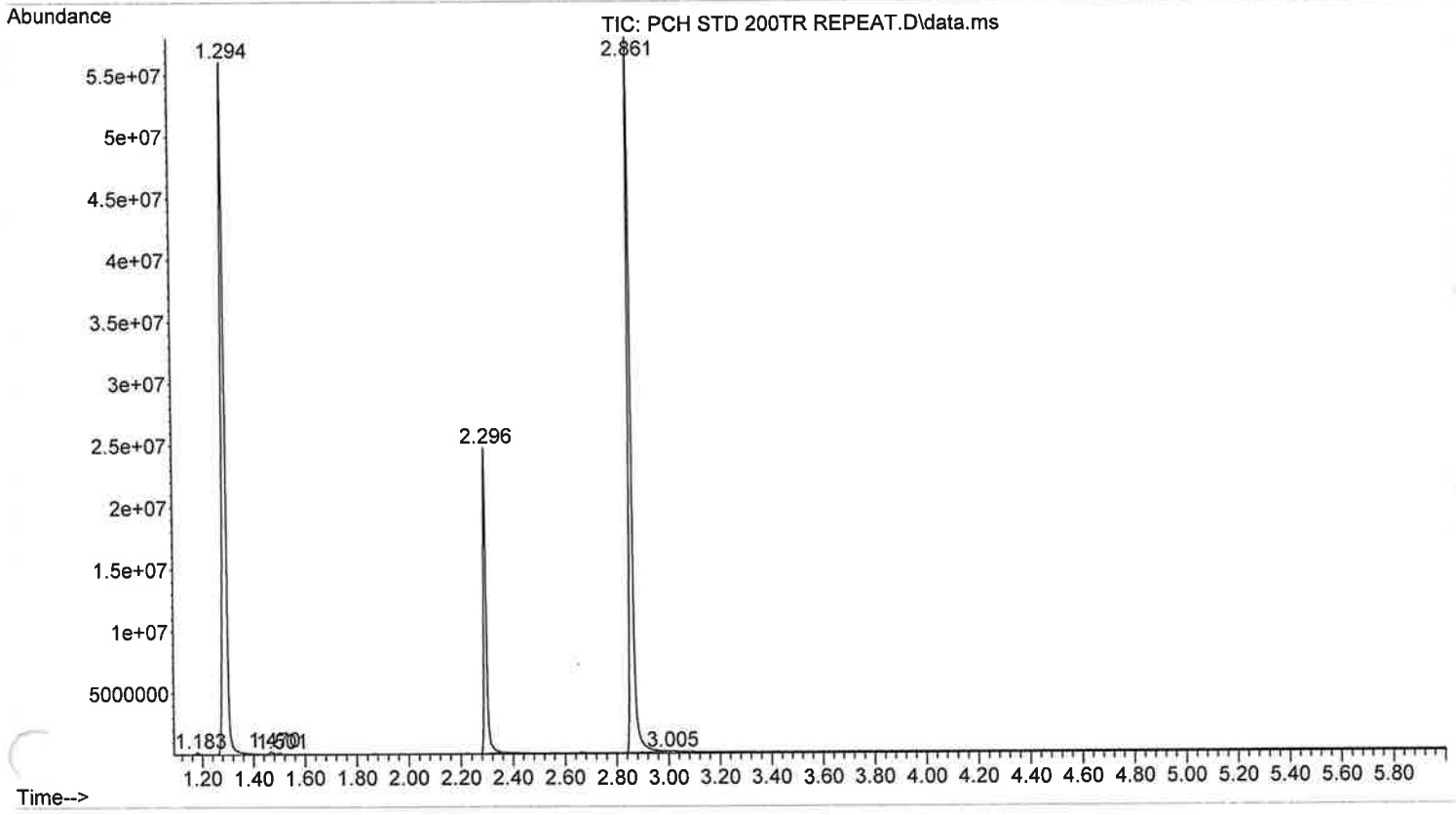
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Solvent : MEOH
Injection Number: 4



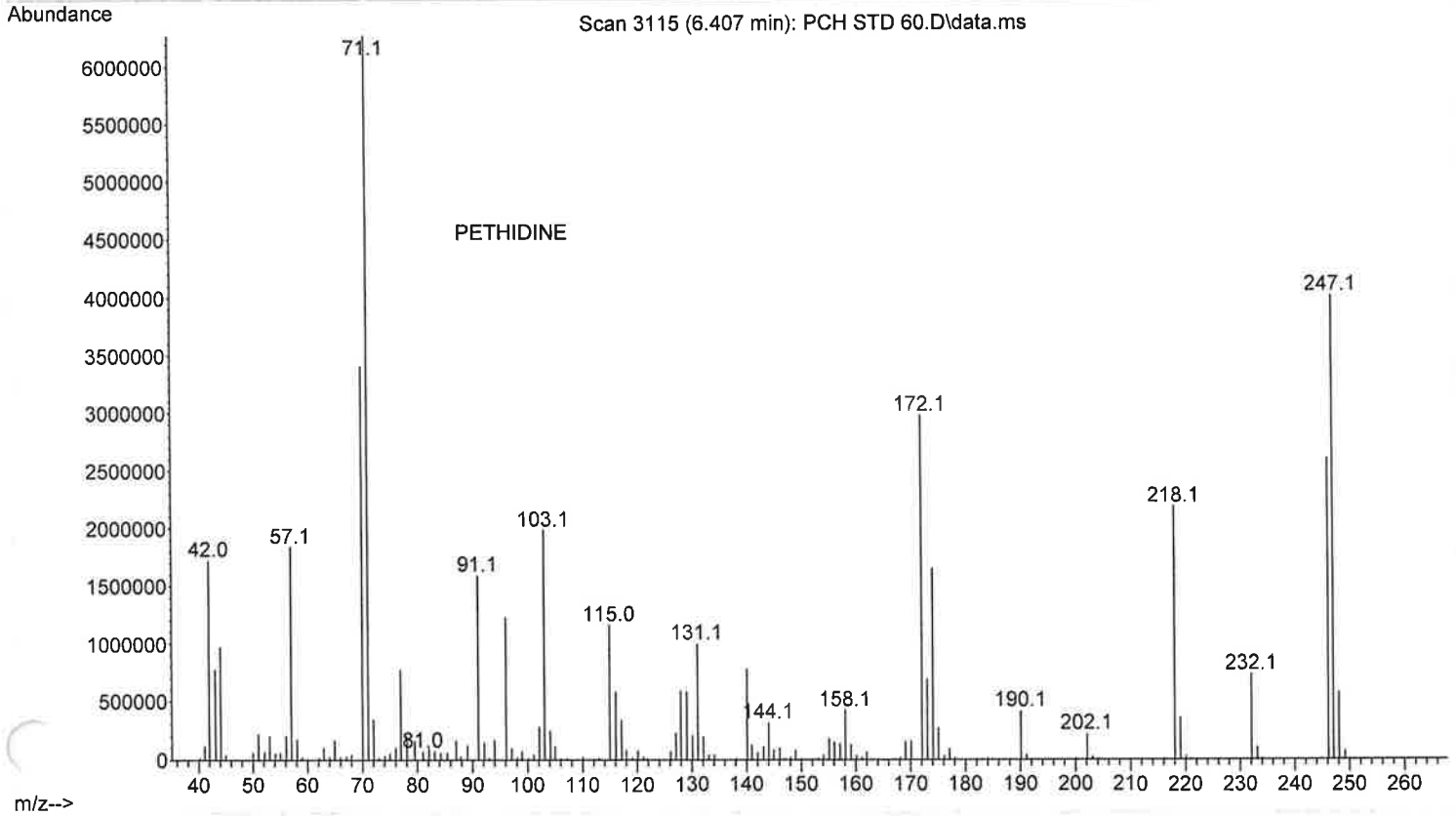
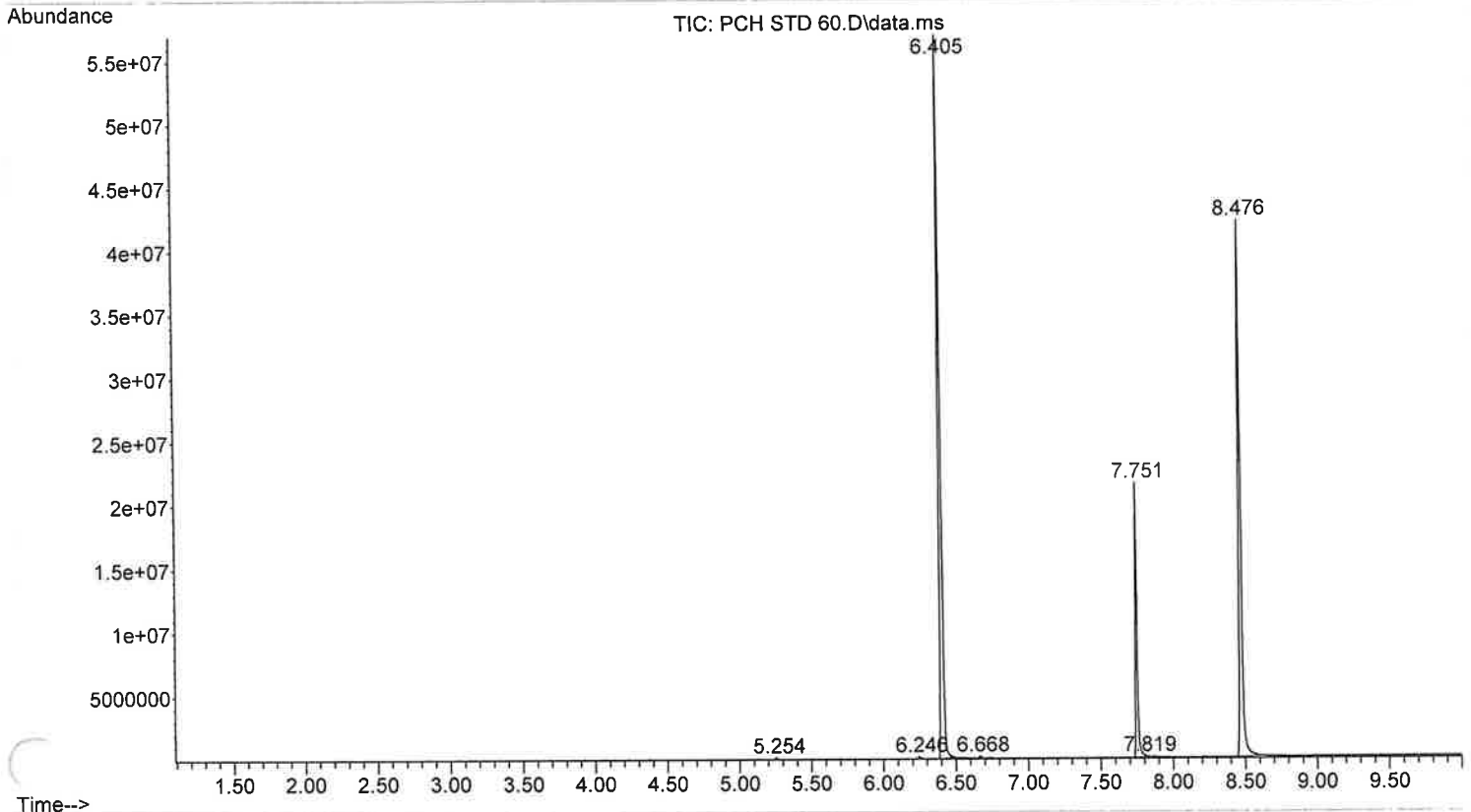
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Solvent : MEOH
Injection Number: 4



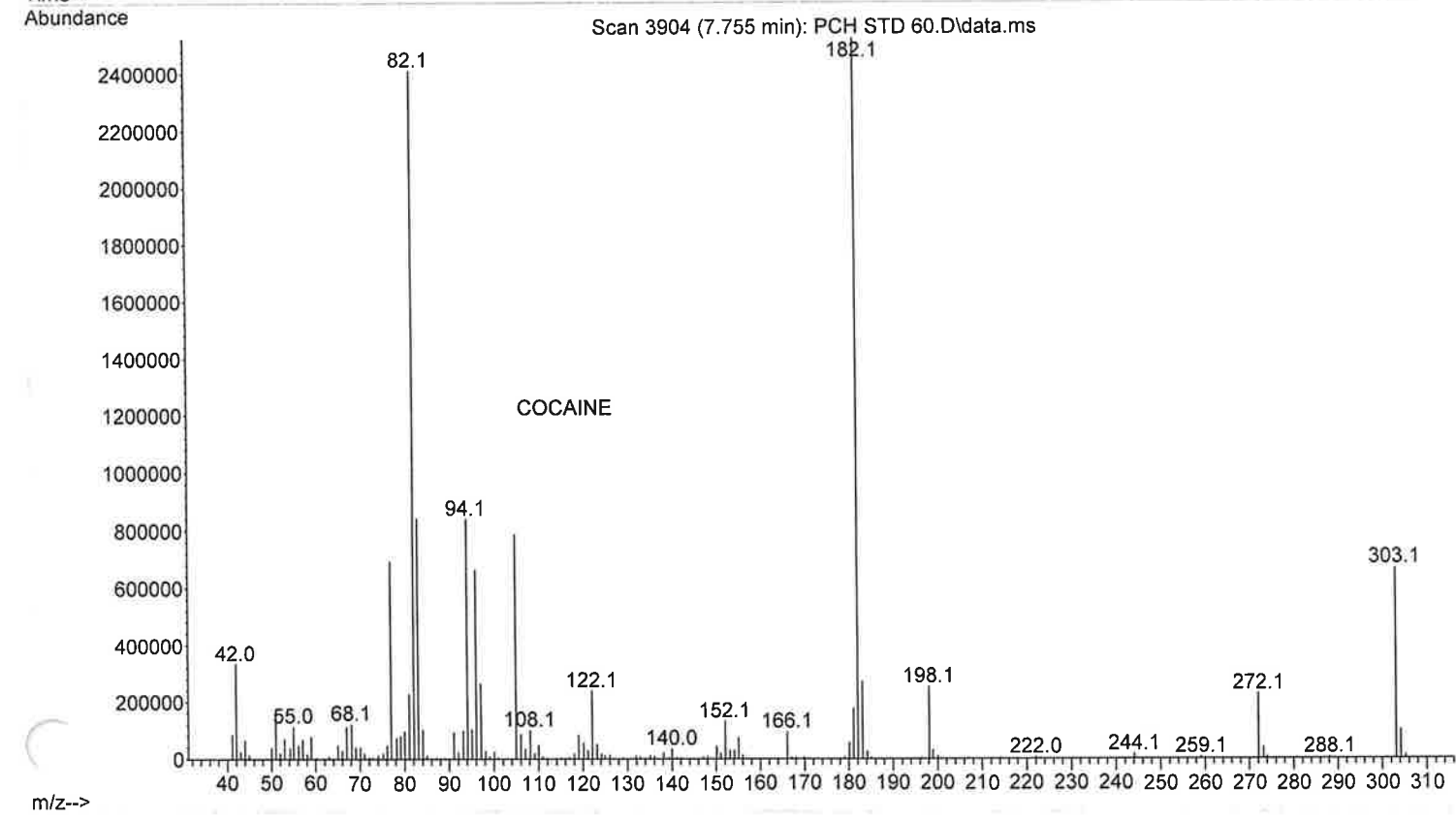
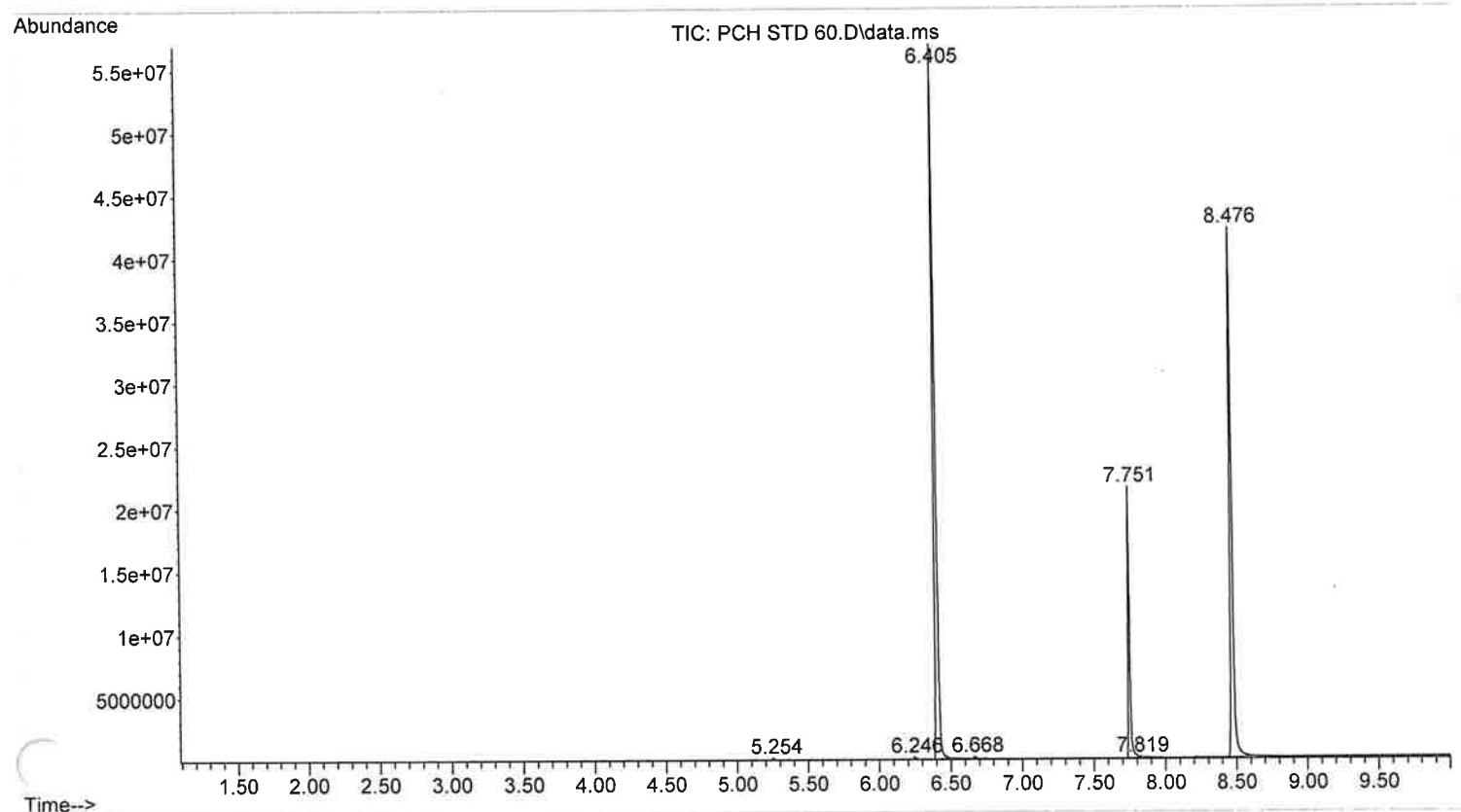
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. REPEAT.D
erator : EMC
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m Name: PETHIDINE, COCAINE, HYDROCODONE
nfo : MEOH



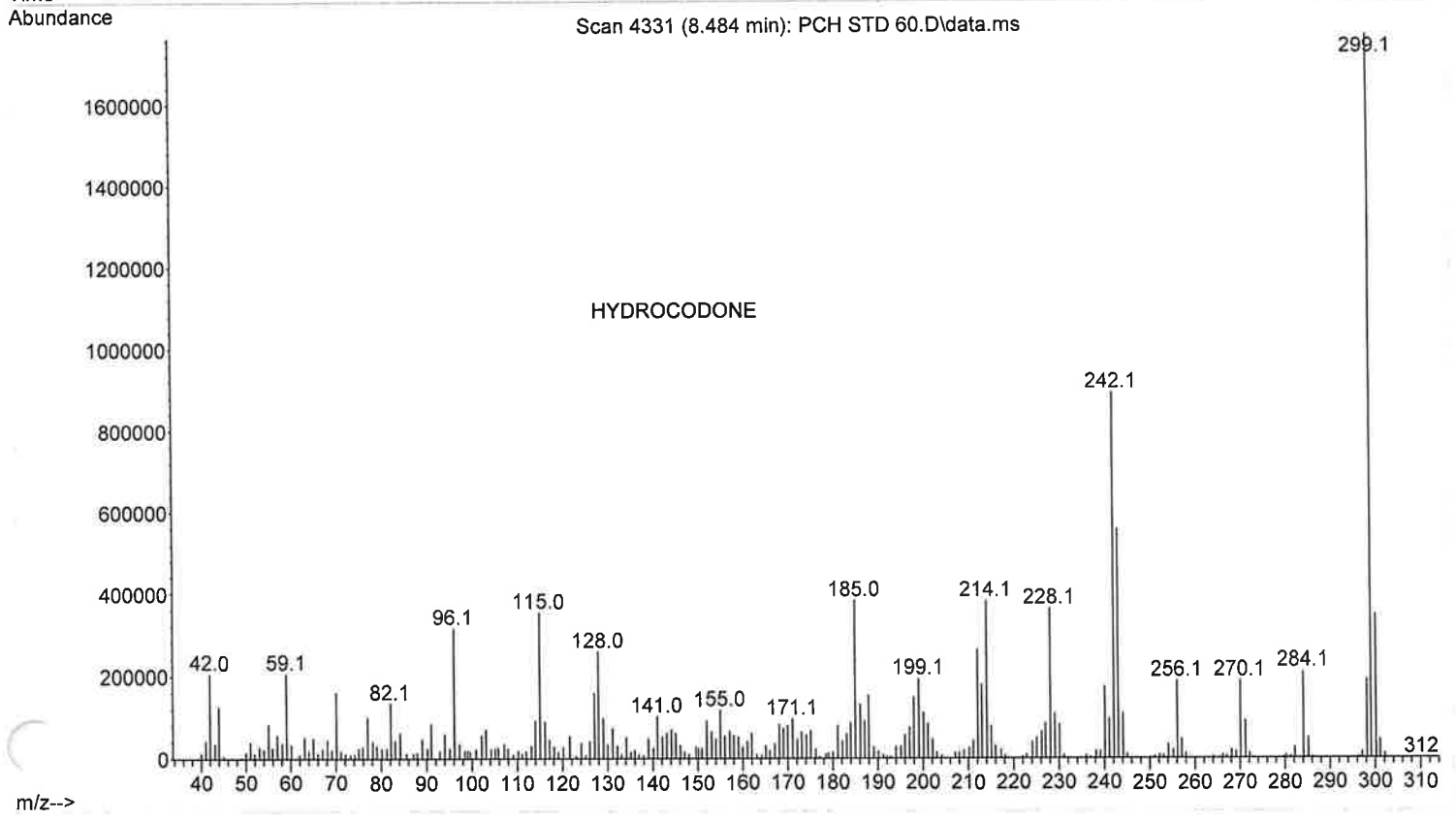
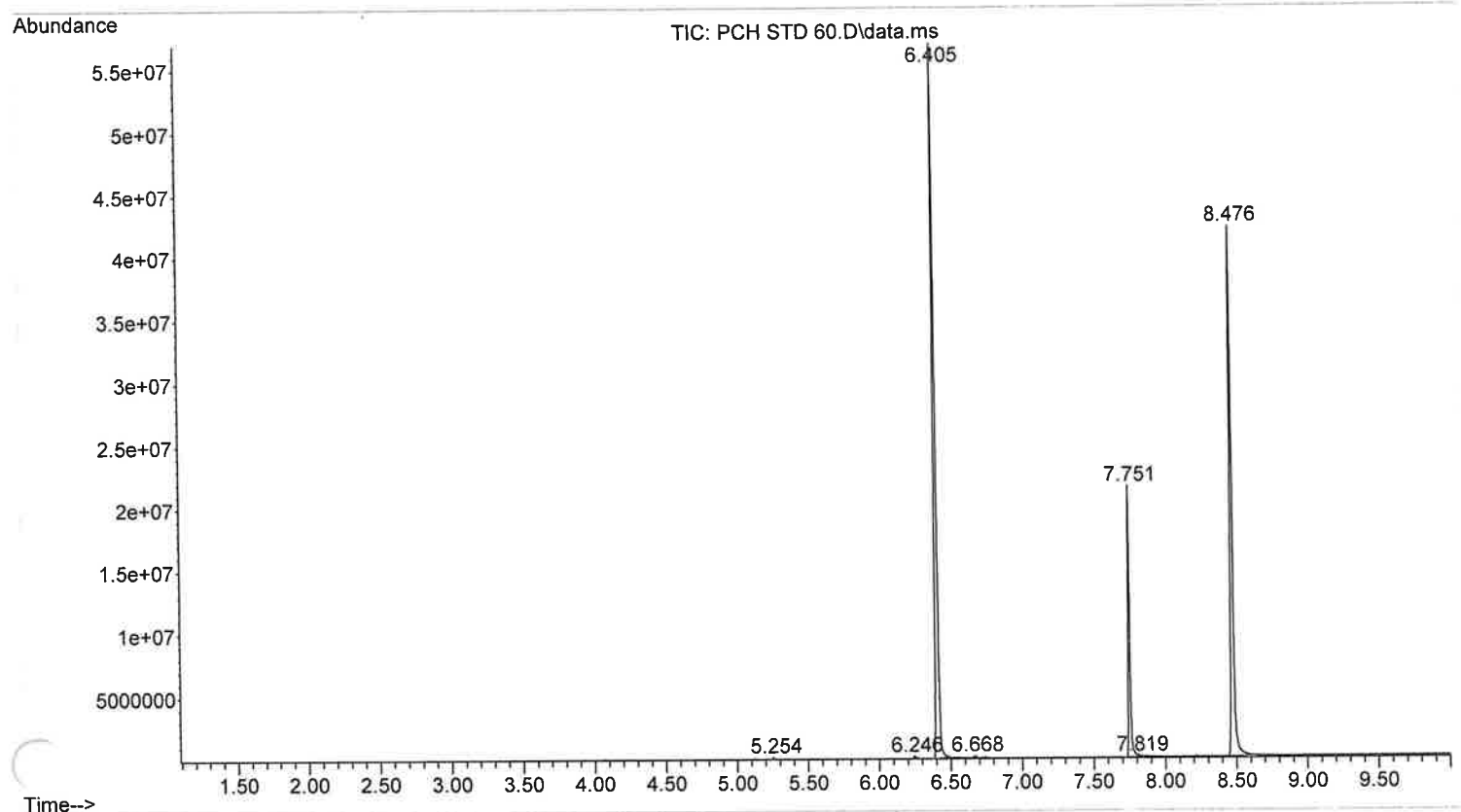
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erator : EMC
quired : 26 Apr 2017 17:17 using AcqMethod ASMSDRUGS60.M
strument : Heisenberg
mple Name: PETHIDINE, COCAINE, HYDROCODONE
s-Tnfo : MEOH
umber: 4



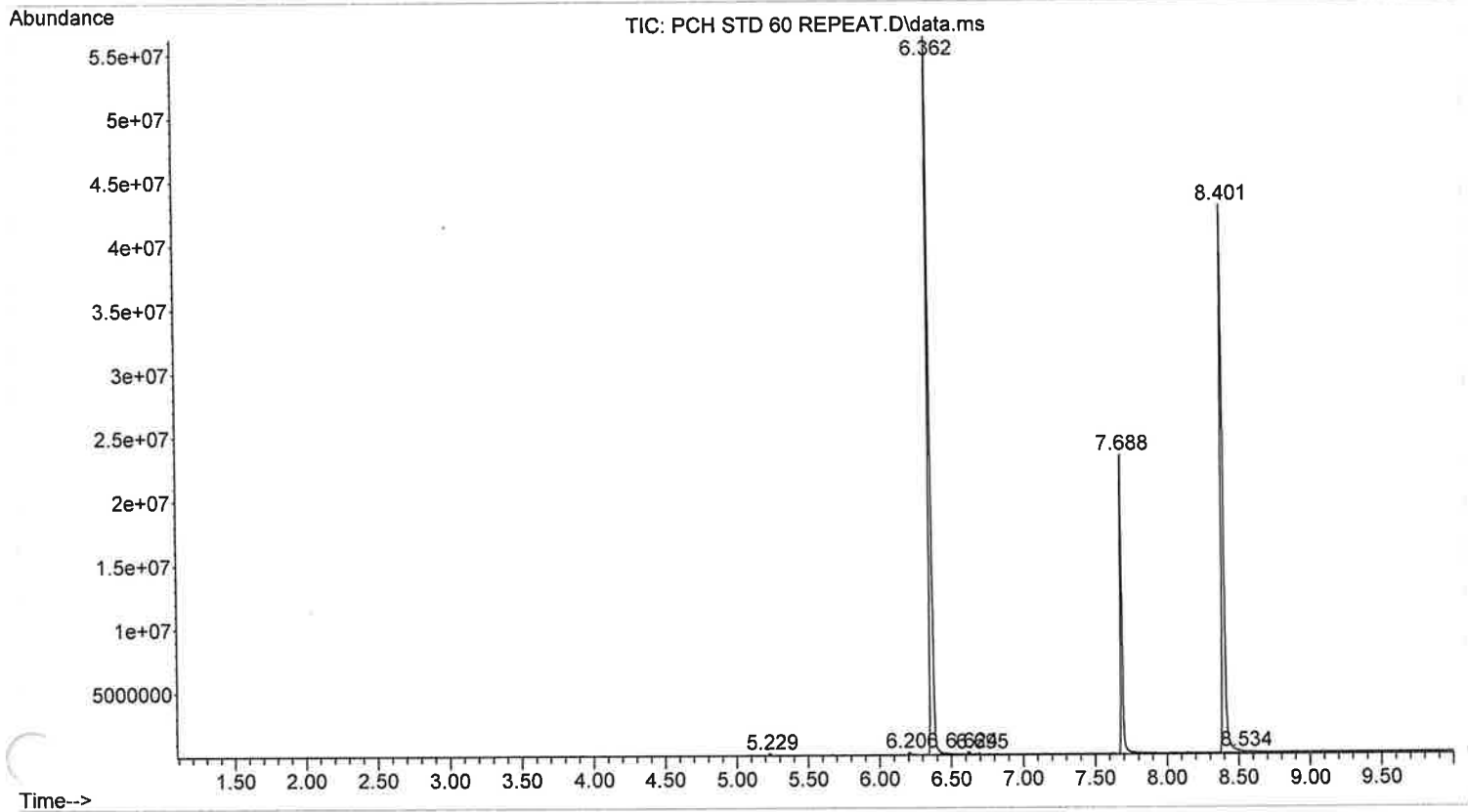
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s Info : MEOH
umber: 4



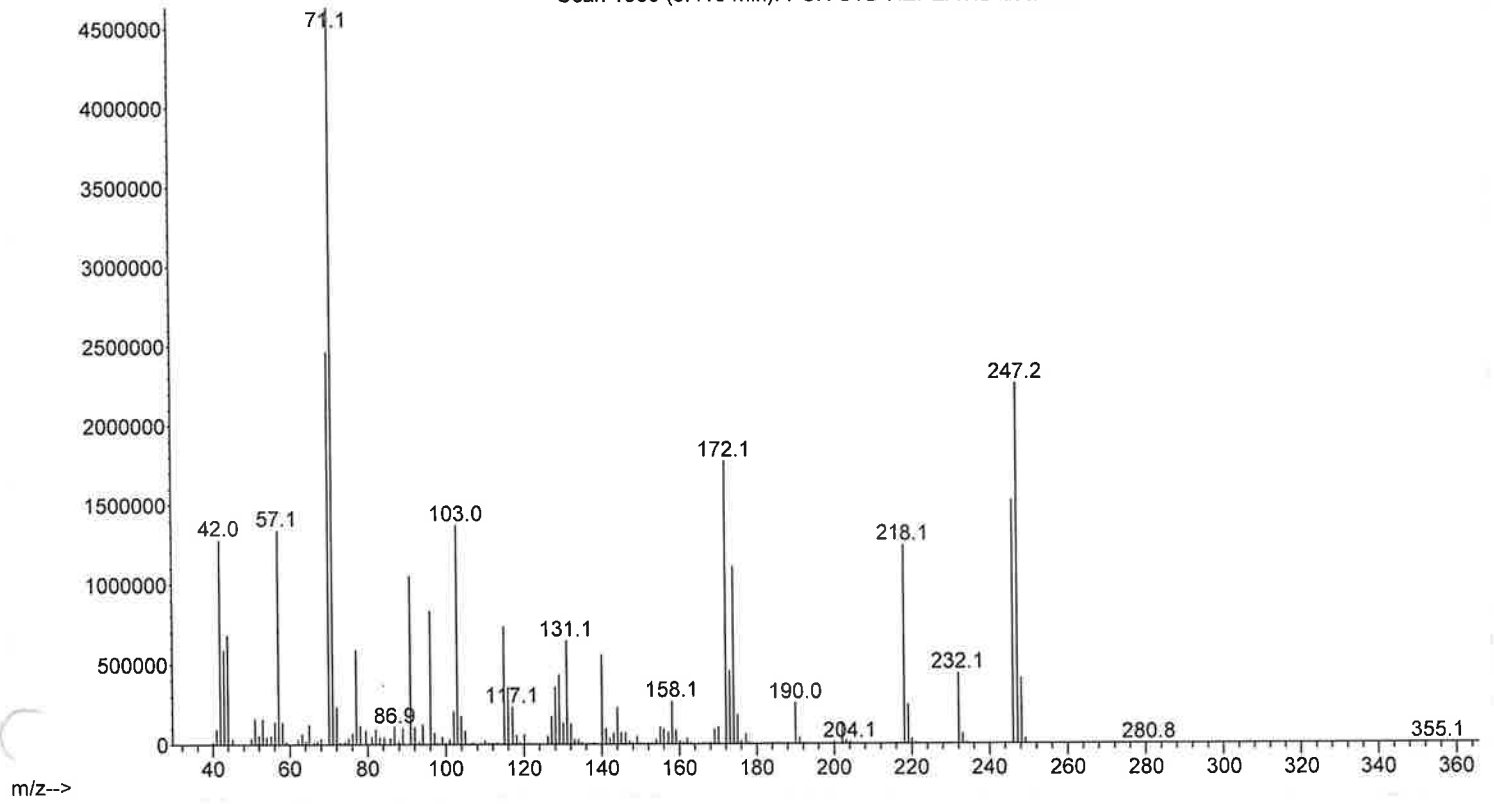
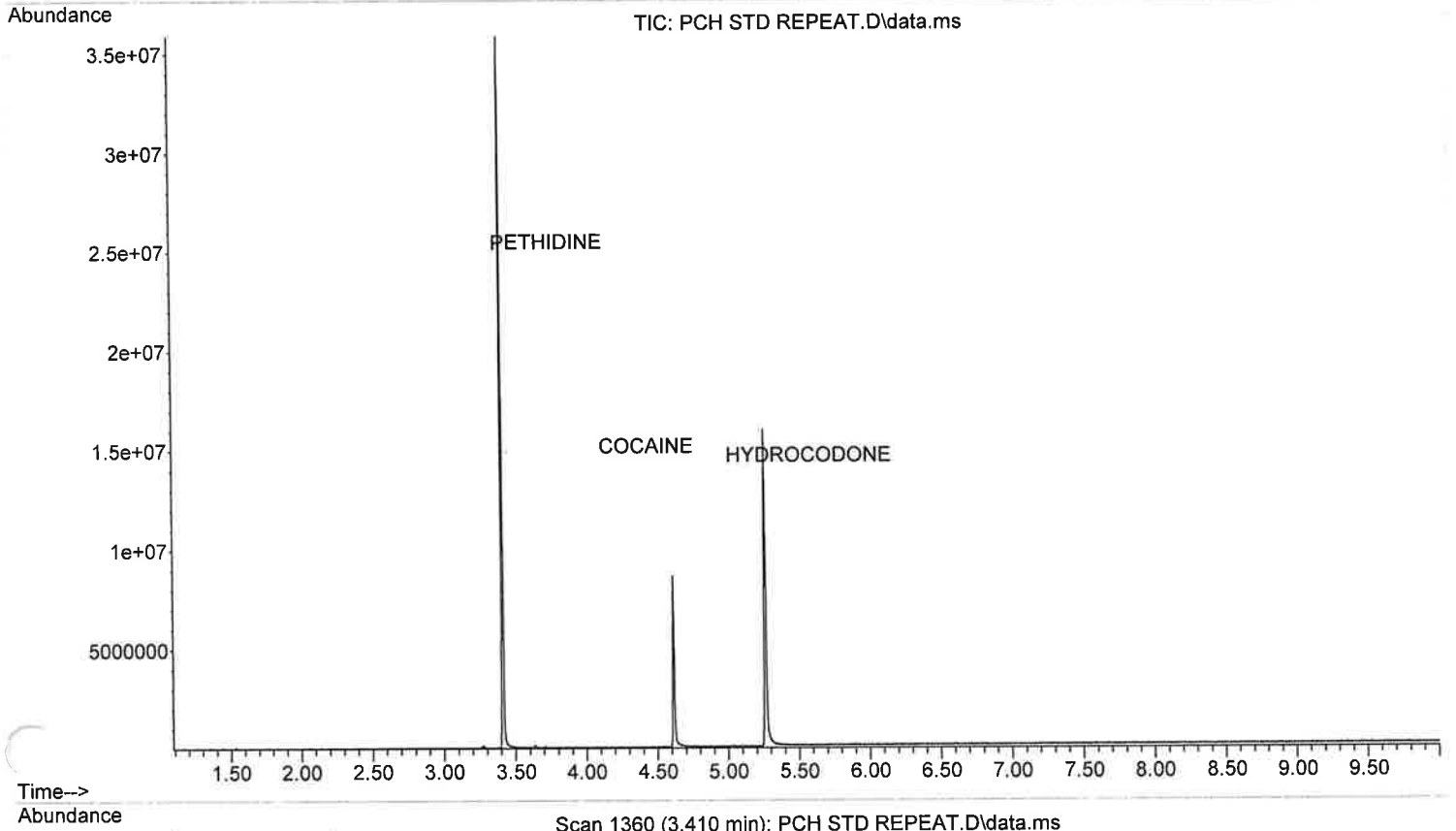
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s Info : MEOH
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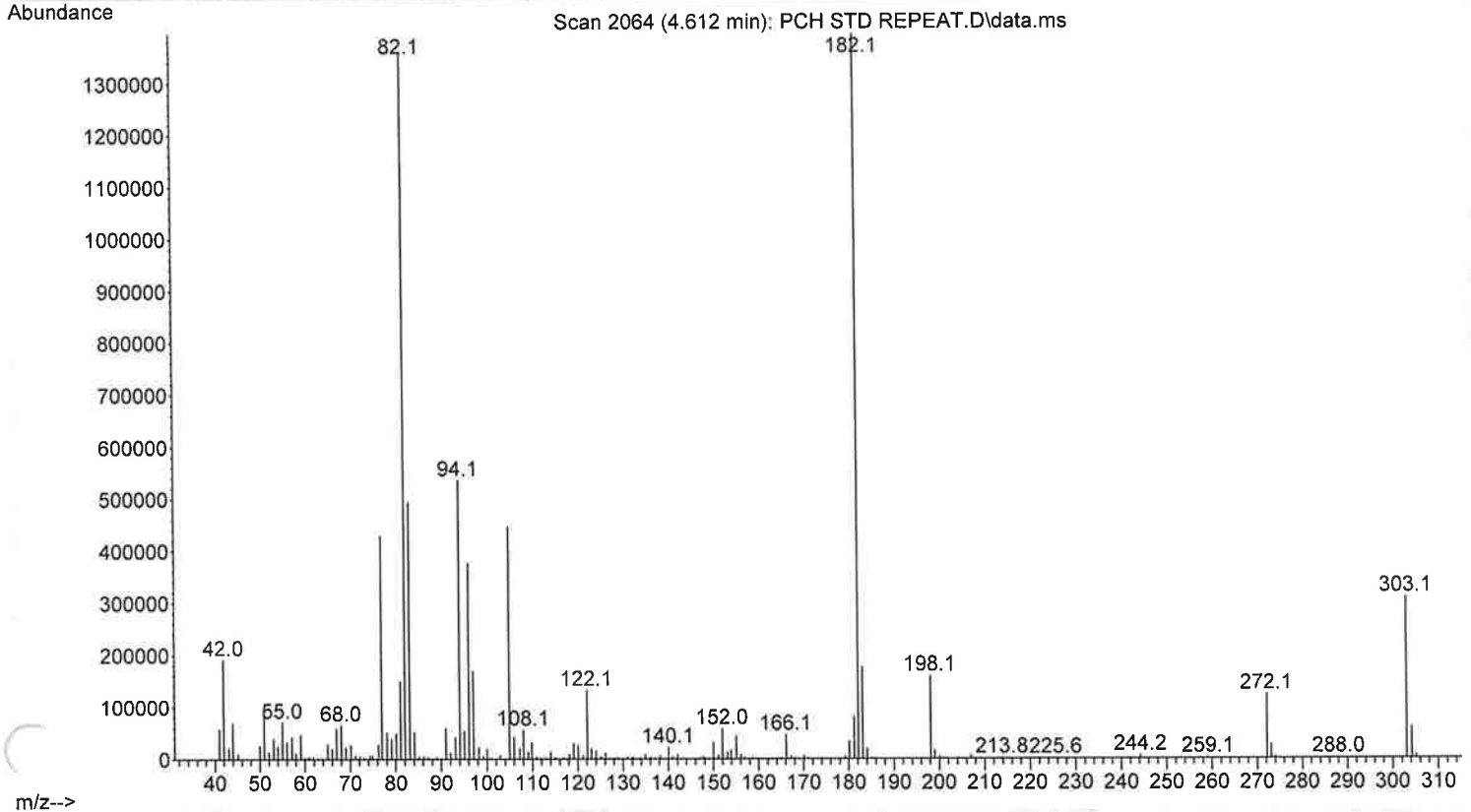
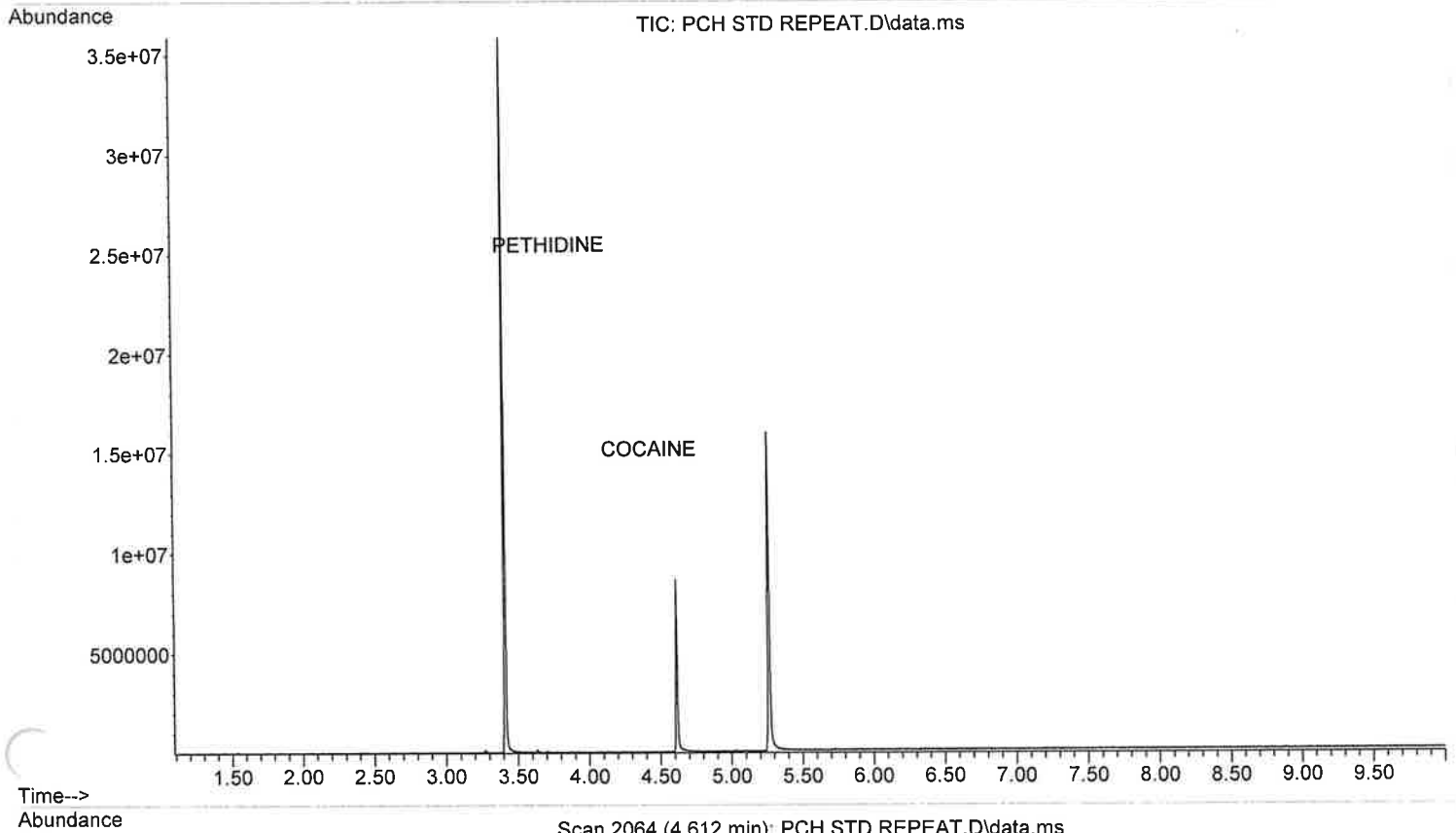
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File Name: PETHIDINE, COCAINE, HYDROCODONE
Info : MEOH



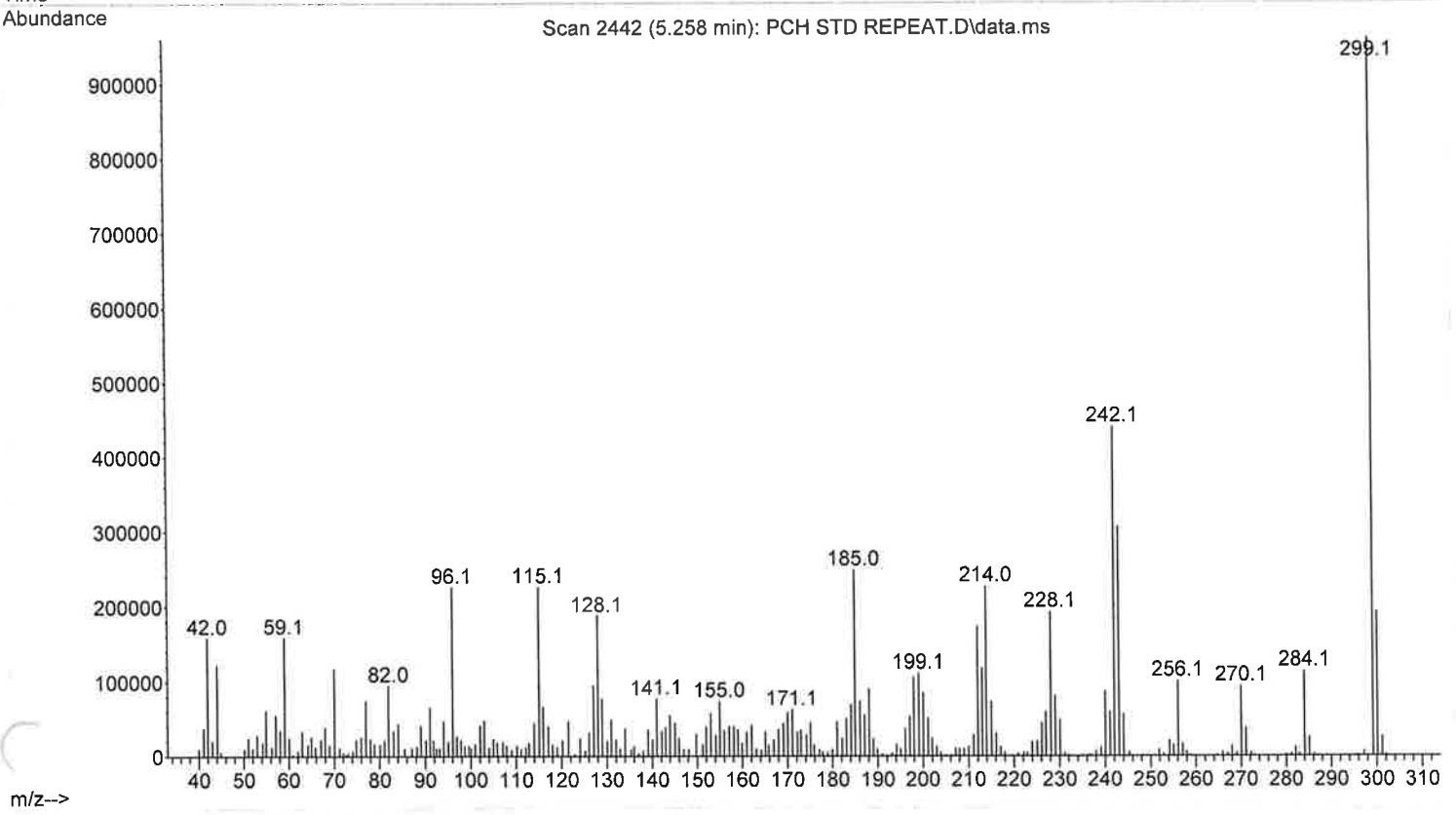
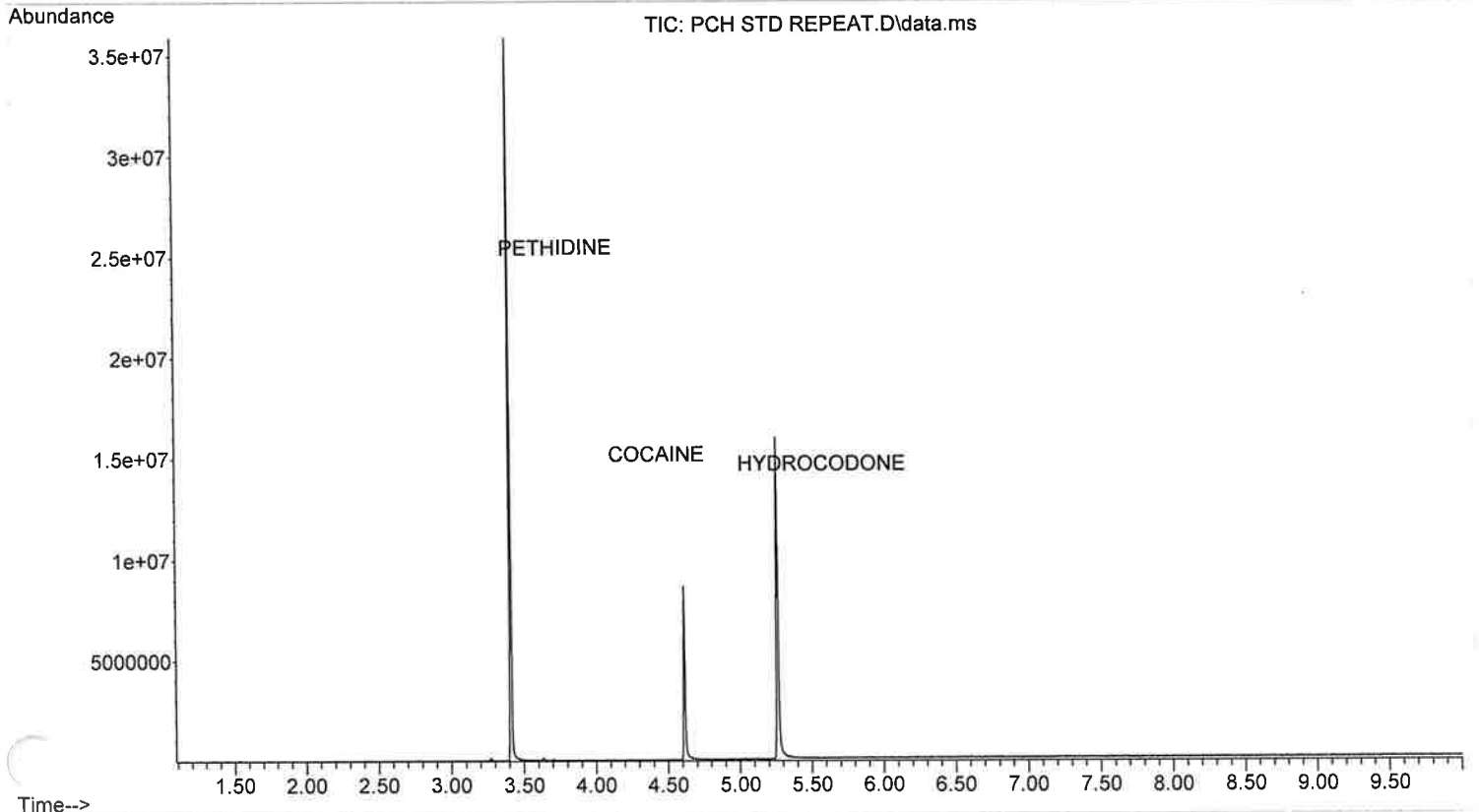
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erator : EMC
strument : Heisenberg
quired : 26 Apr 2017 12:43 using AcqMethod MSDRUGS100.M
me Name: PCH STD
nfo : MEOH



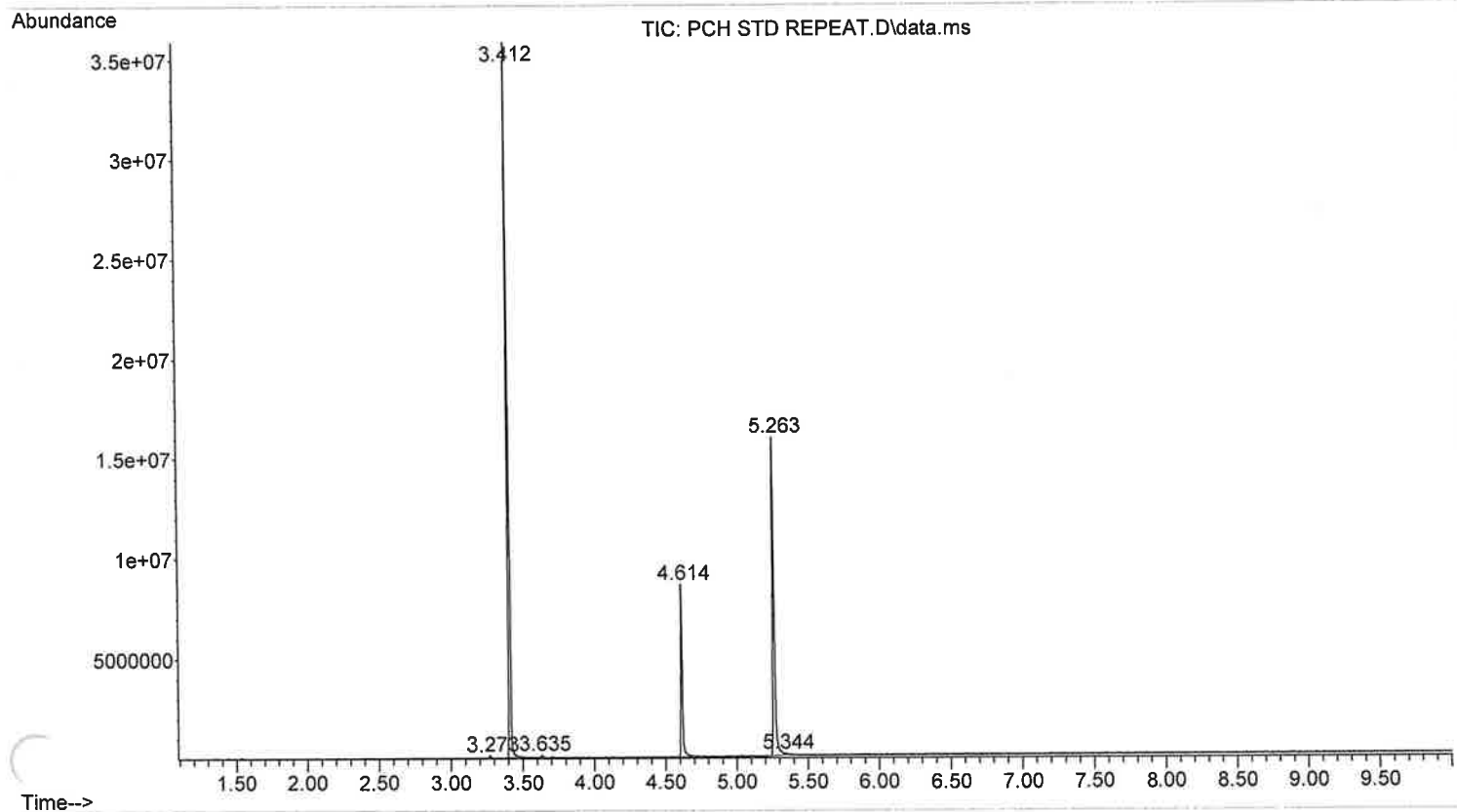
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Info : MEOH



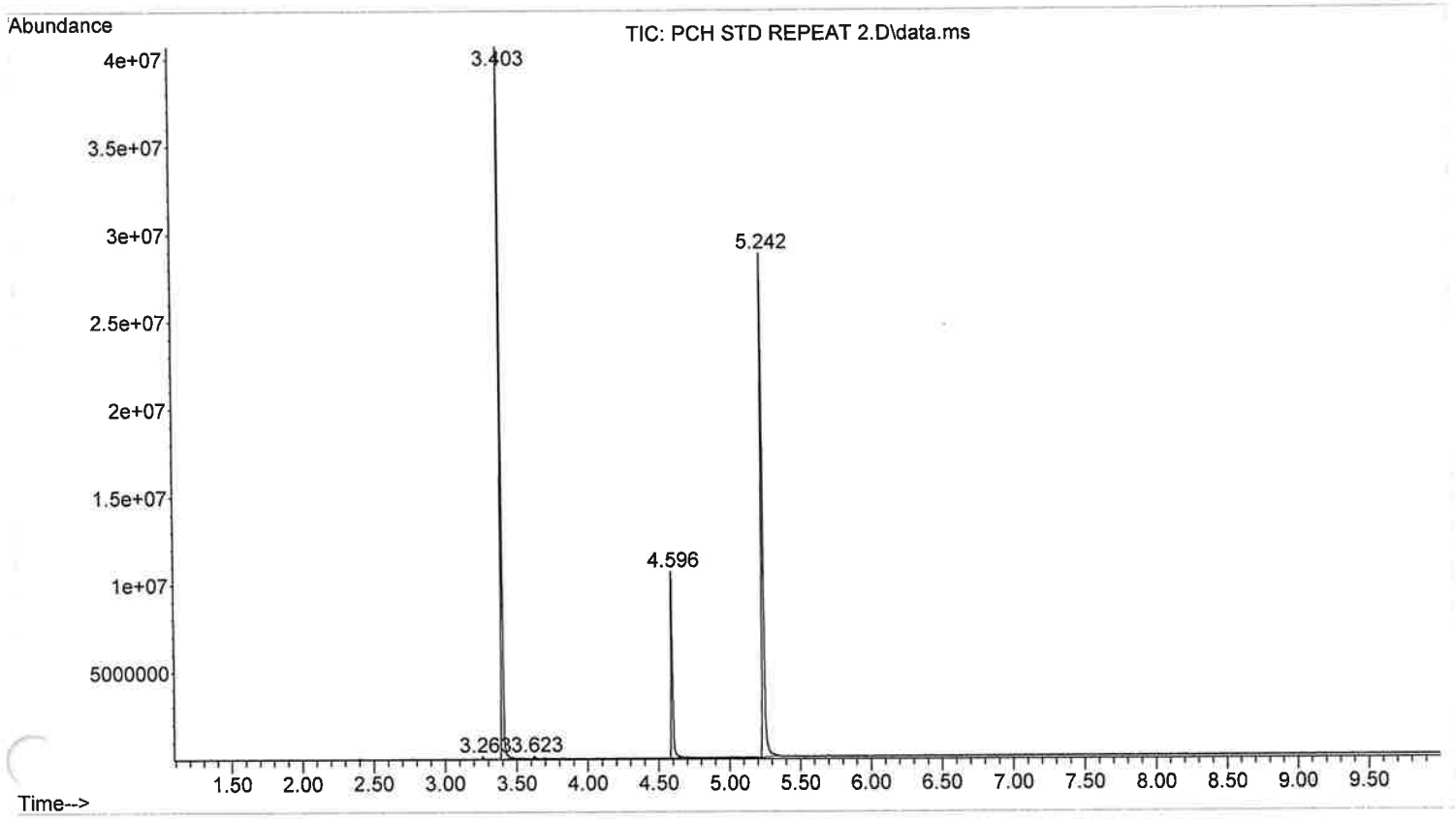
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m-e Name: PCH STD
nfo : MEOH



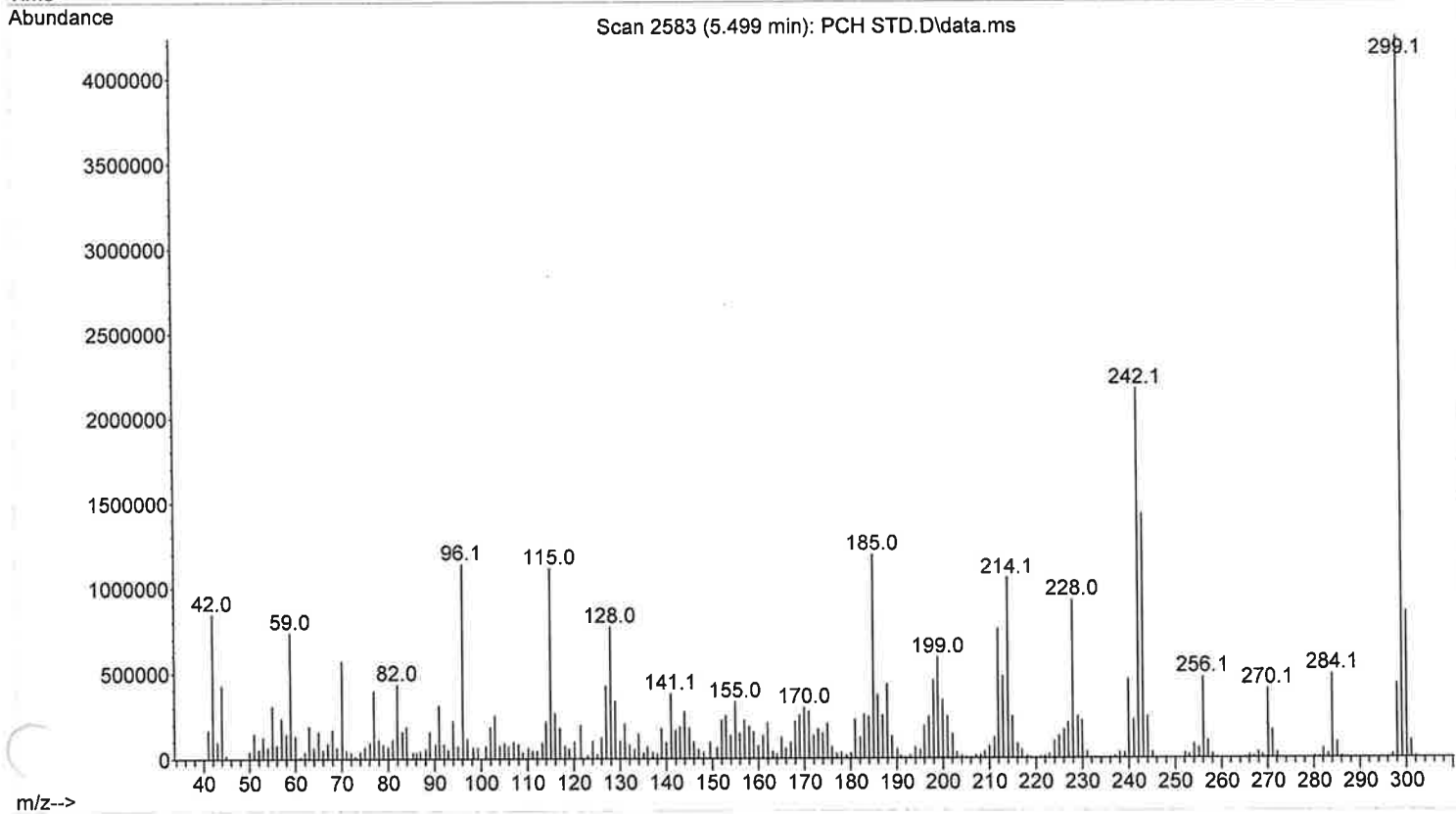
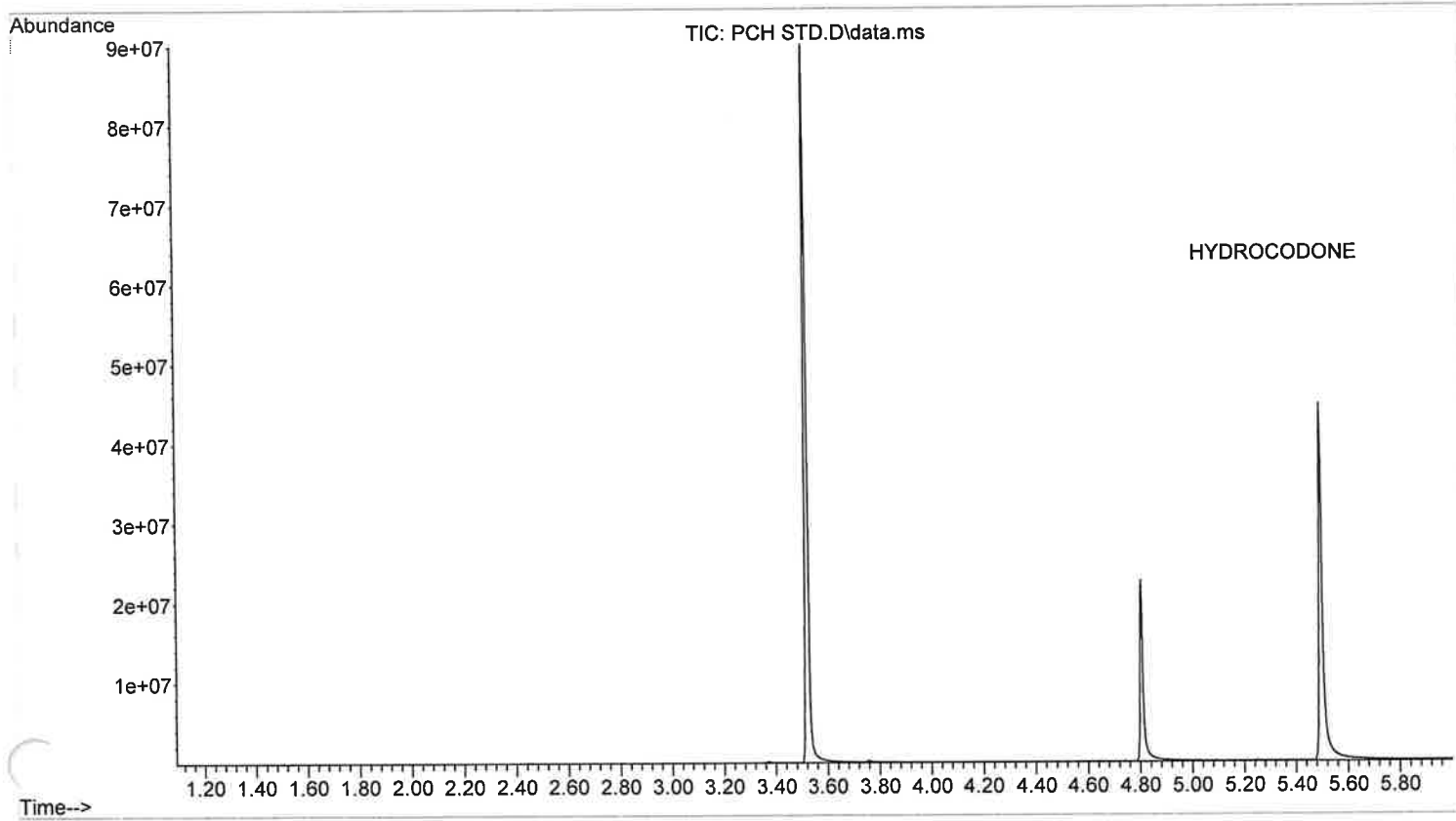
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me Name: PCH STD
nfo : MEOH



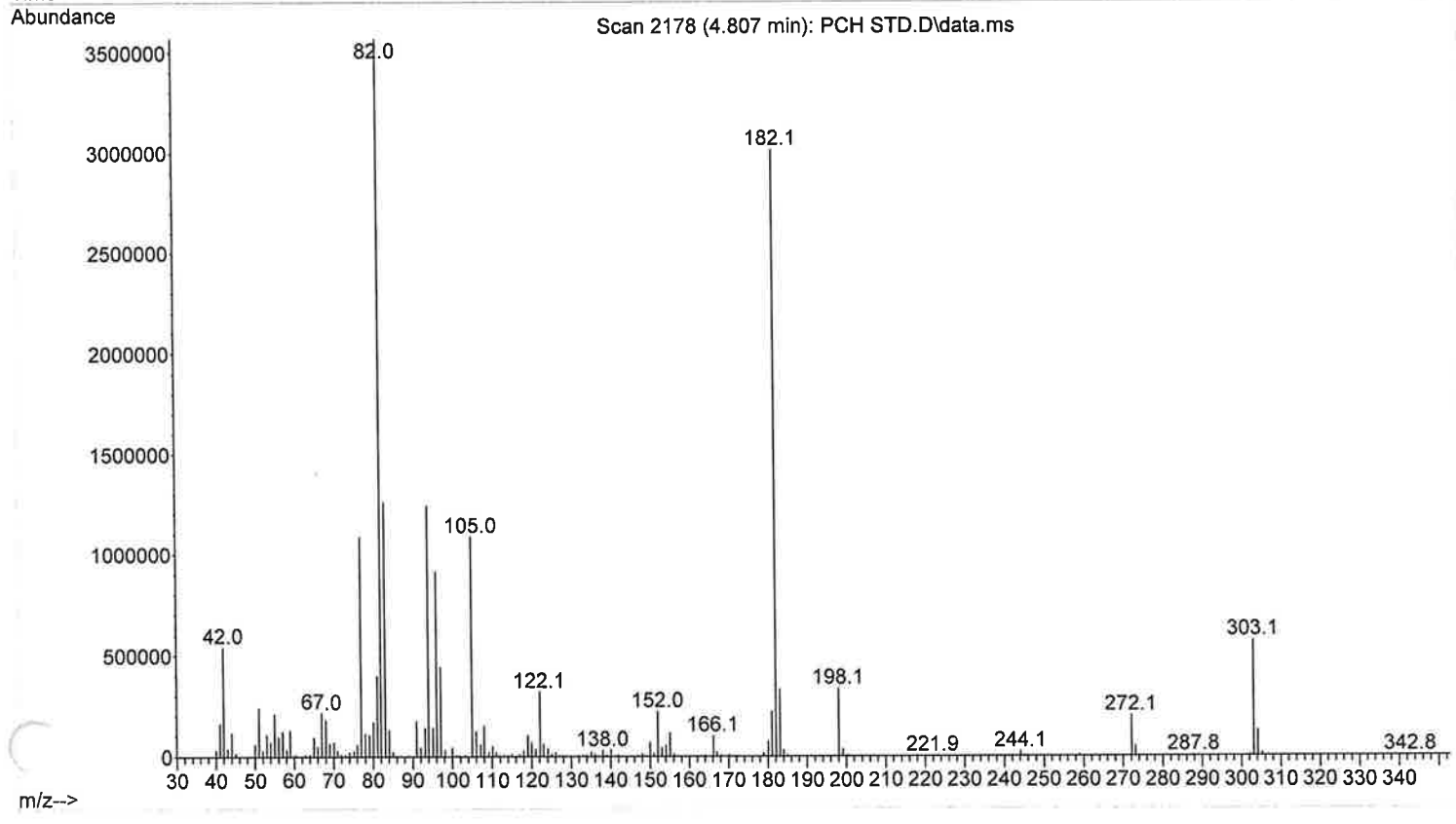
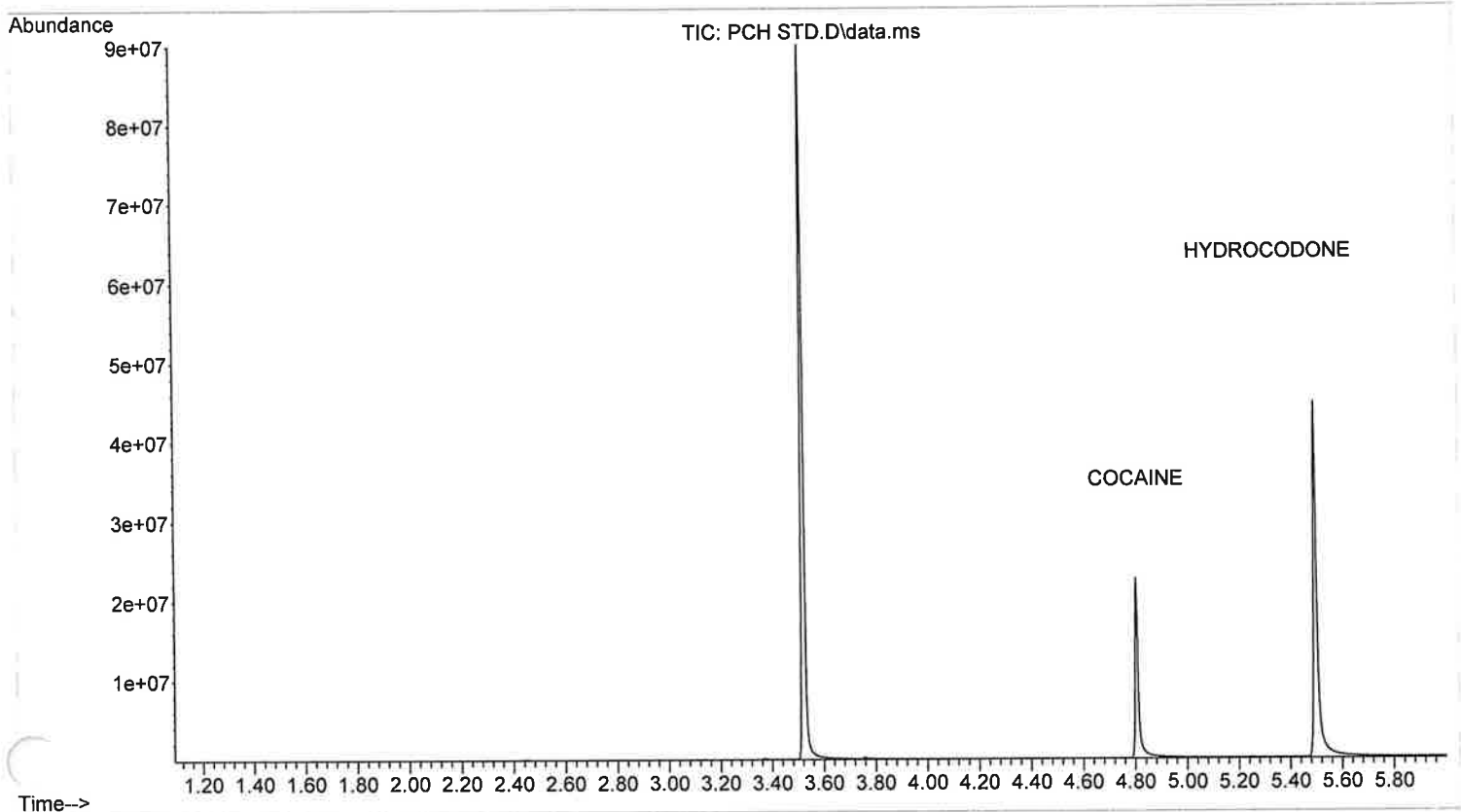
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. AT 2.D
erator : EMC
strument : Heisenberg
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me Name: PCH REPEATABILITY
nfo : MEOH



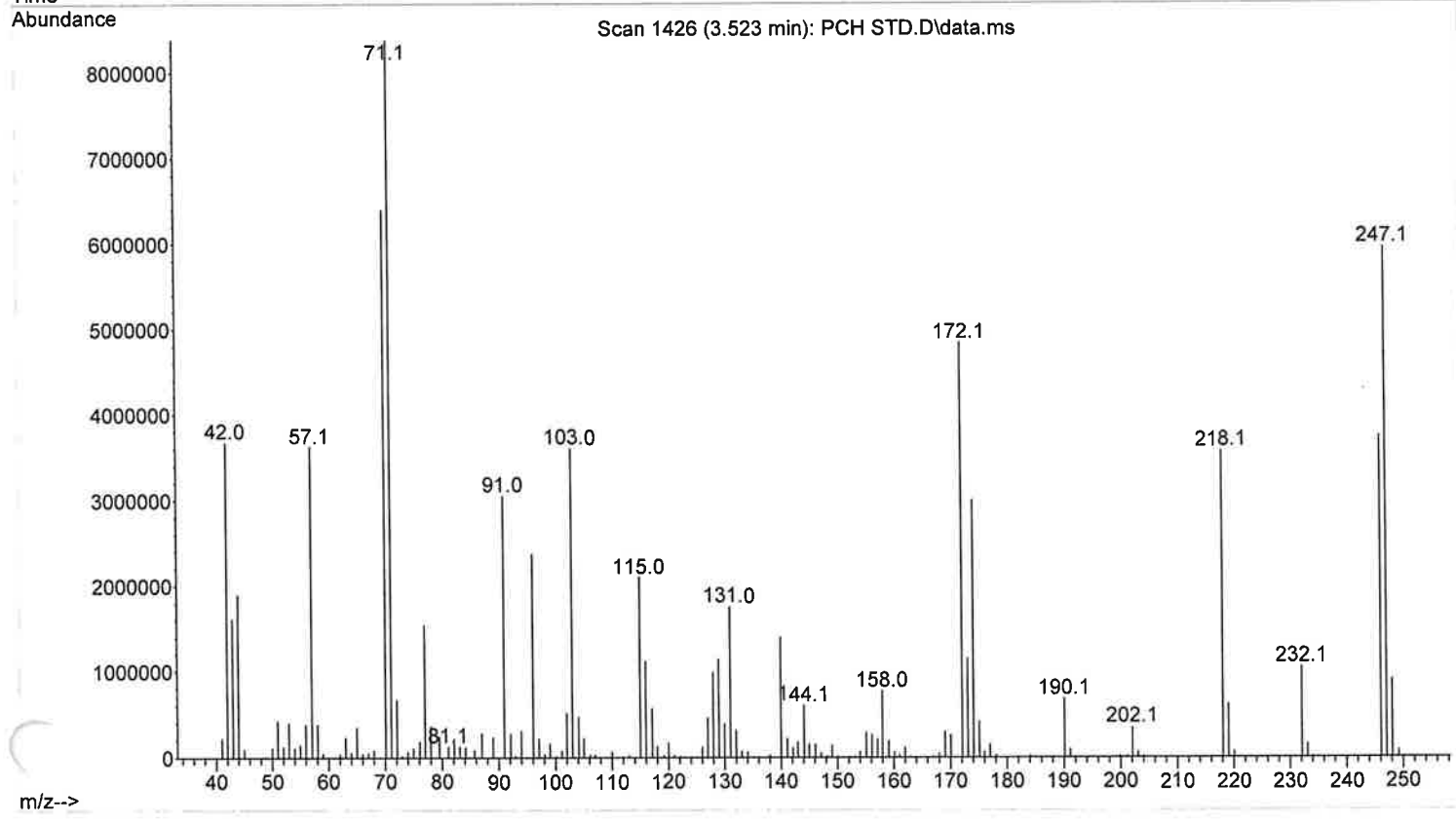
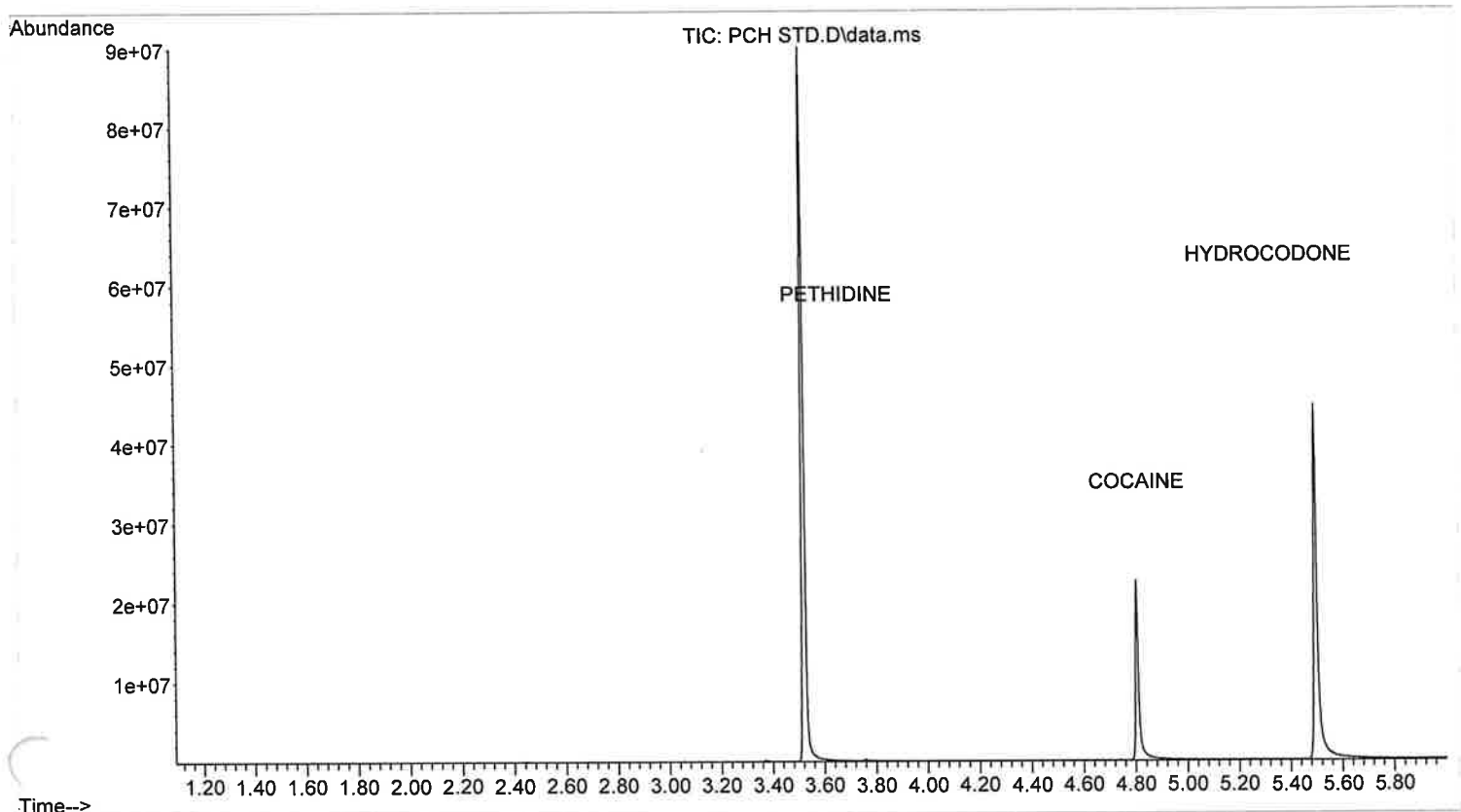
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mple Name: PETHIDINE, COCAINE, HYDROCODONE ST
Info : MEOH
umber: 1



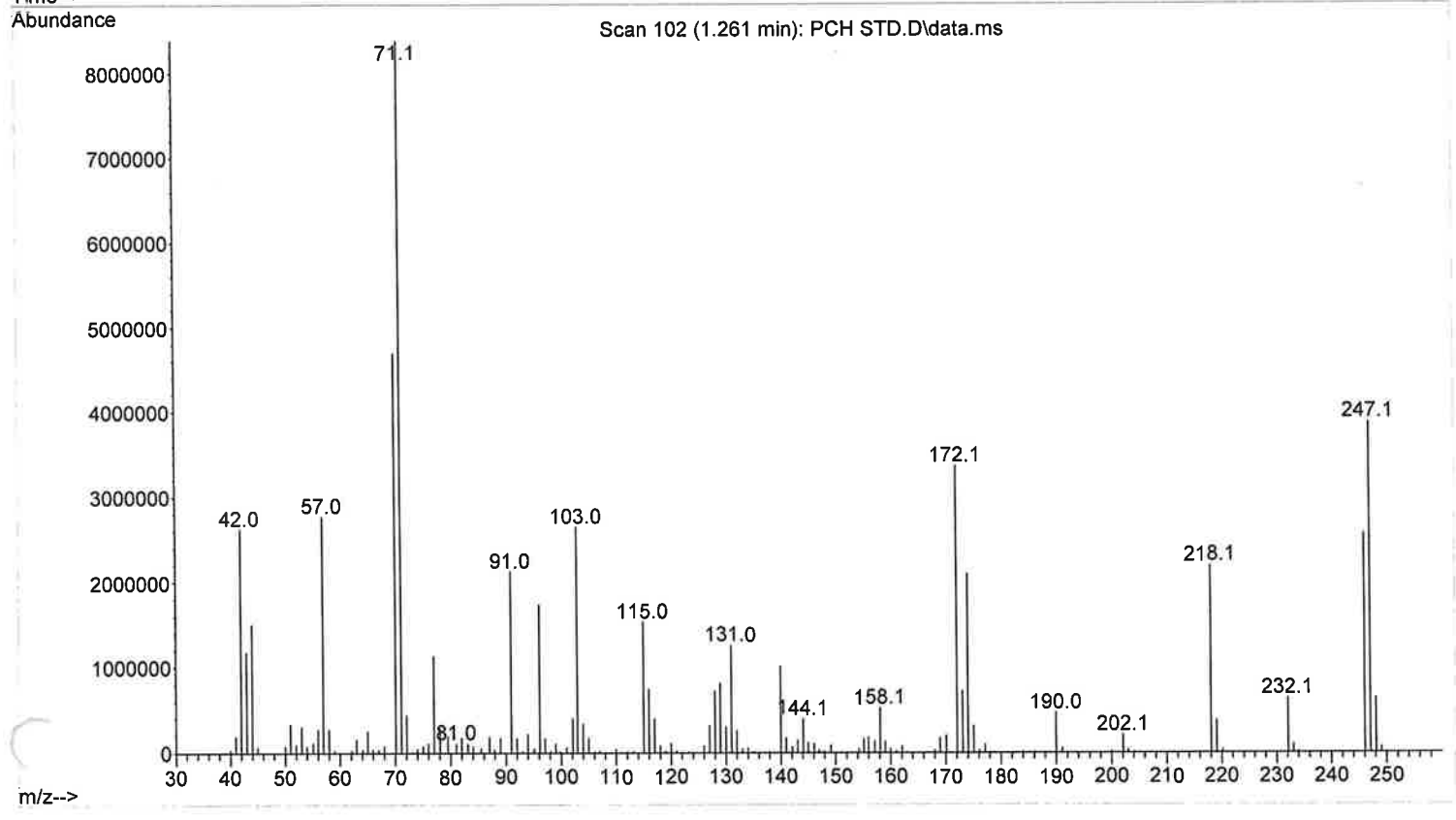
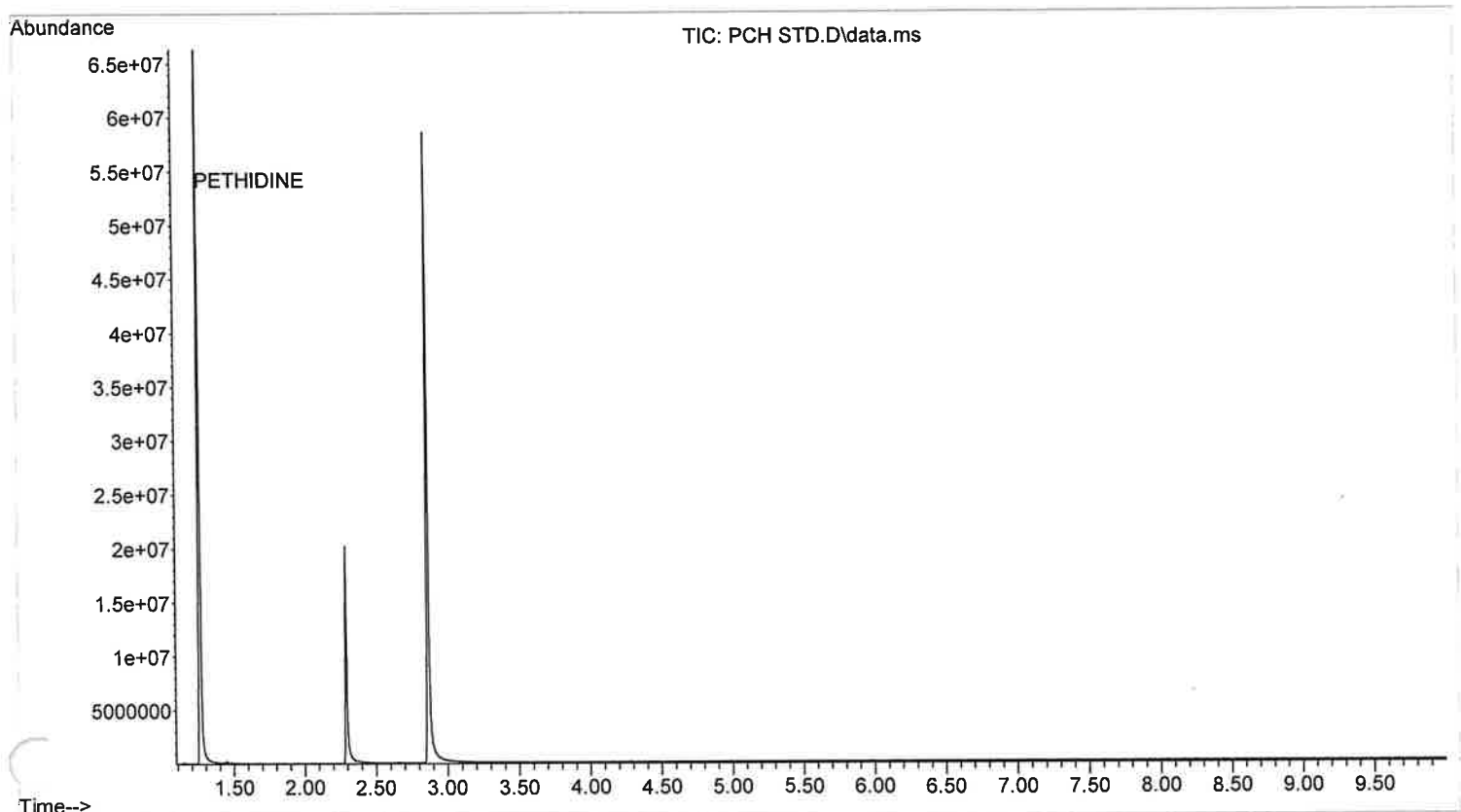
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Info : MEOH
umber: 1



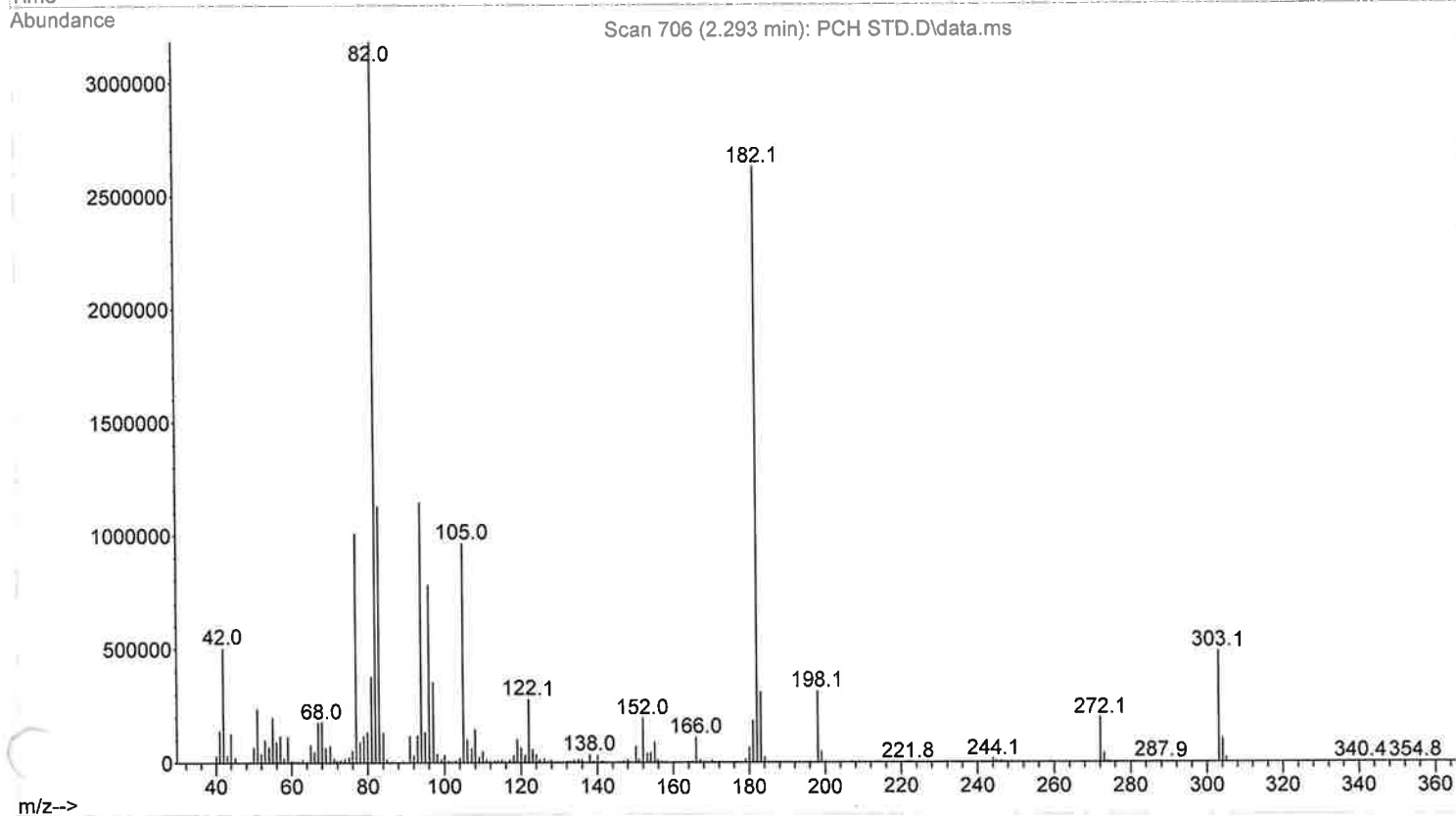
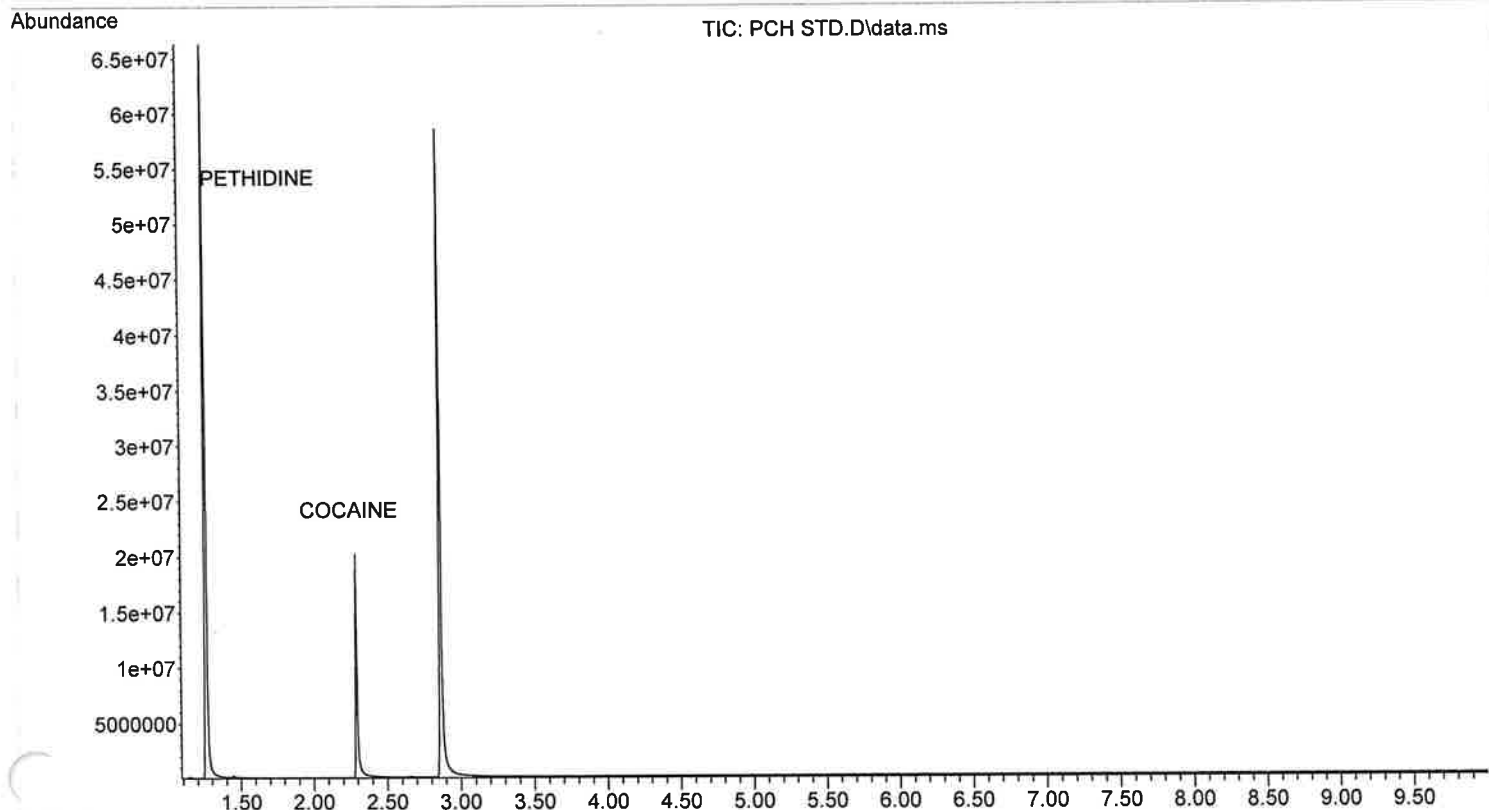
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Info : MEOH
umber: 1



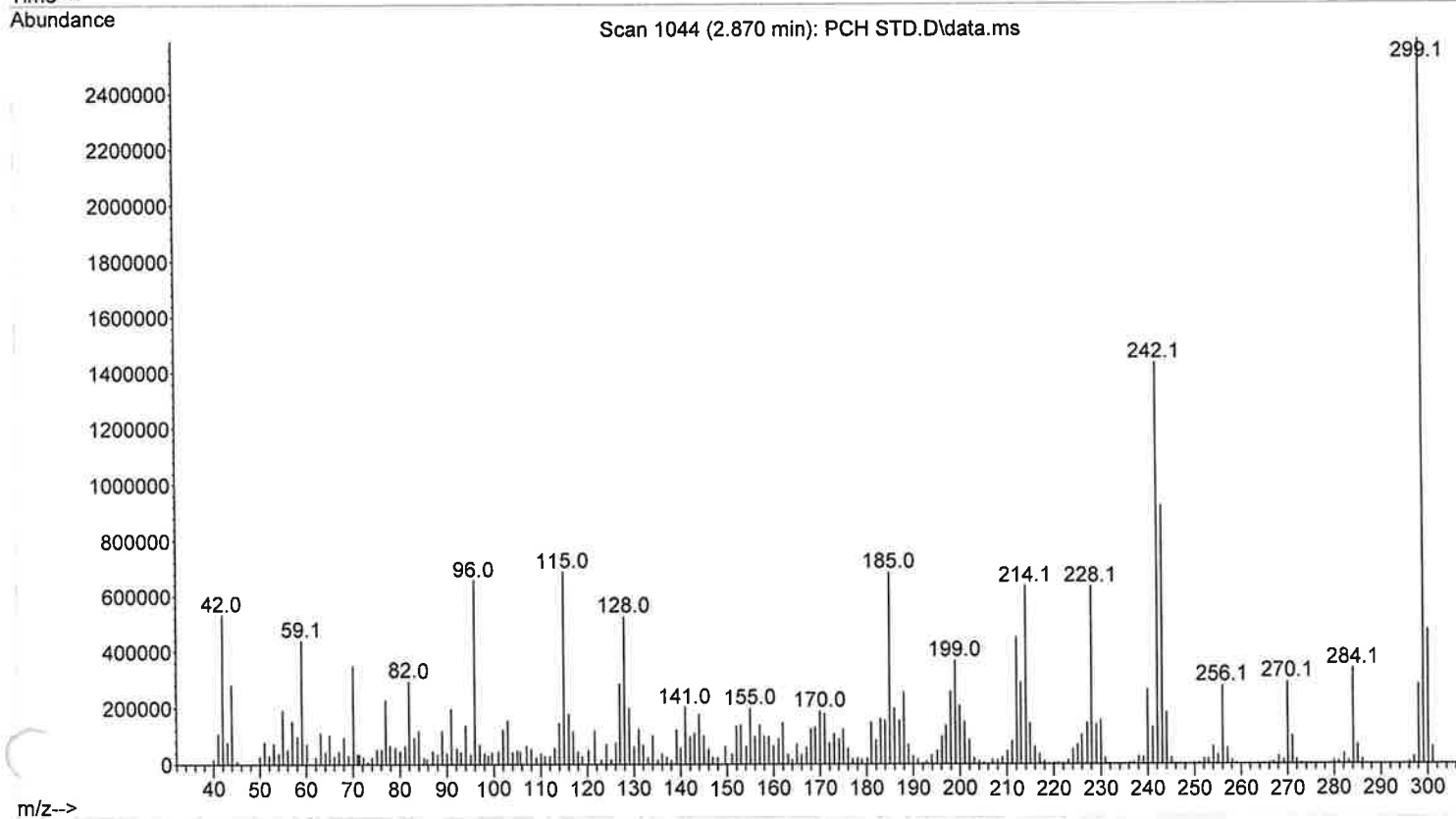
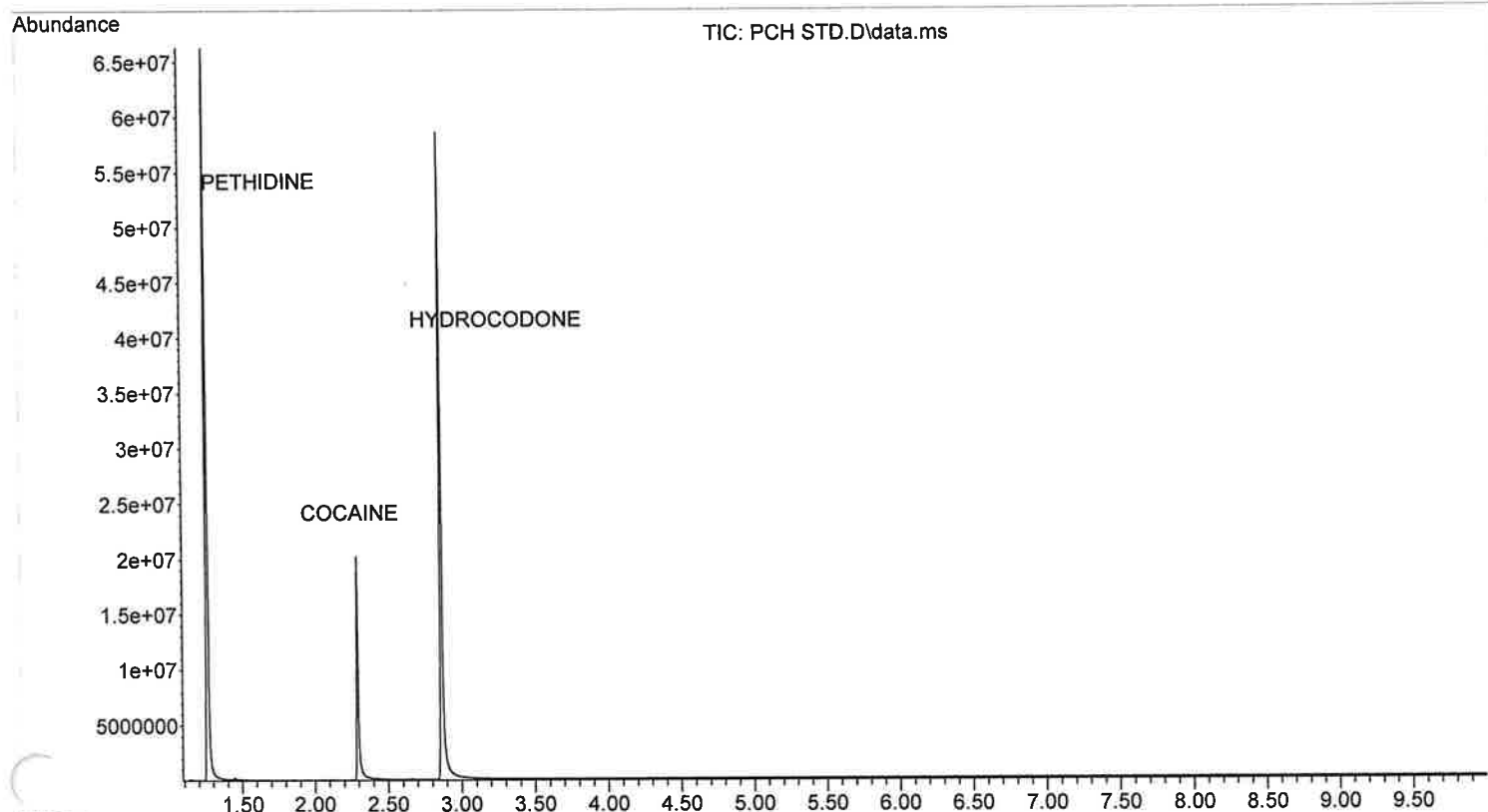
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quired : 19 Apr 2017 13:06 using AcqMethod MSDRUGS200.M
strument : Heisenberg
mple Name: PETHIDINE, COCAINE, HYDROCODONE STD
s Info : MEOH
umber: 1



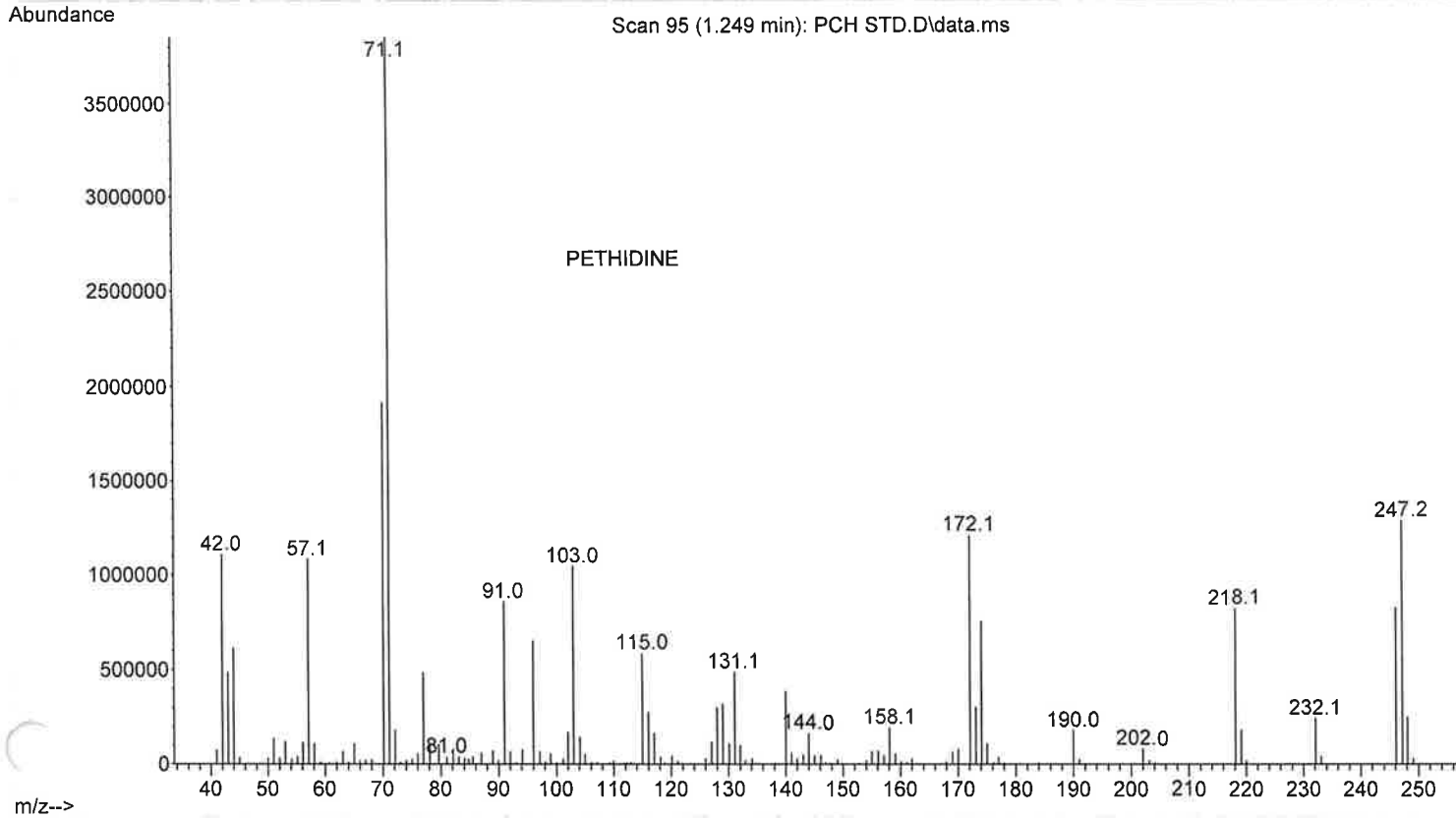
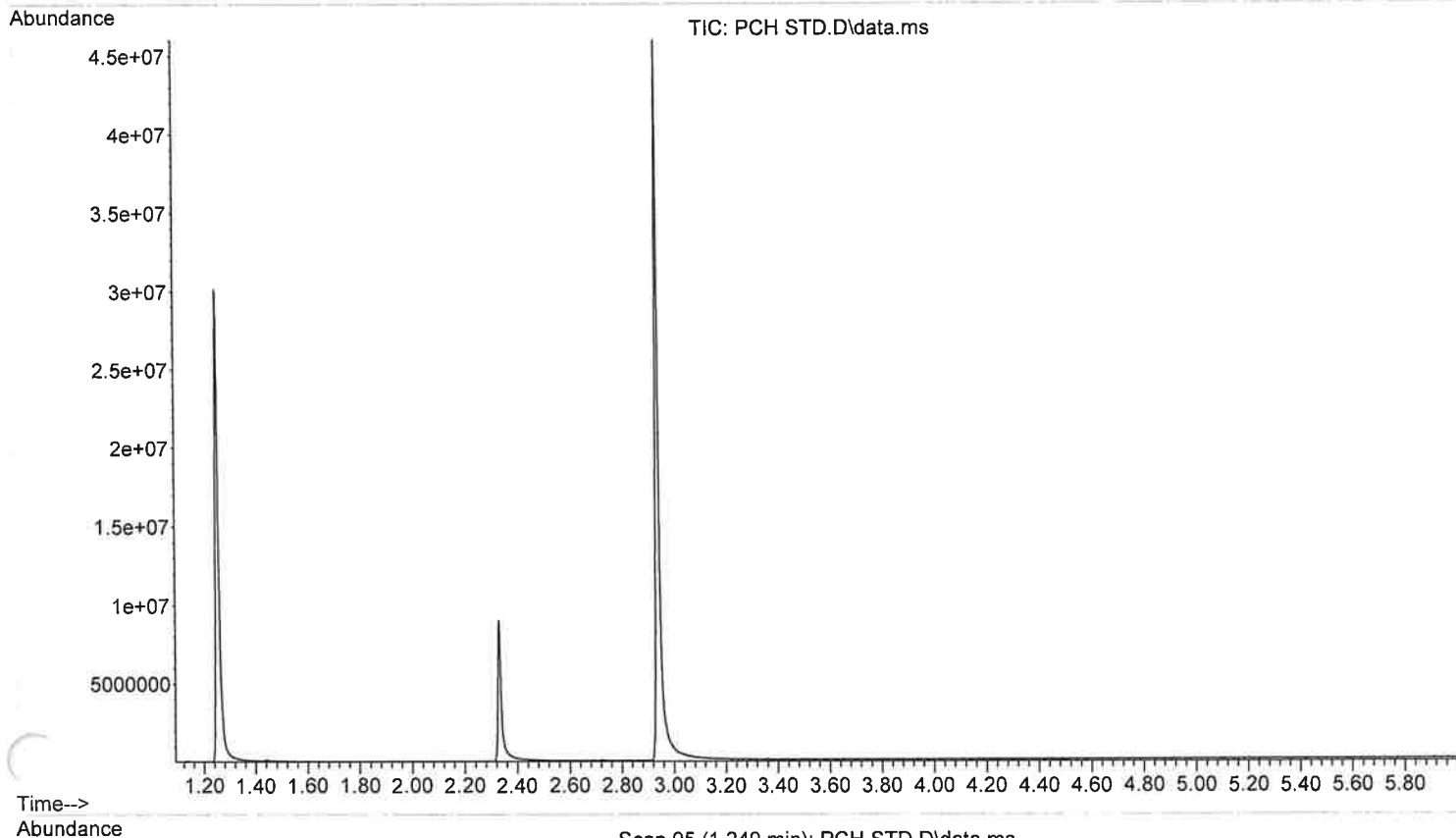
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mple Name: PETHIDINE, COCAINE, HYDROCODONE STD
Info : MEOH
umber: 1



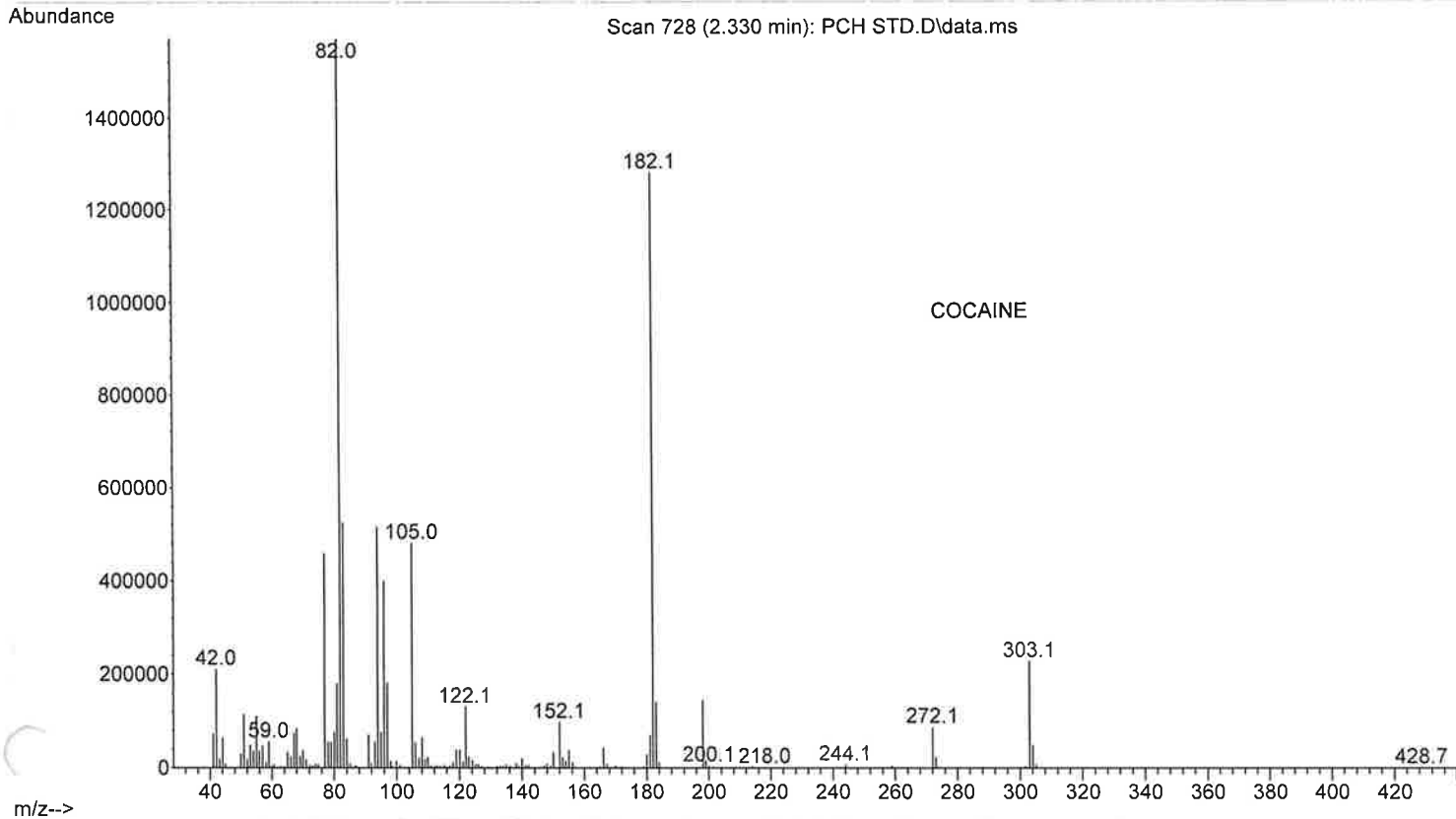
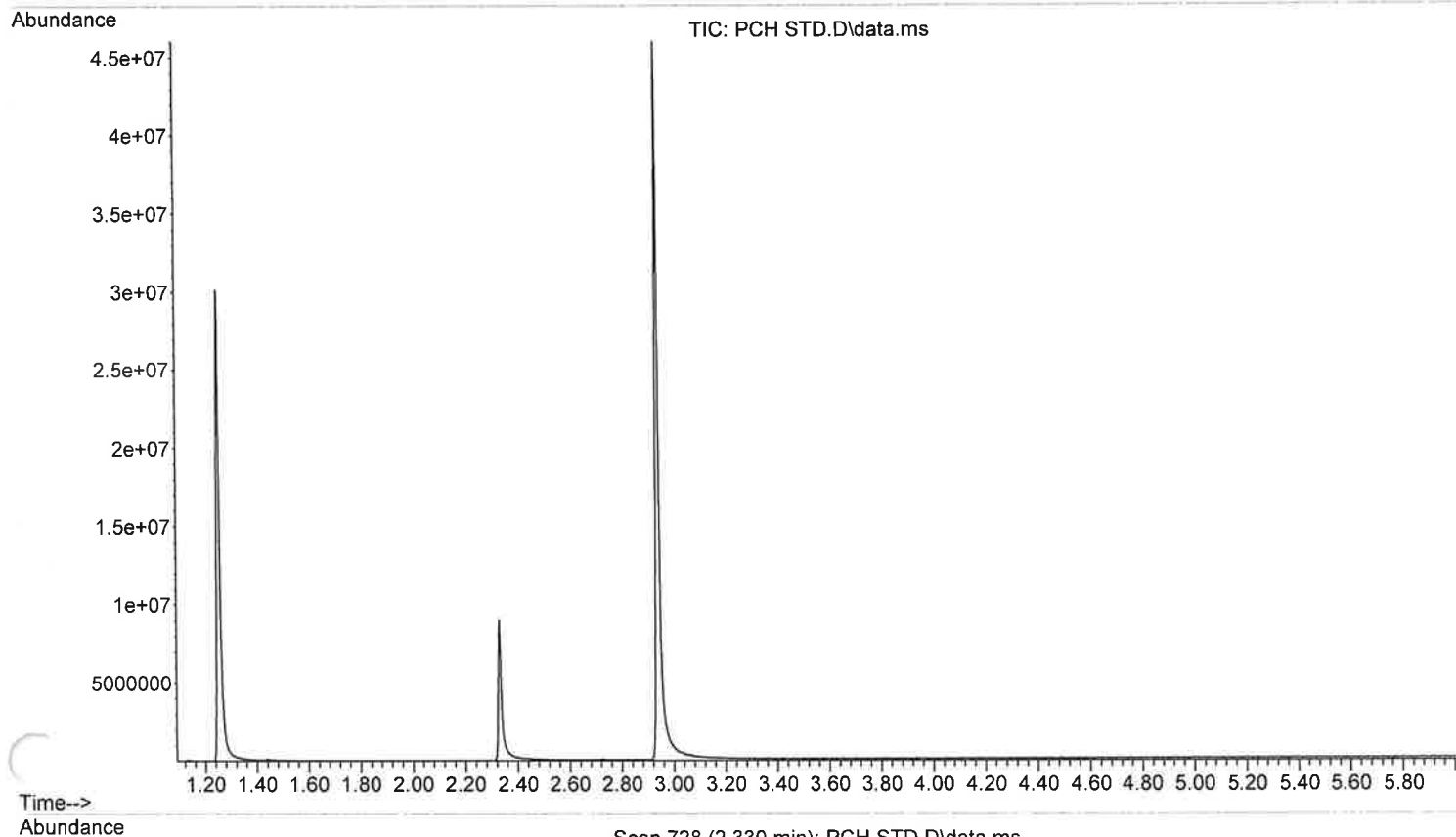
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mple Name: PETHIDINE, COCAINE, HYDROCODONE STD
s Info : MEON
umber: 1



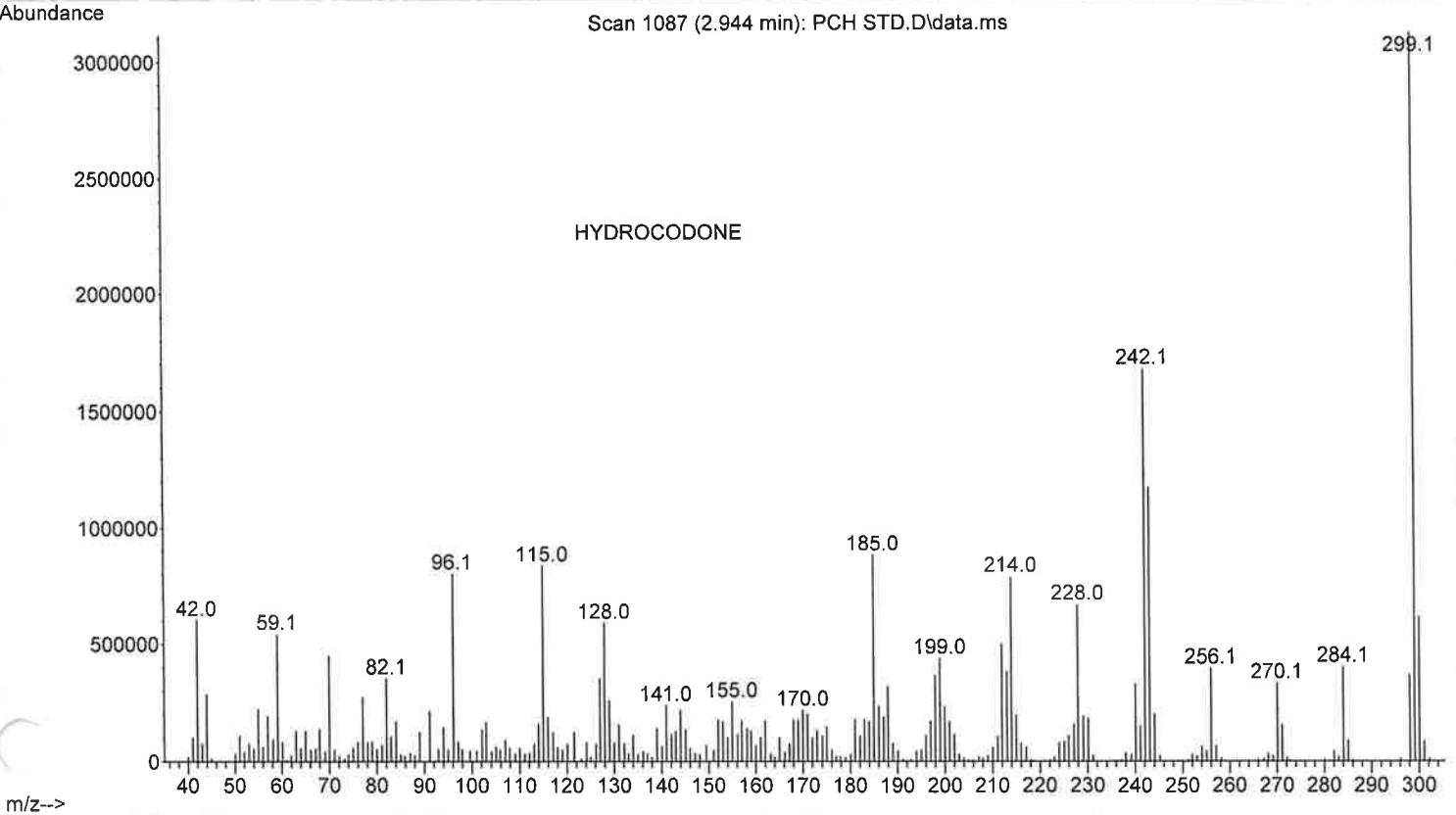
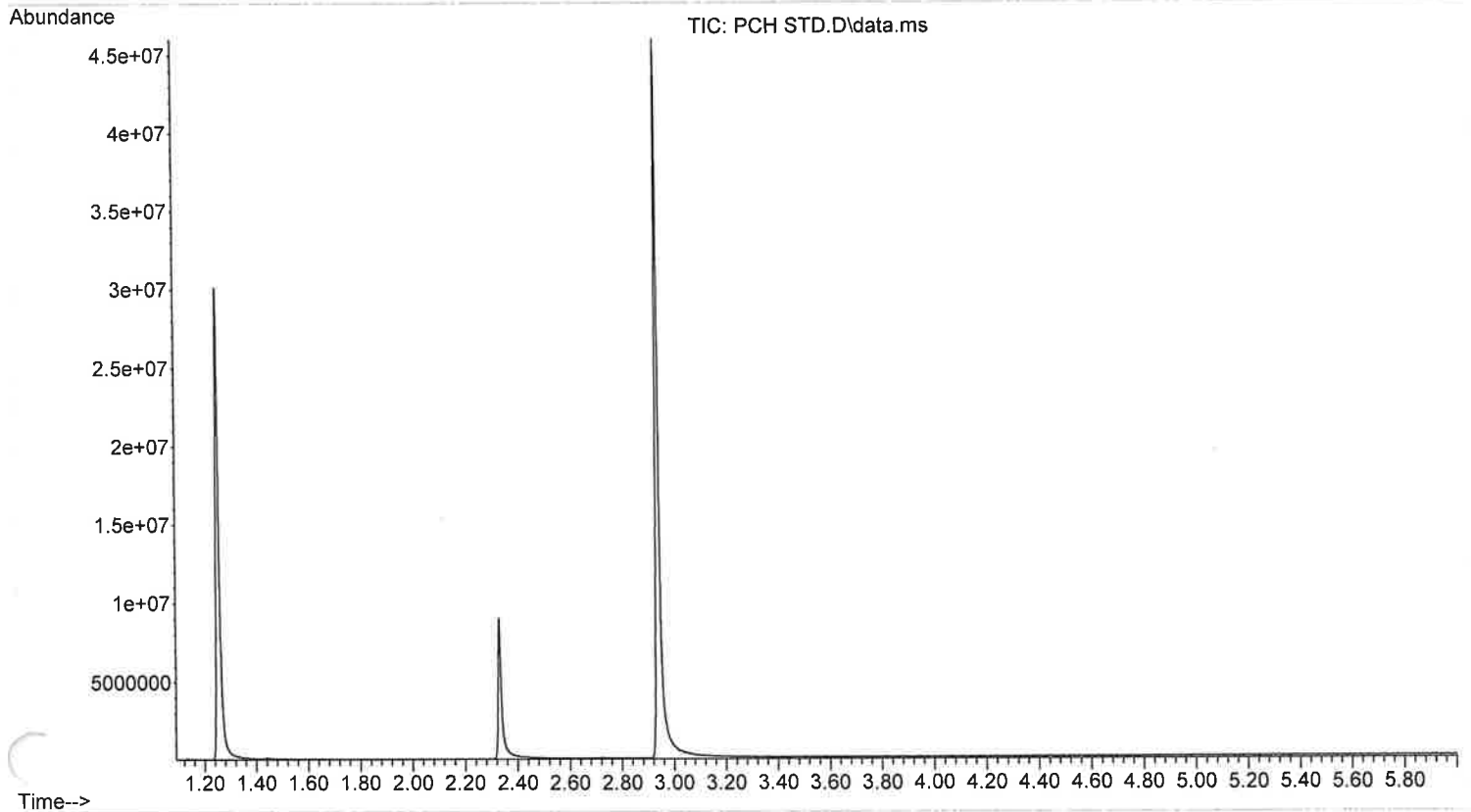
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Acquired : 20 Apr 2017 09:59 using AcqMethod MS200TR.M
Instrument : Heisenberg
Sample Name: PETHIDINE, COCAINE, HYDROCODONE STD
Solvent Info : MEOH
Injection Number: 0



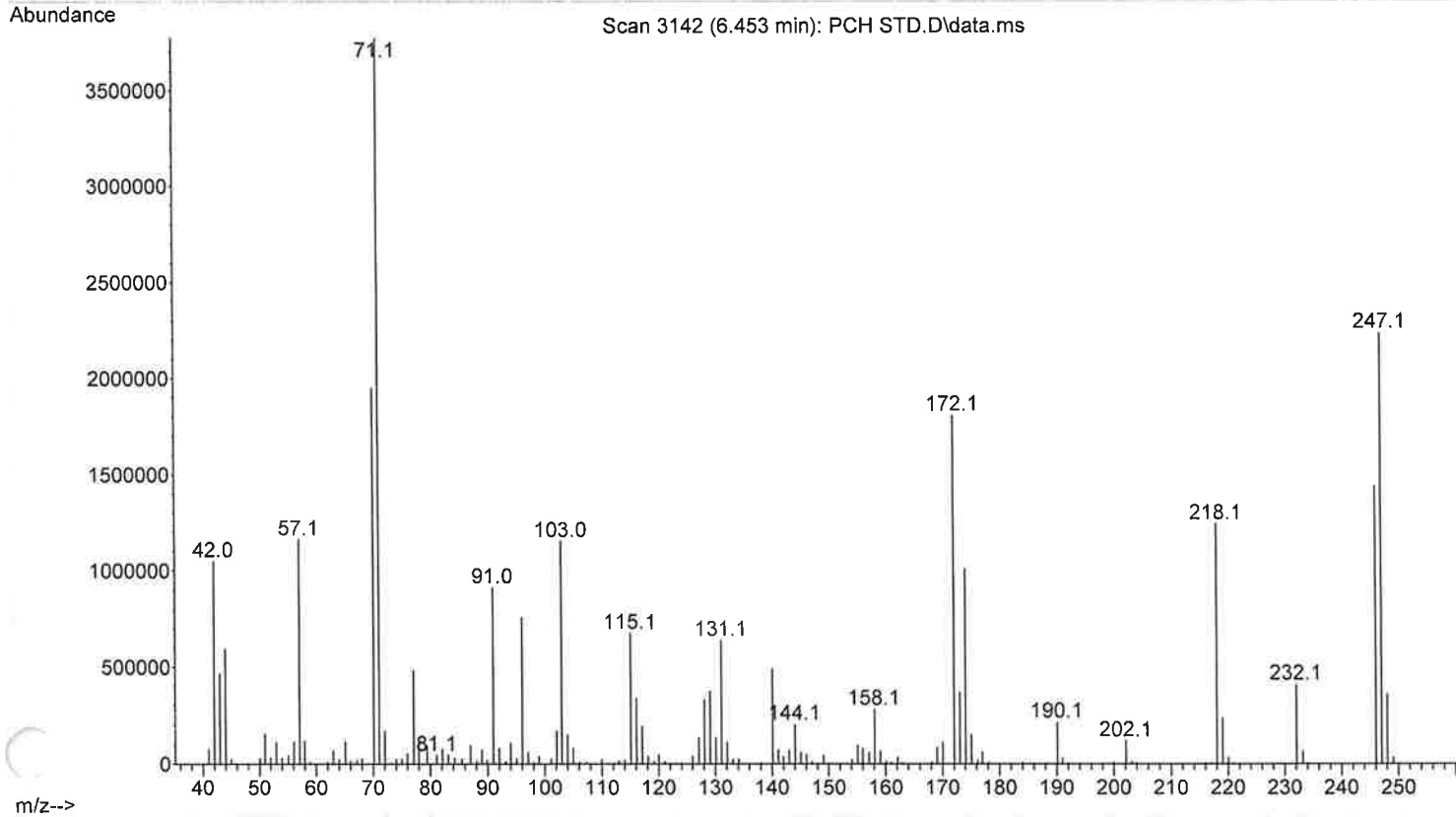
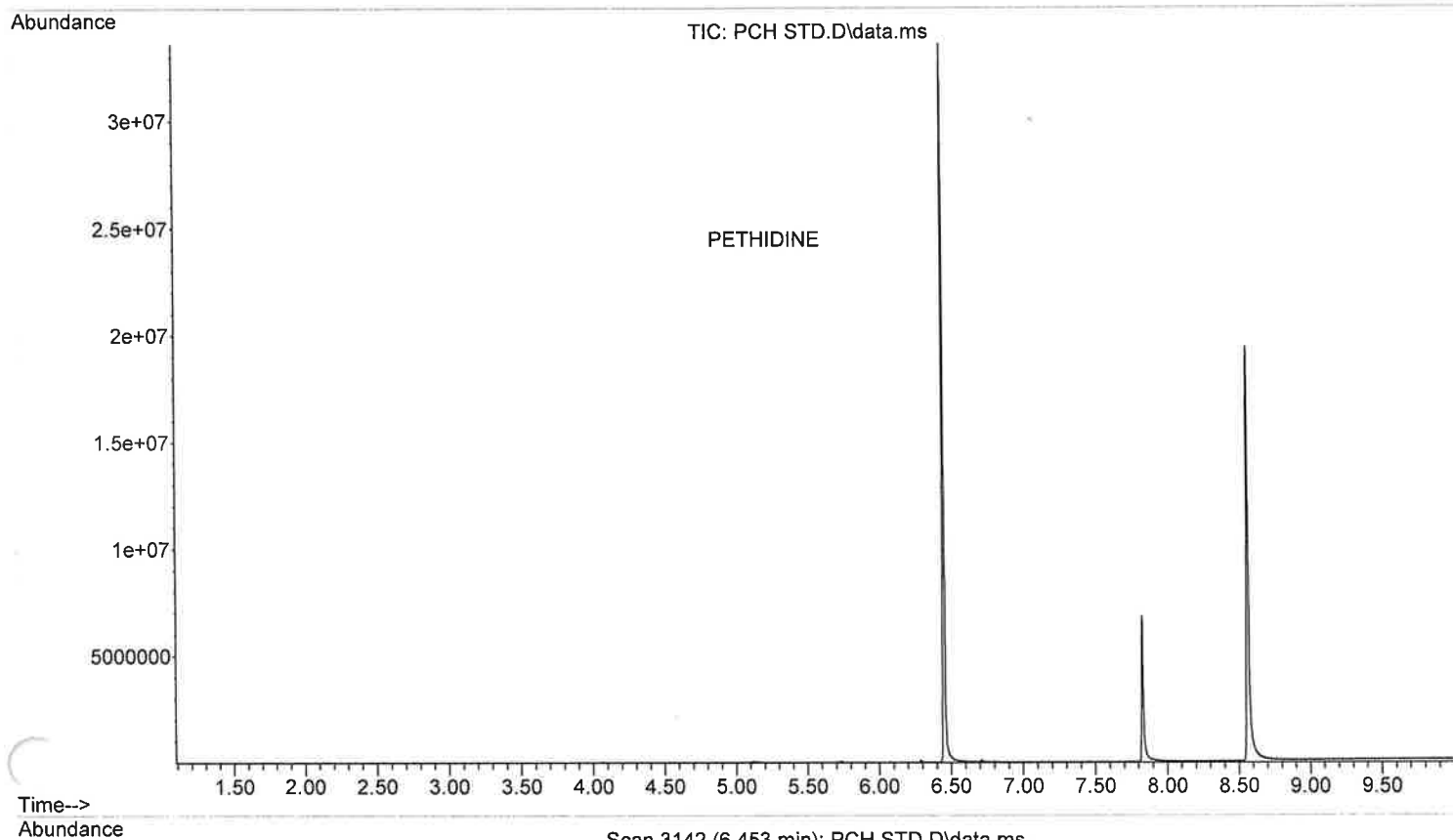
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Instrument : Heisenberg
Sample Name: PETHIDINE, COCAINE, HYDROCODONE STD
Solvent Info : MEOH
Injection Number: 0



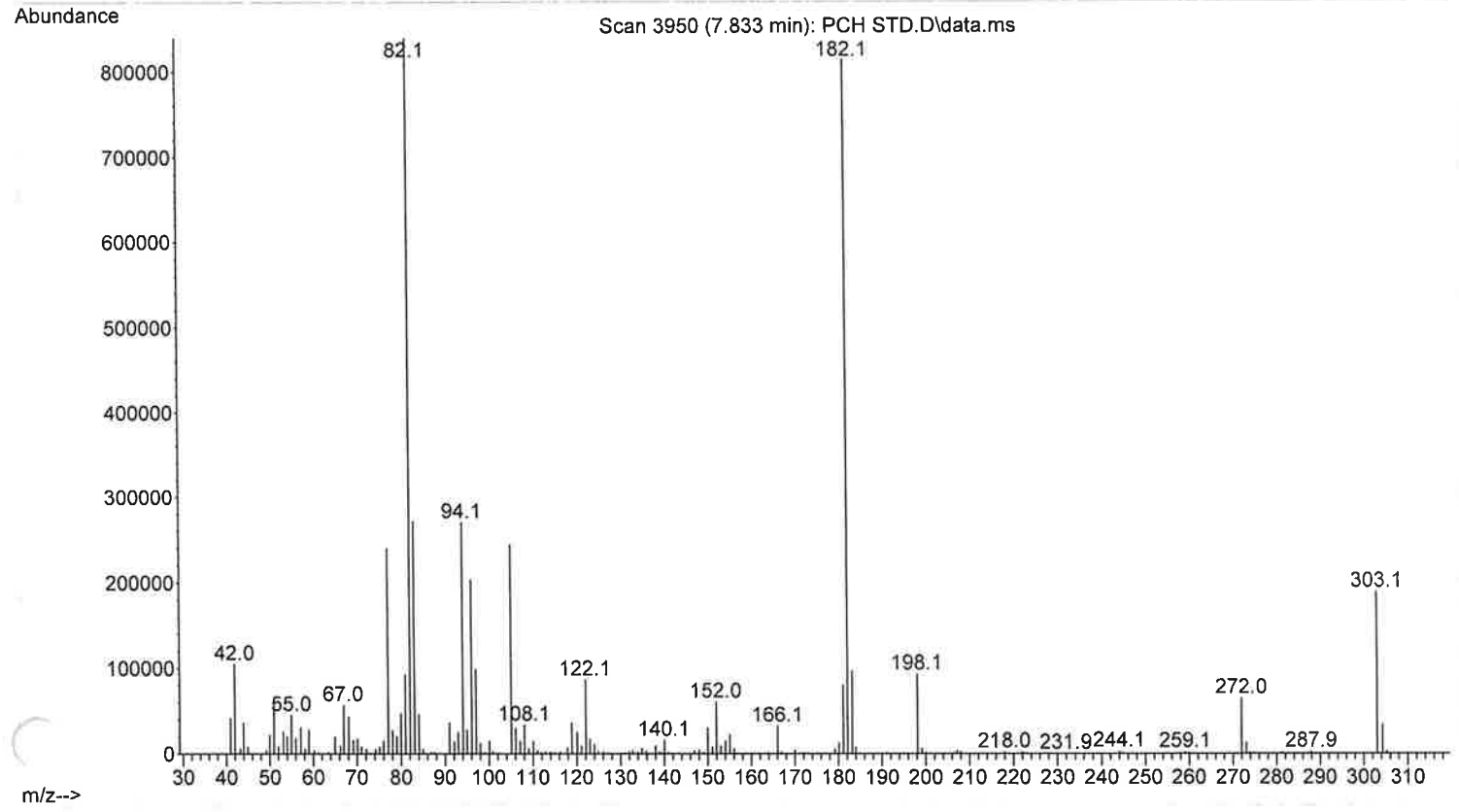
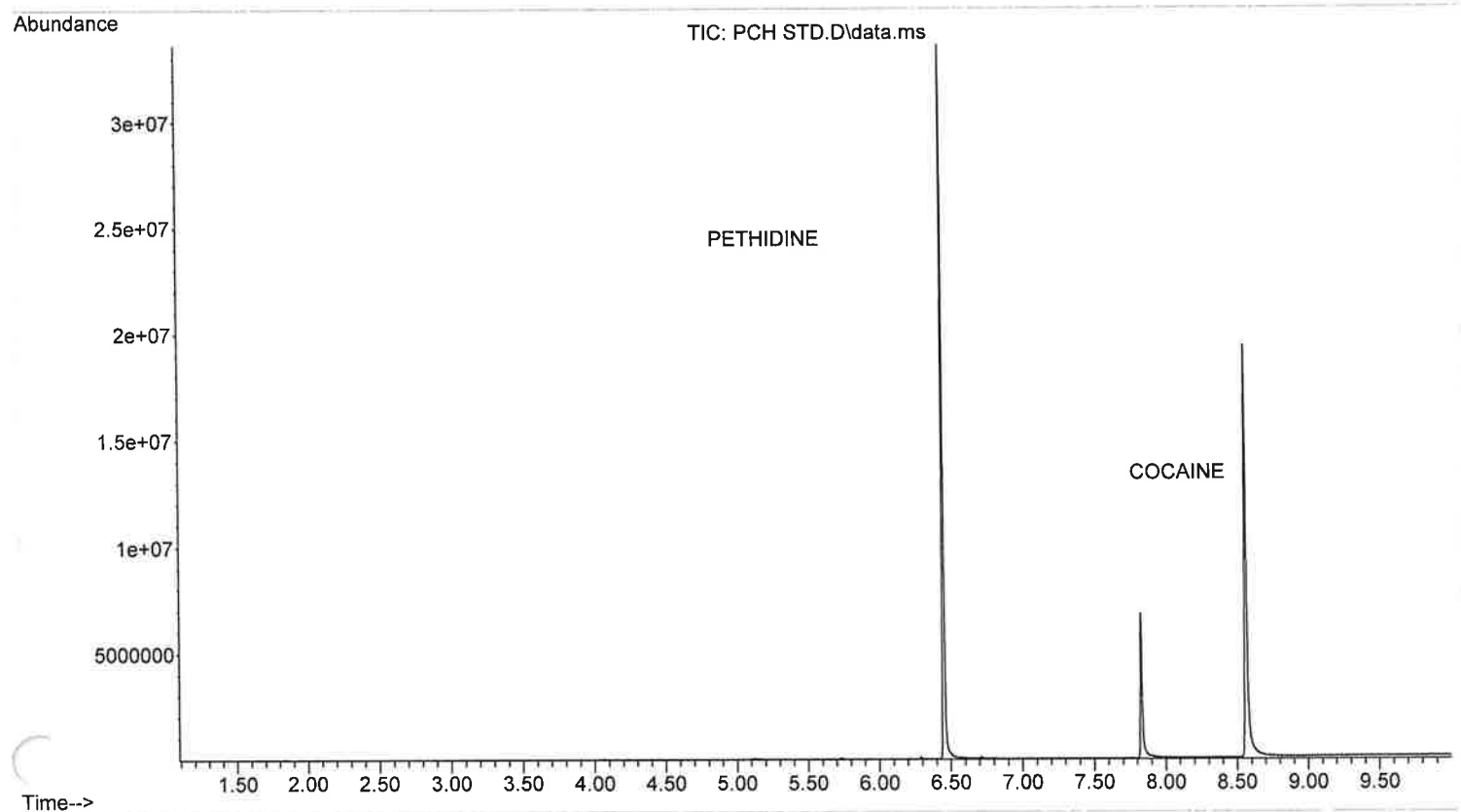
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Instrument : Heisenberg
Sample Name: PETHIDINE, COCAINE, HYDROCODONE STD
Solvent Info : MEOH
Injection Number: 0



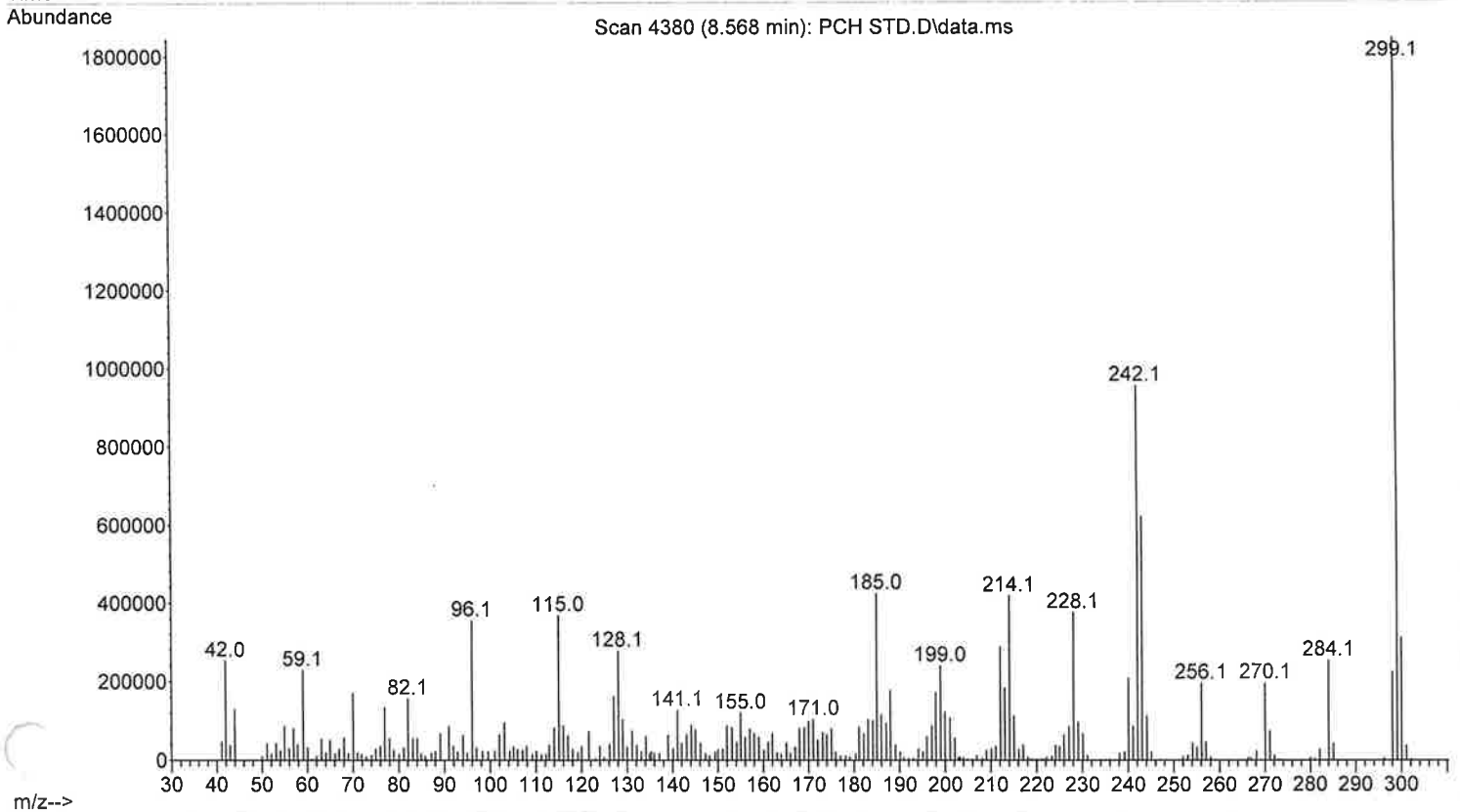
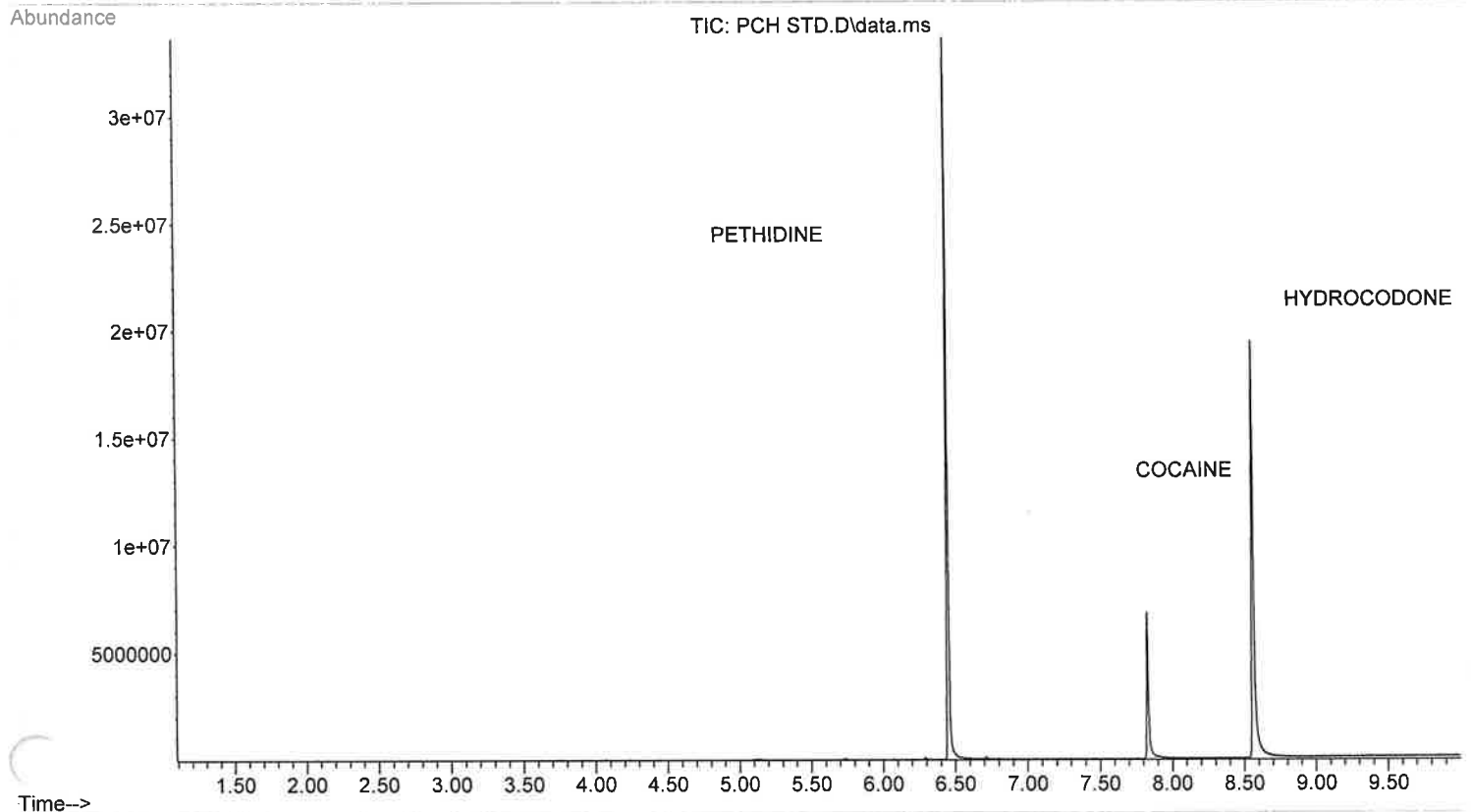
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ample Name:
isa Info : MEOH
il umber: 0



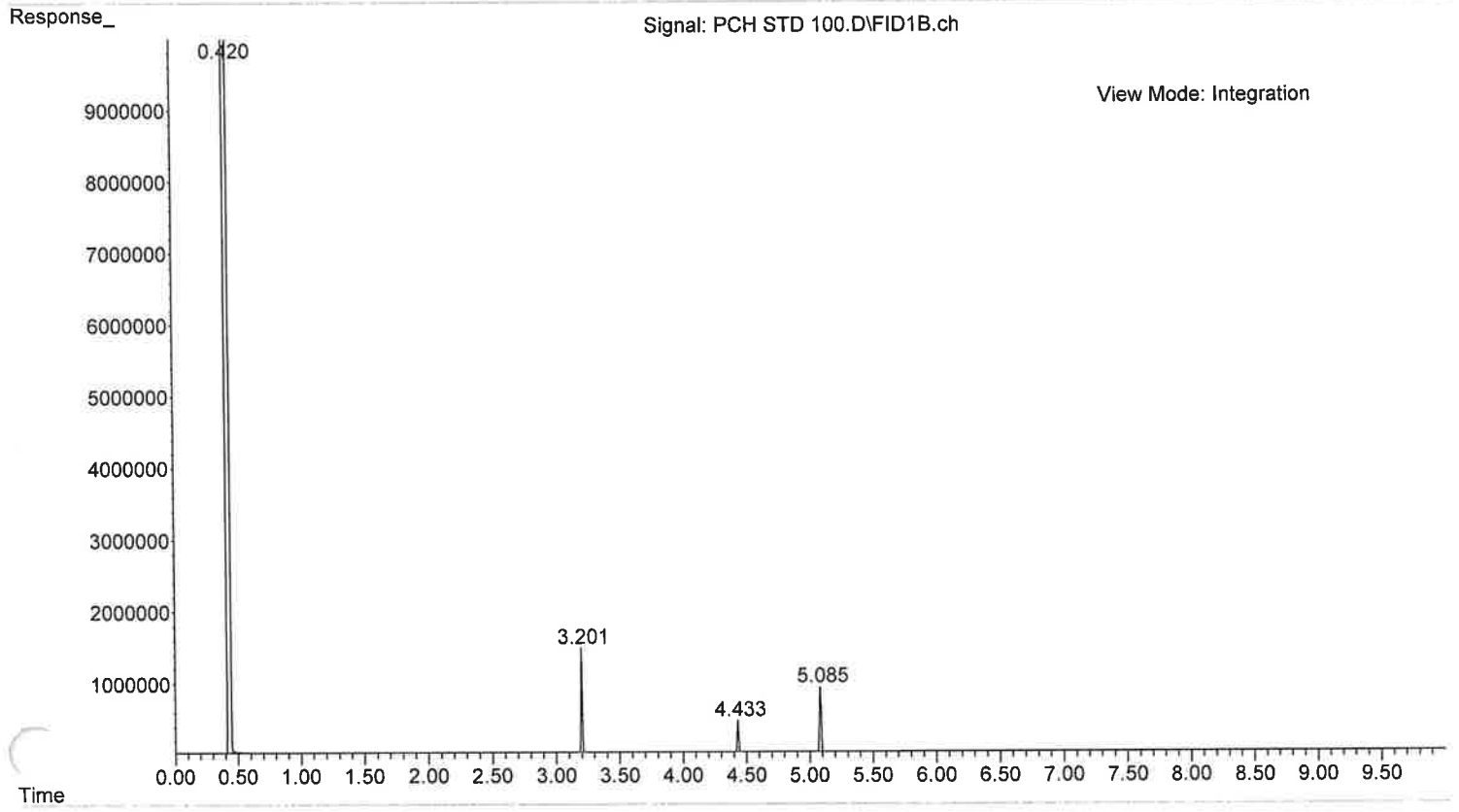
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Sample Info : MEOH
Sample Number : 0



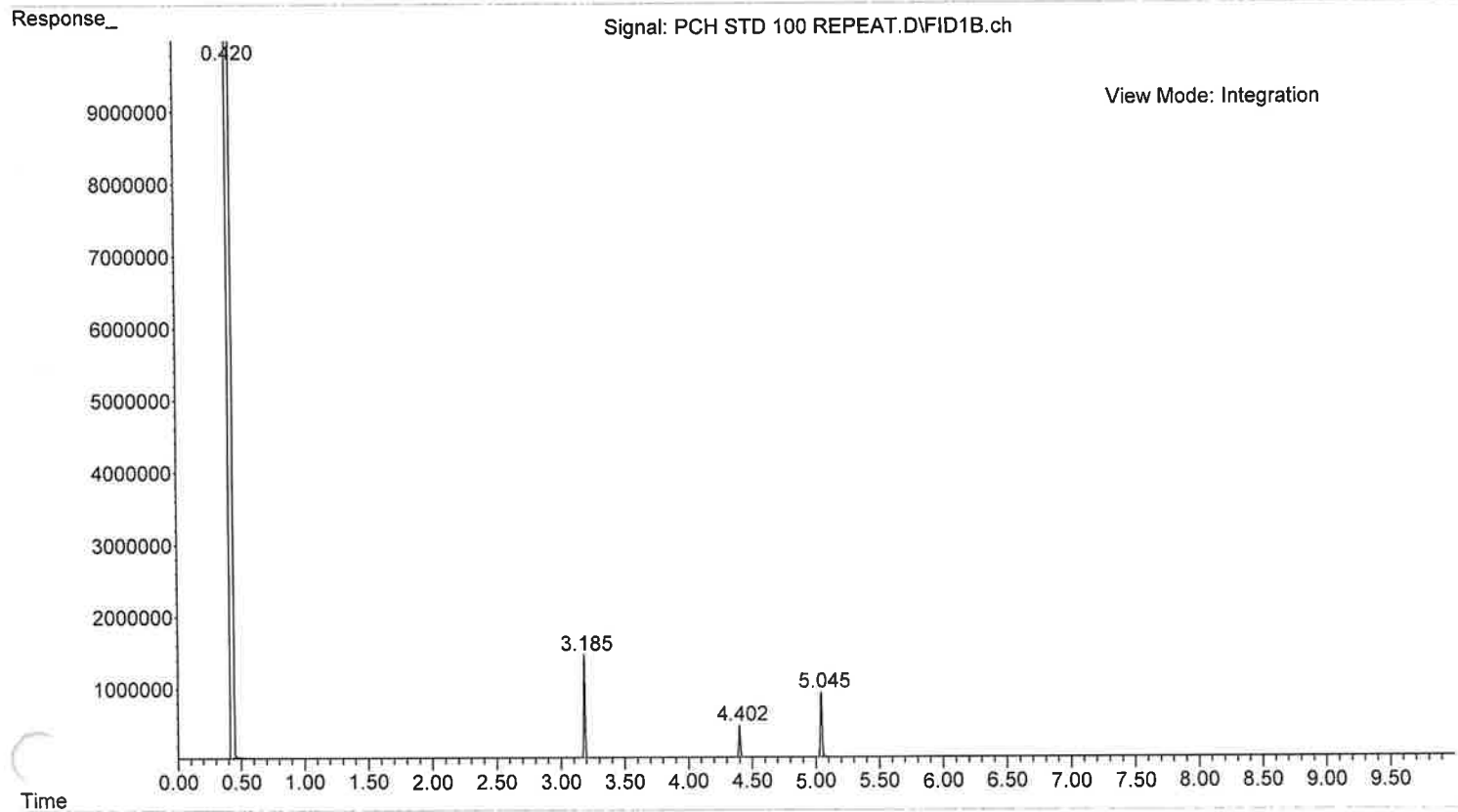
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Sample Info : MEOH
Sample Number : 0



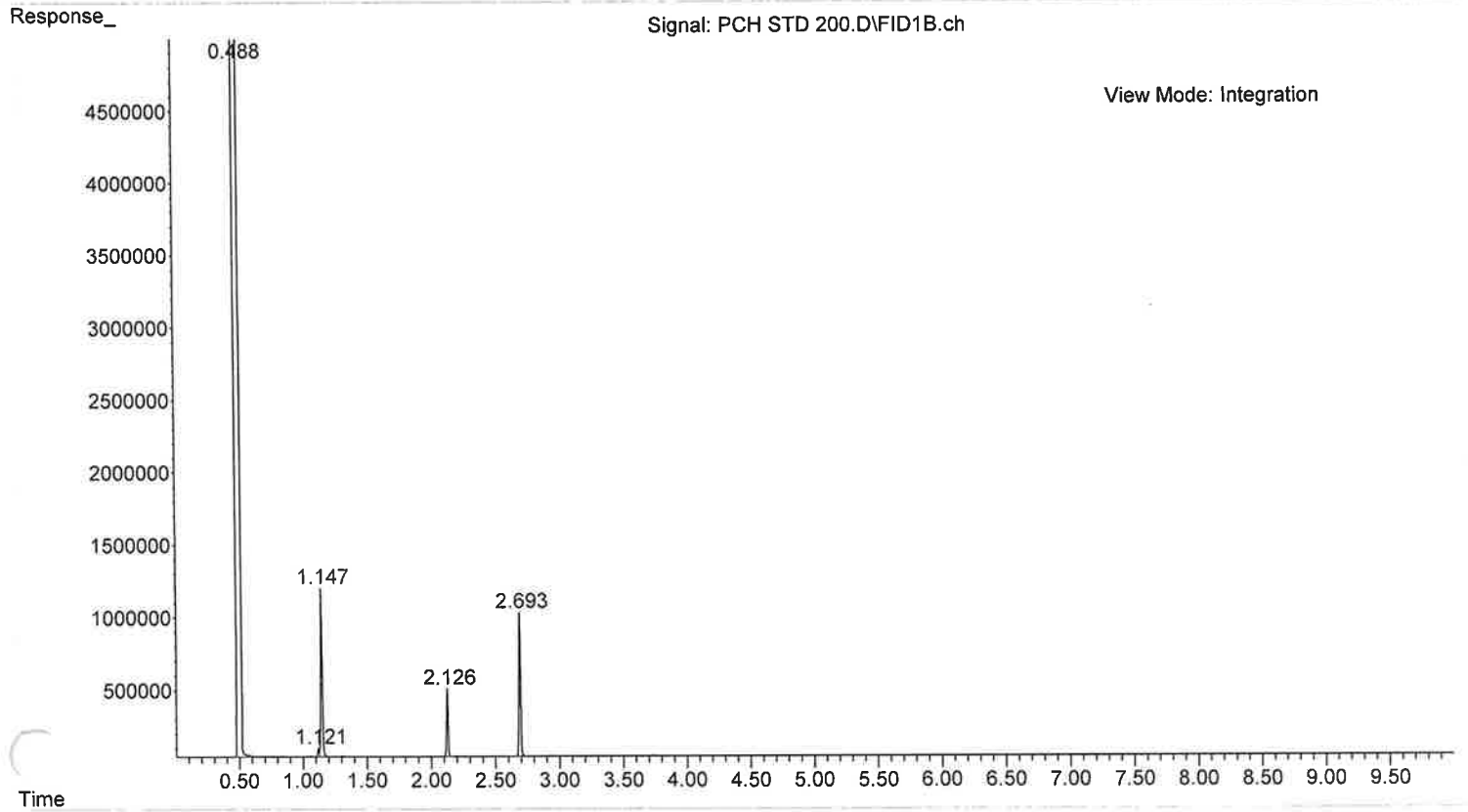
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. 100.D
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quired : 01 May 2017 12:50 using AcqMethod ASGC100.M
Name: PETHIDINE, COCAINE, HYDROCODONE
nfo : MEOH



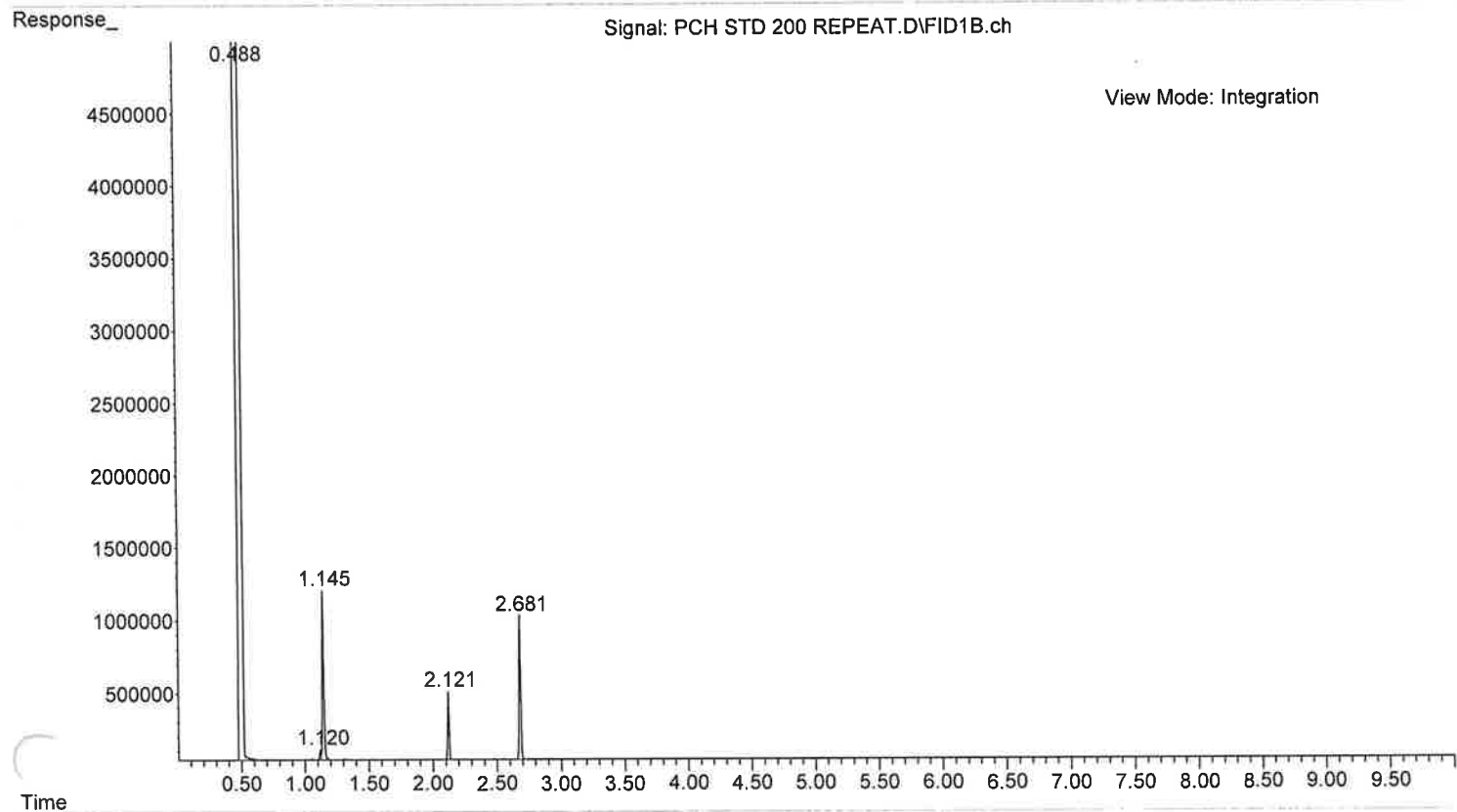
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nfo : MEOH



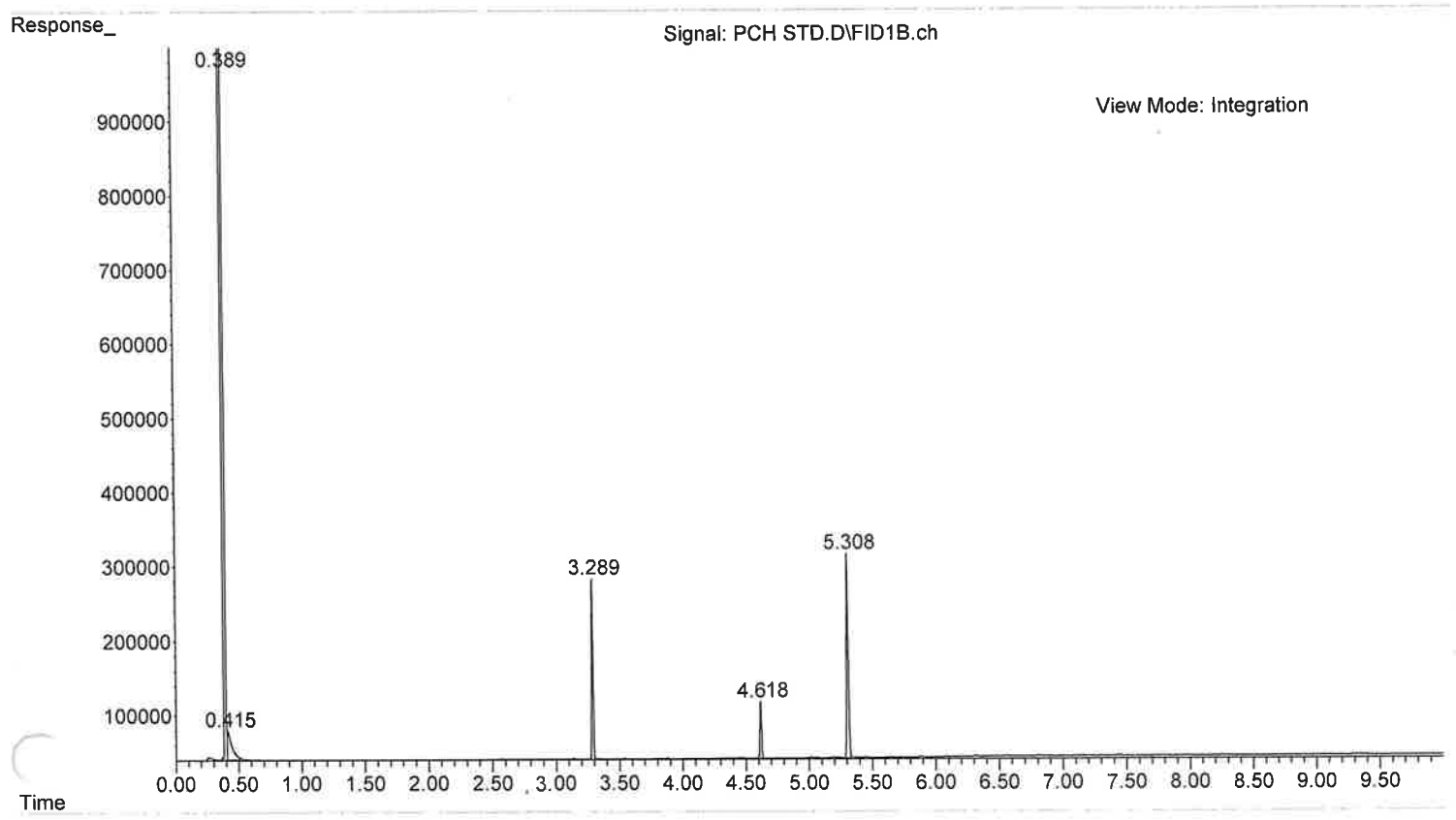
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nfo : MEON



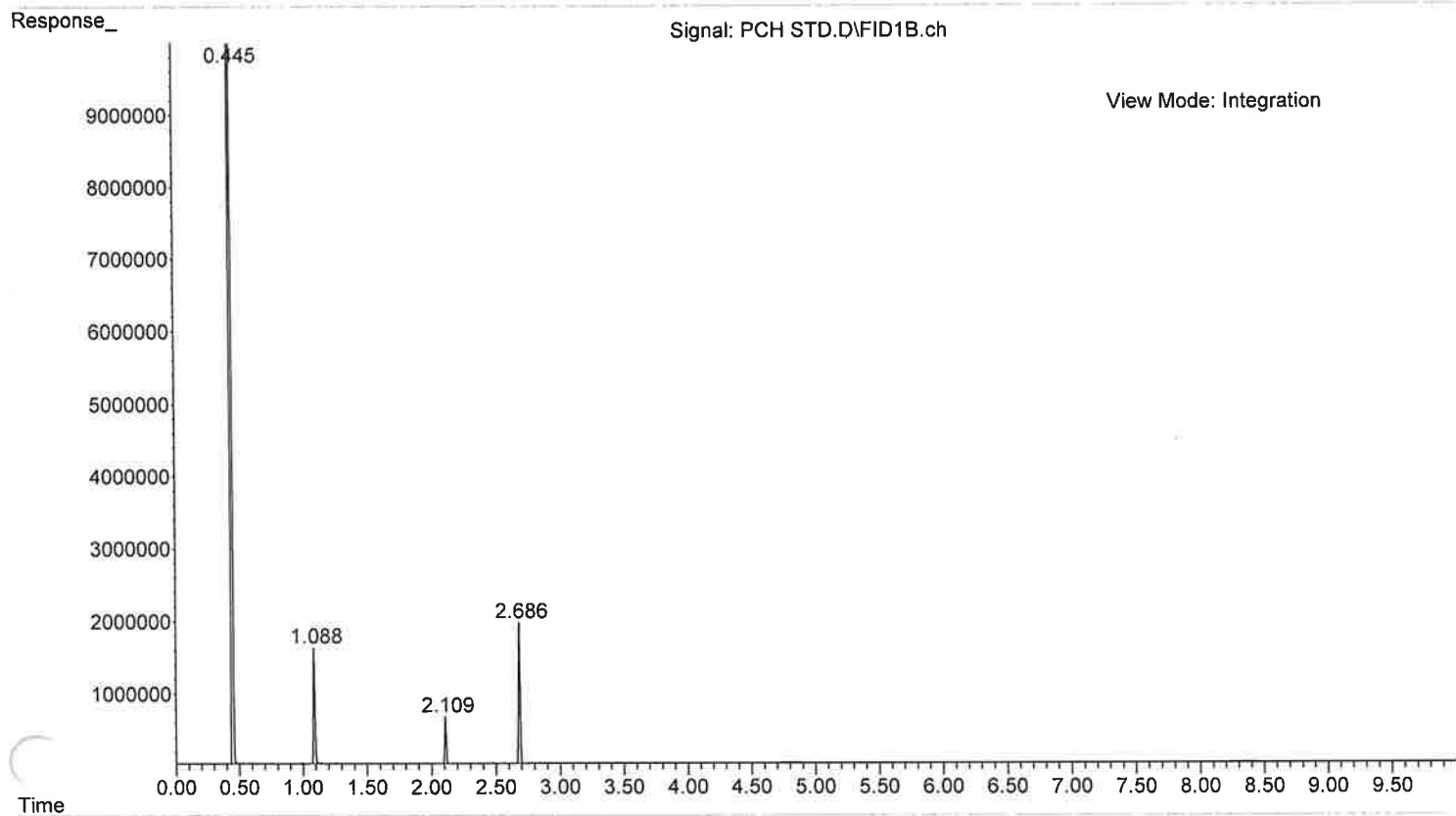
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Name: PETHIDINE, COCAINE, HYDROCODONE
Info : MEOH



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erator : EMC
quired : 02 May 2017 13:39 using AcqMethod GC100.M
strument : Heisenberg
mple Name: PETHIDINE, COCAINE, HYDROCODONE
s. nfo : MEON
a umber: 1



File :D:\MassHunter\GCMS\1\data\Validation\GC200\PCH STD.D
Operator : EMC
Acquired : 03 May 2017 13:10 using AcqMethod GC200.M
Instrument : Heisenberg
Sample Name: PETHIDINE, COCAINE, HYDROCODONE
Solvent Info : MEOH
Injection Number: 1



Forensic Chemistry Performance Verification

Gas Chromatograph (Model 7890B Serial Number CN16483010)

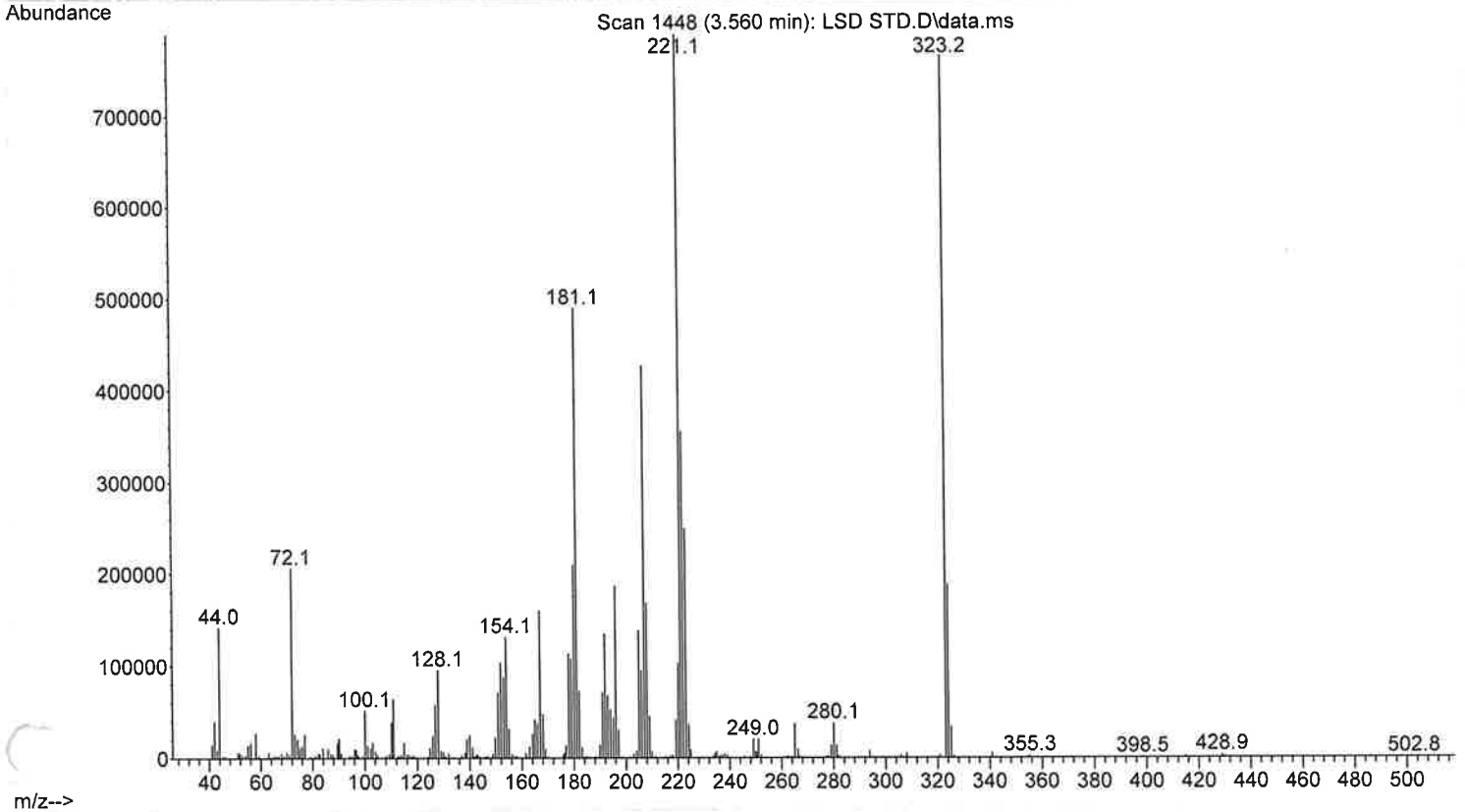
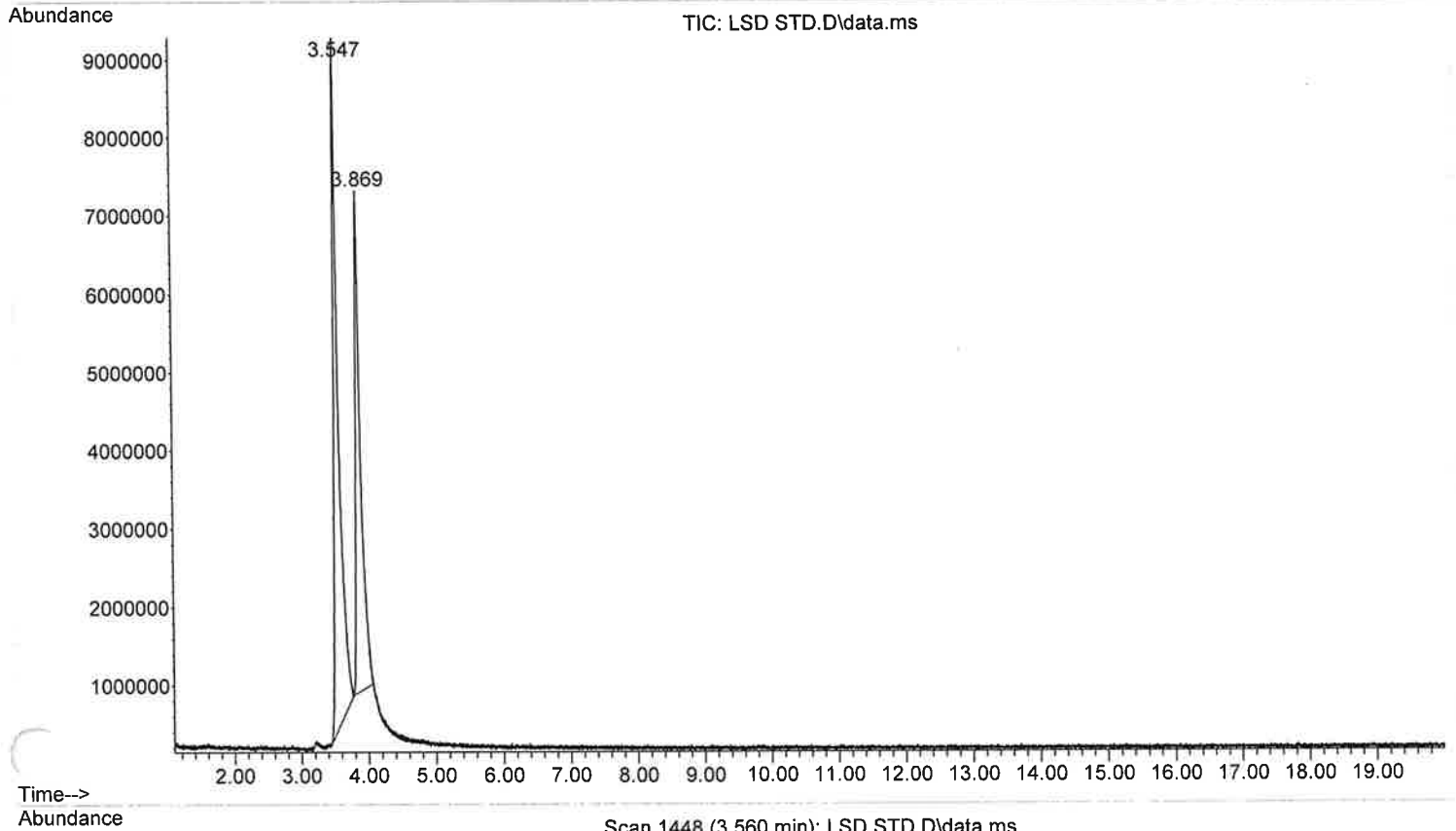
Mass Spectrometer (Model 5977B Serial Number US1648M021)

TBI FCU ID – Heisenberg

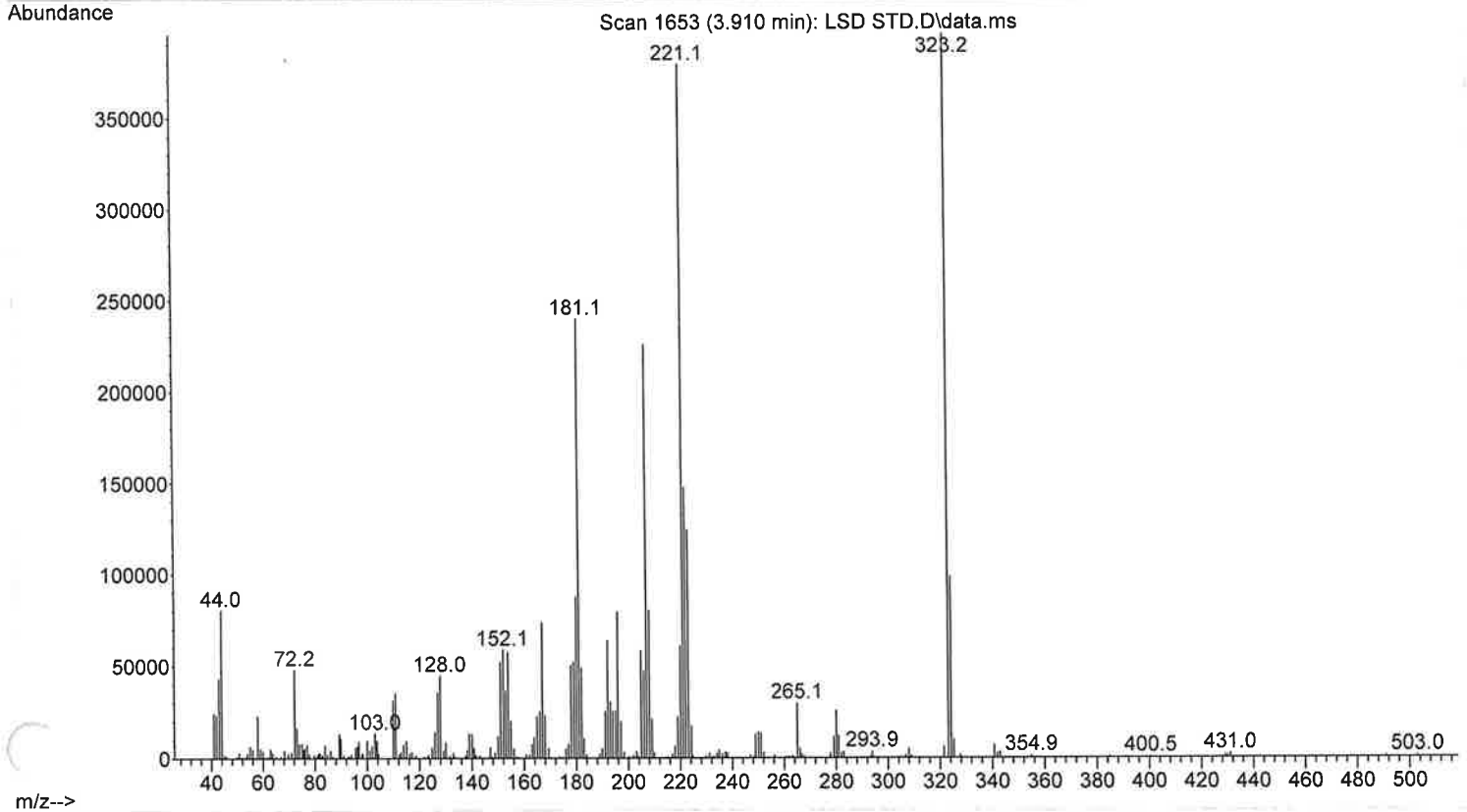
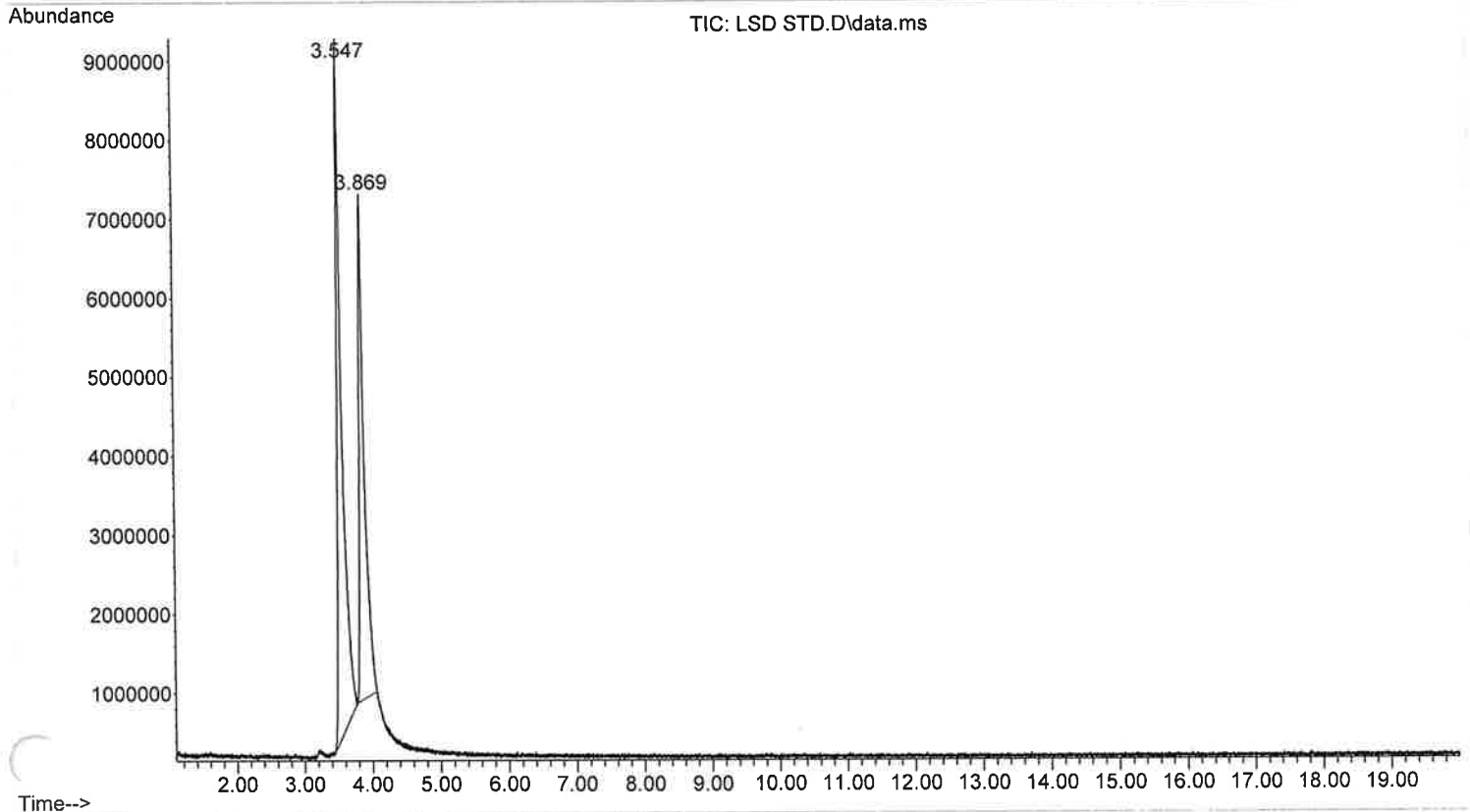
- *LSD and LAMPA Standard RT Comparisons*

Method	Compound	RT	Acceptable variance ($\pm 2\%$)	Repeat RT
ASMS280ISO	LSD	3.547	± 0.071	3.558
	LAMPA	3.869	± 0.077	3.878
ASGC280ISO	LSD	2.947	± 0.059	2.947
	LAMPA	3.188	± 0.064	3.191

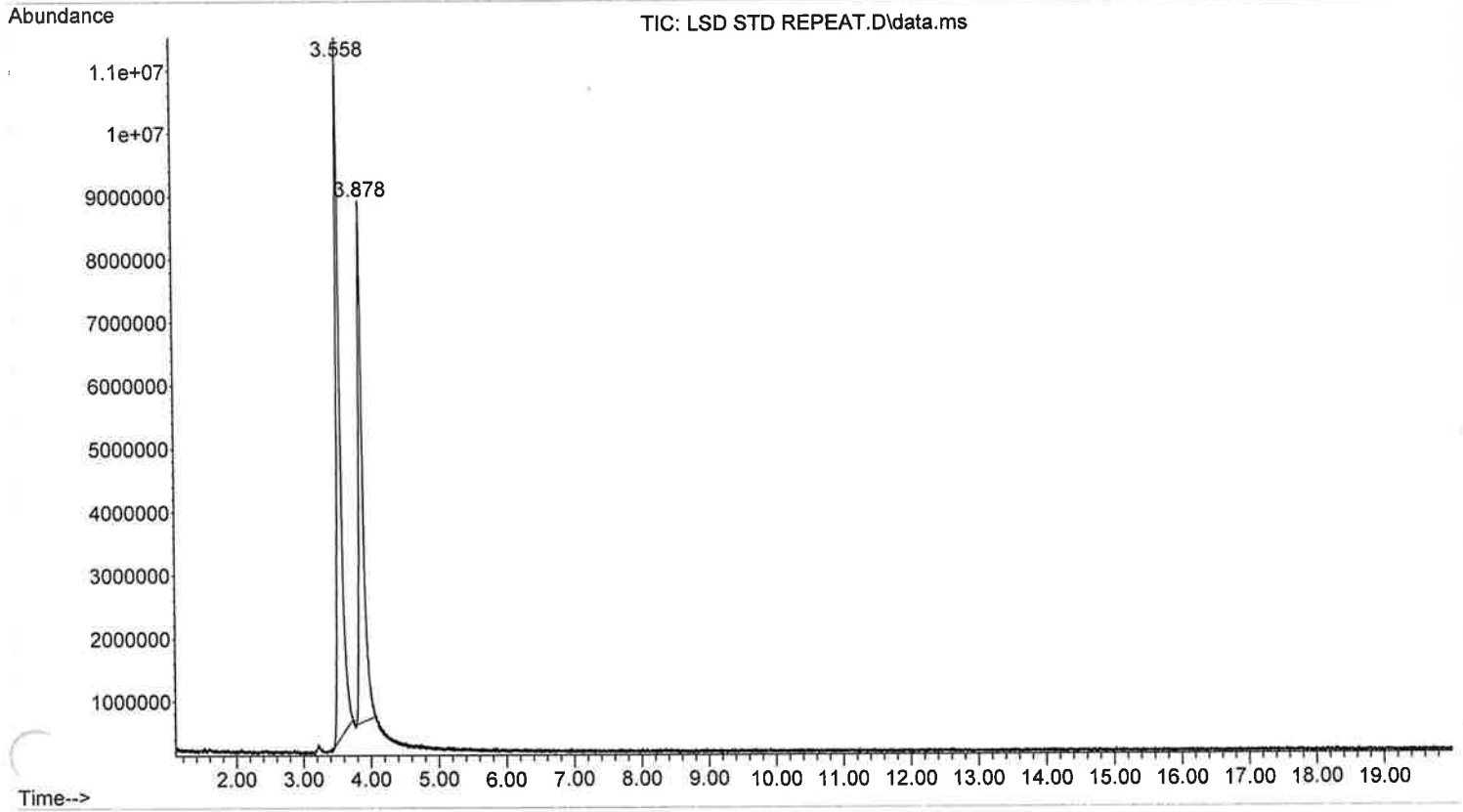
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strument : Heisenberg
mple Name: LSD/LAMPA
se Info : MEOH
umber: 5



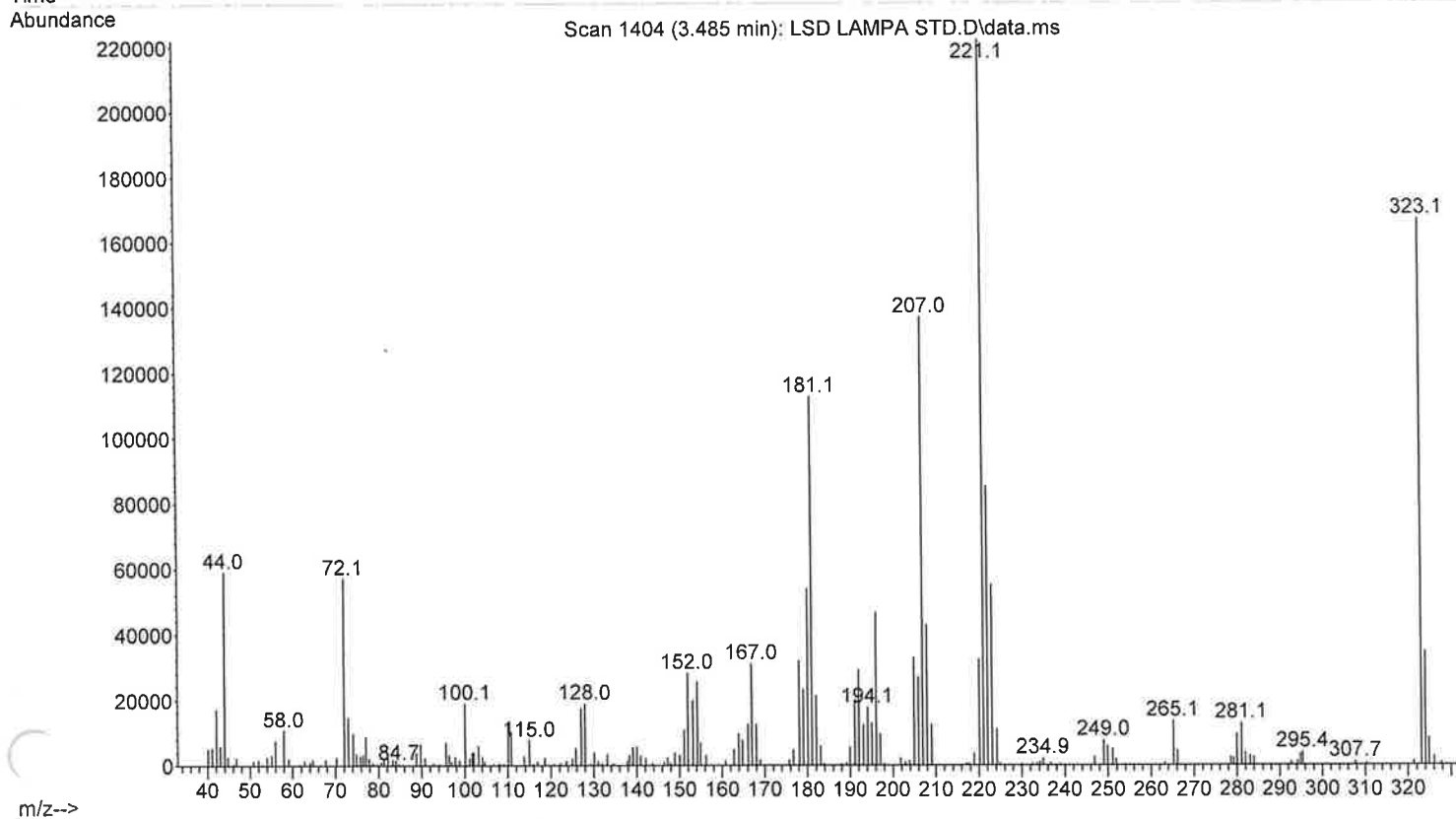
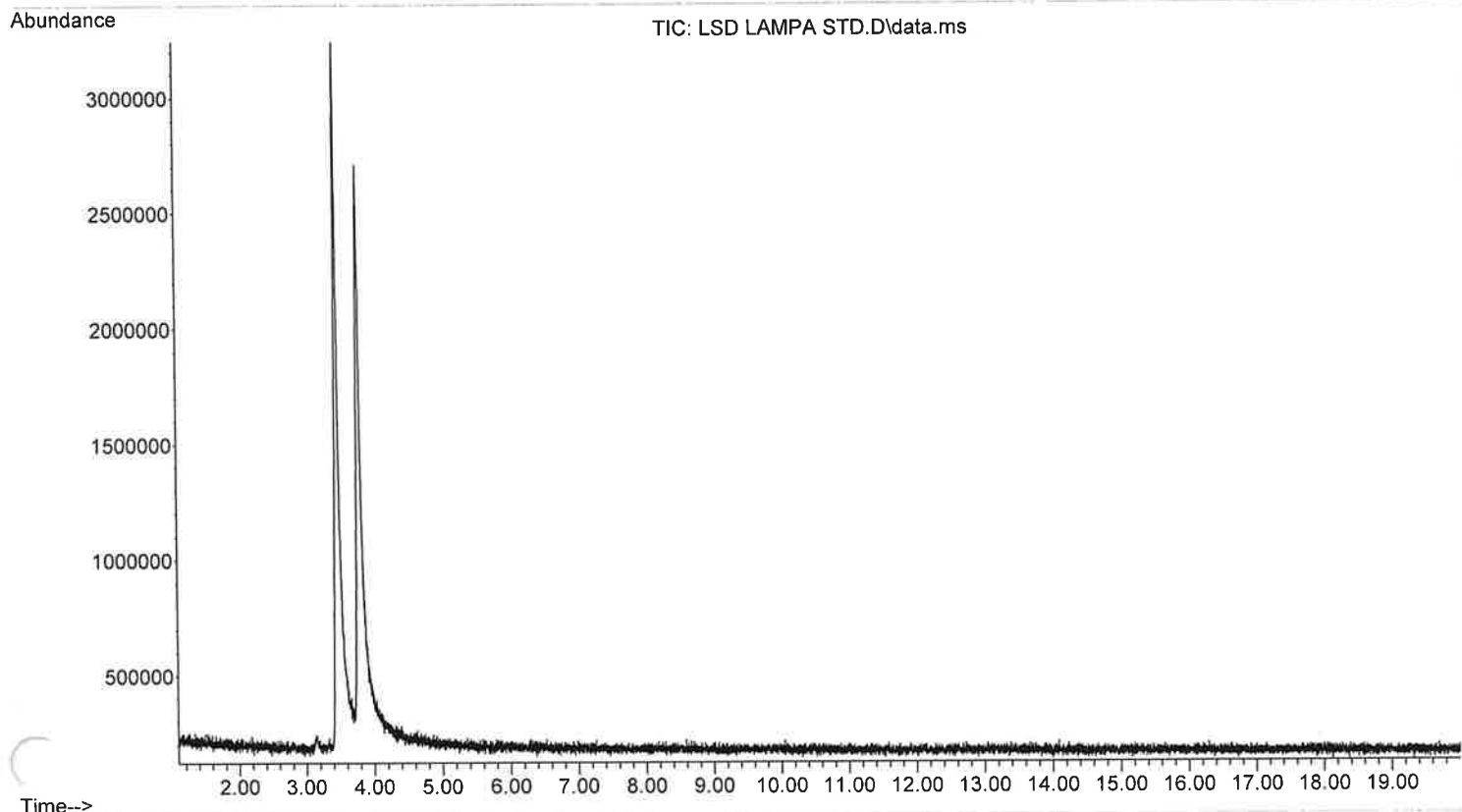
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strument : Heisenberg
mple Name: LSD/LAMPA
s-Tnfo : MEOH
umber: 5



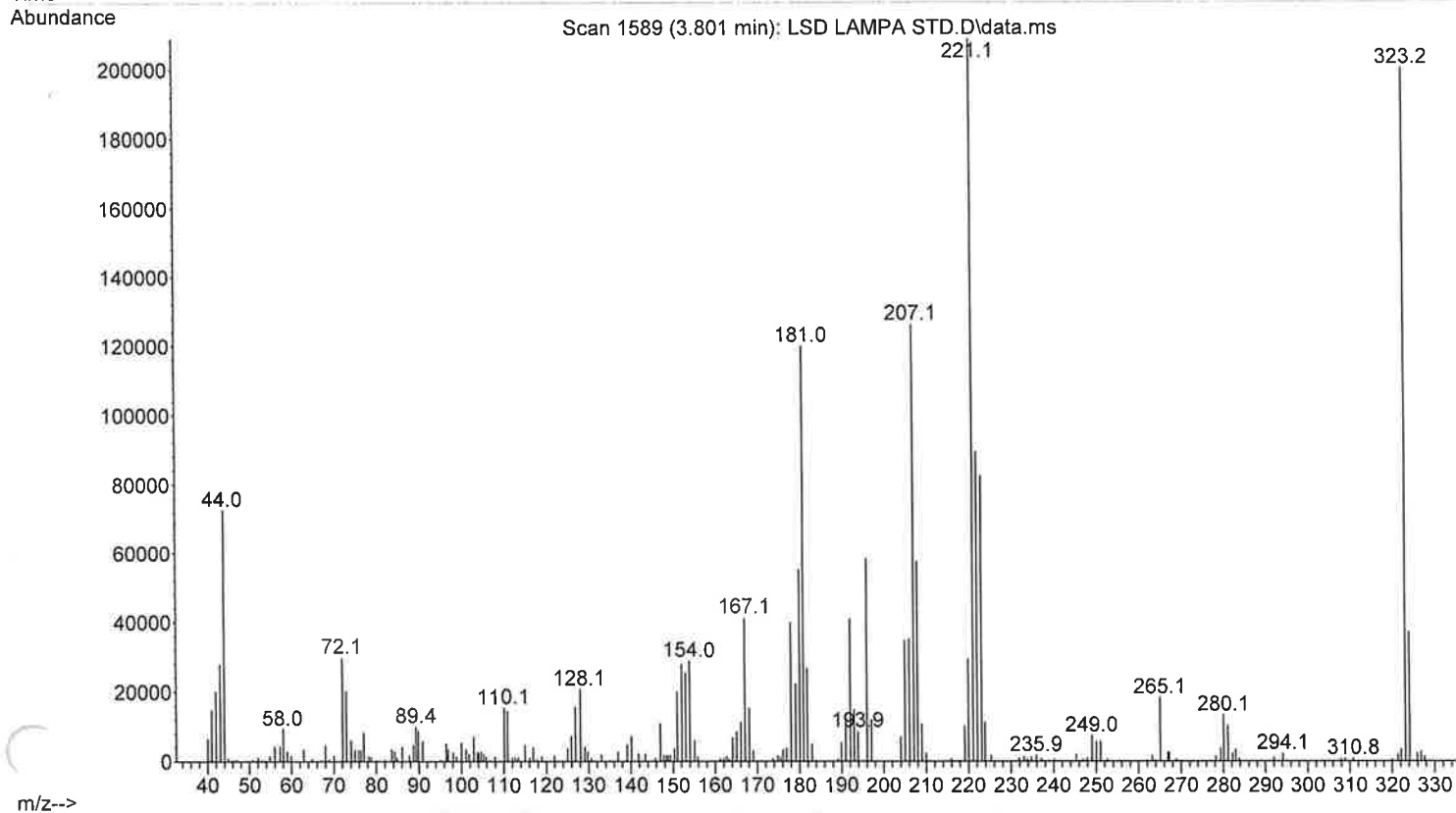
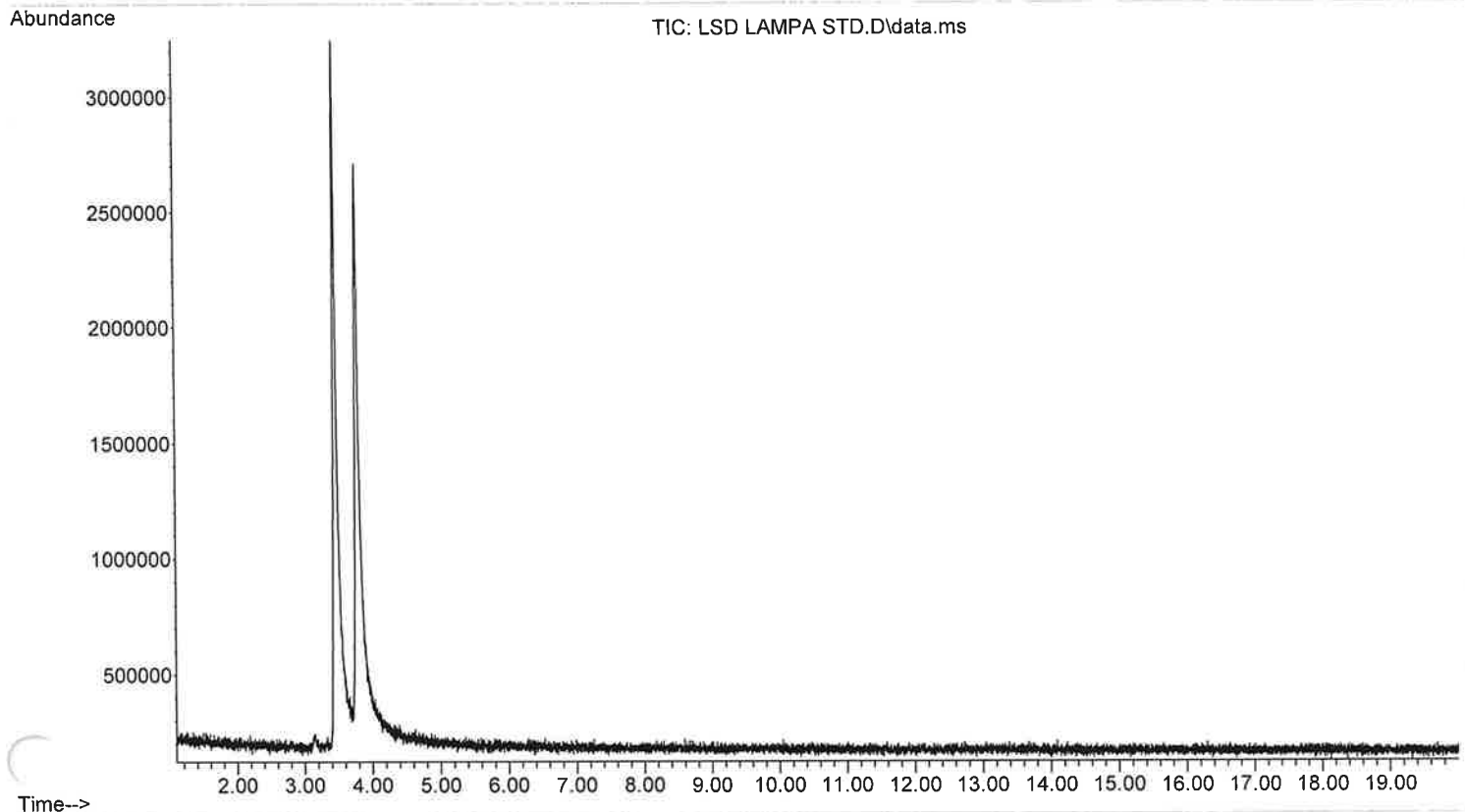
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Name: LSD/LAMPA
nfo : MEOH



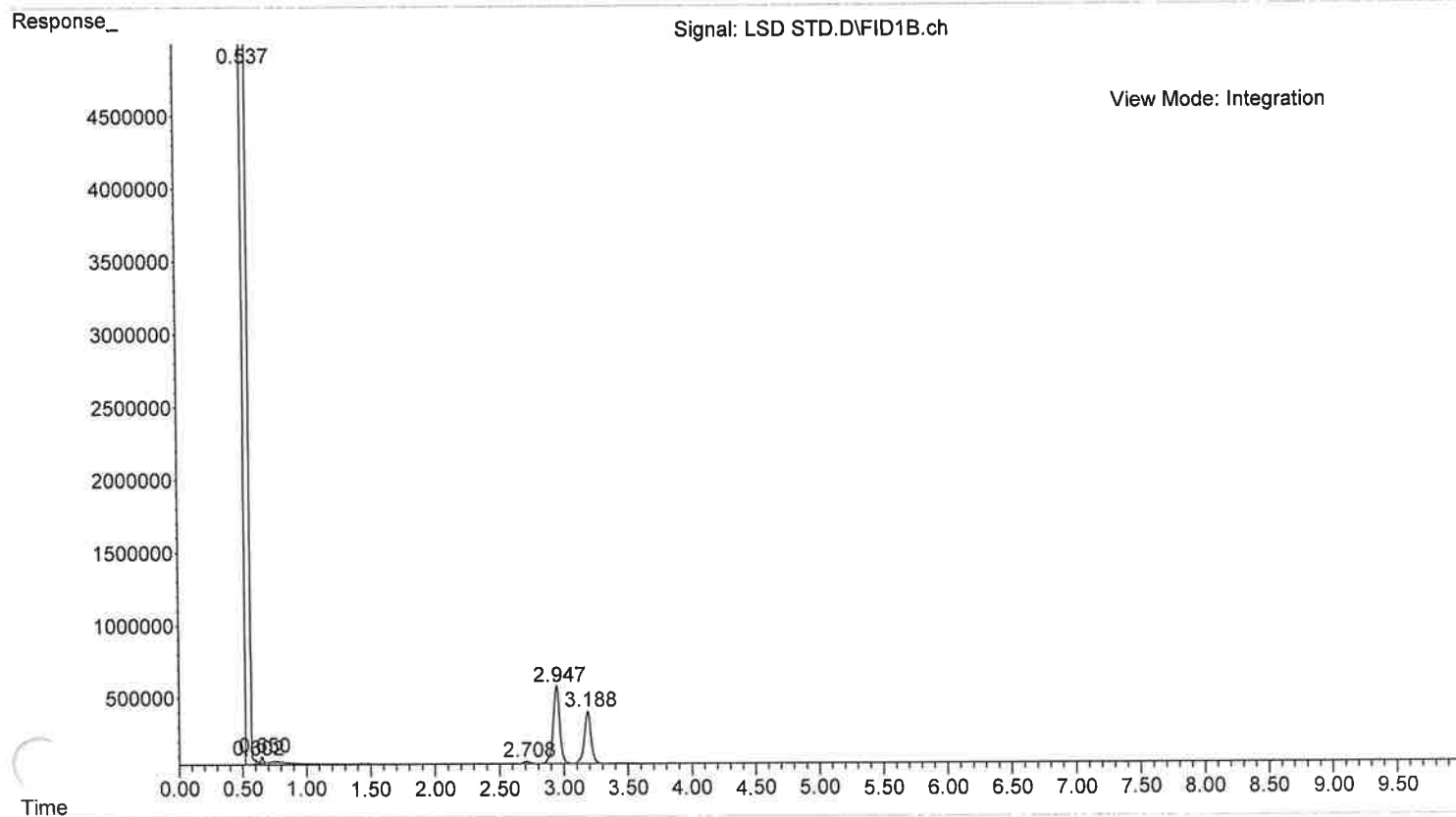
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Info : MEOH
umber: 1



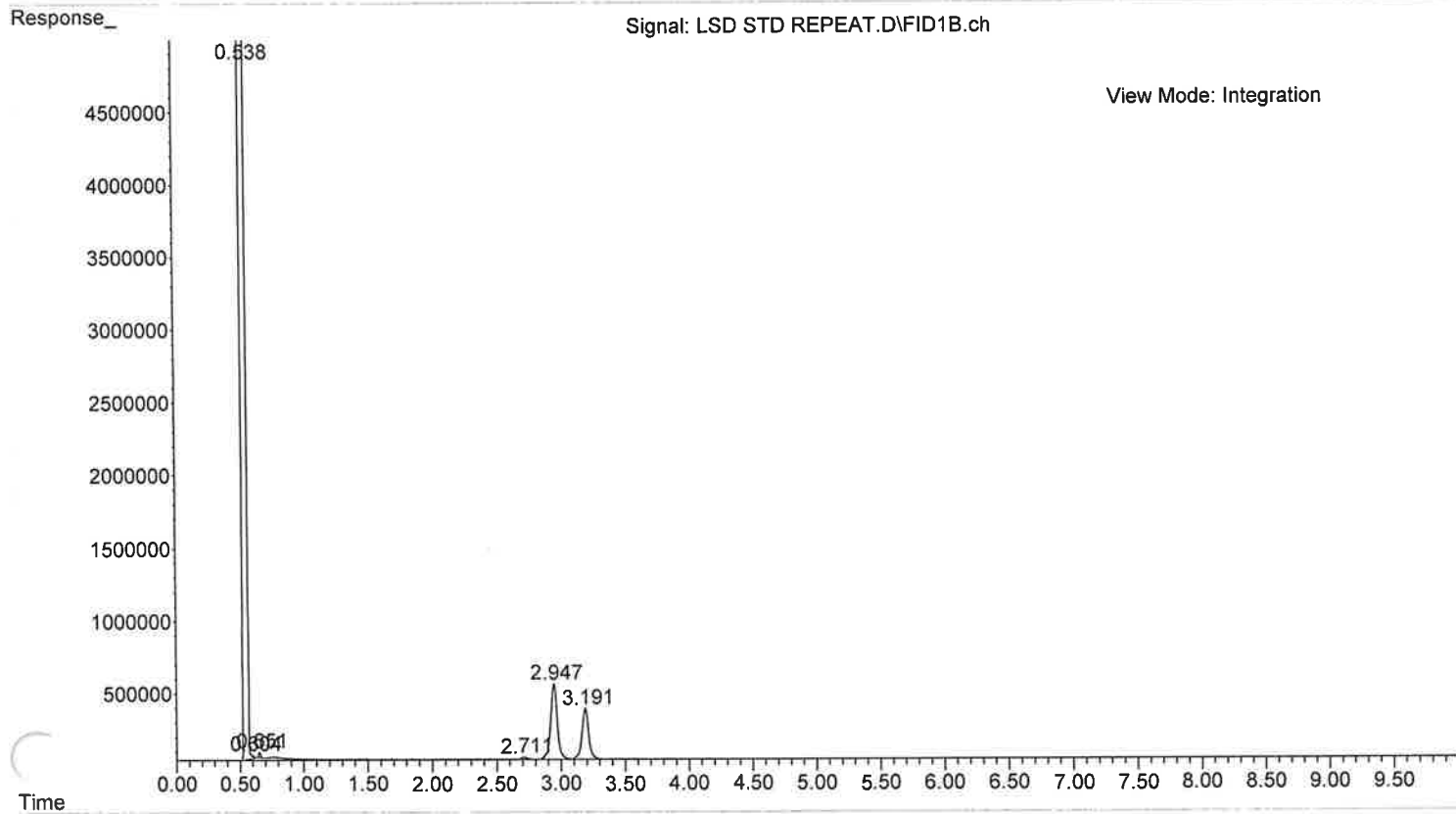
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Instrument : Heisenberg
Sample Name: LSD/LAMPA STD
Solvent Info : MEOH
Injection Number: 1



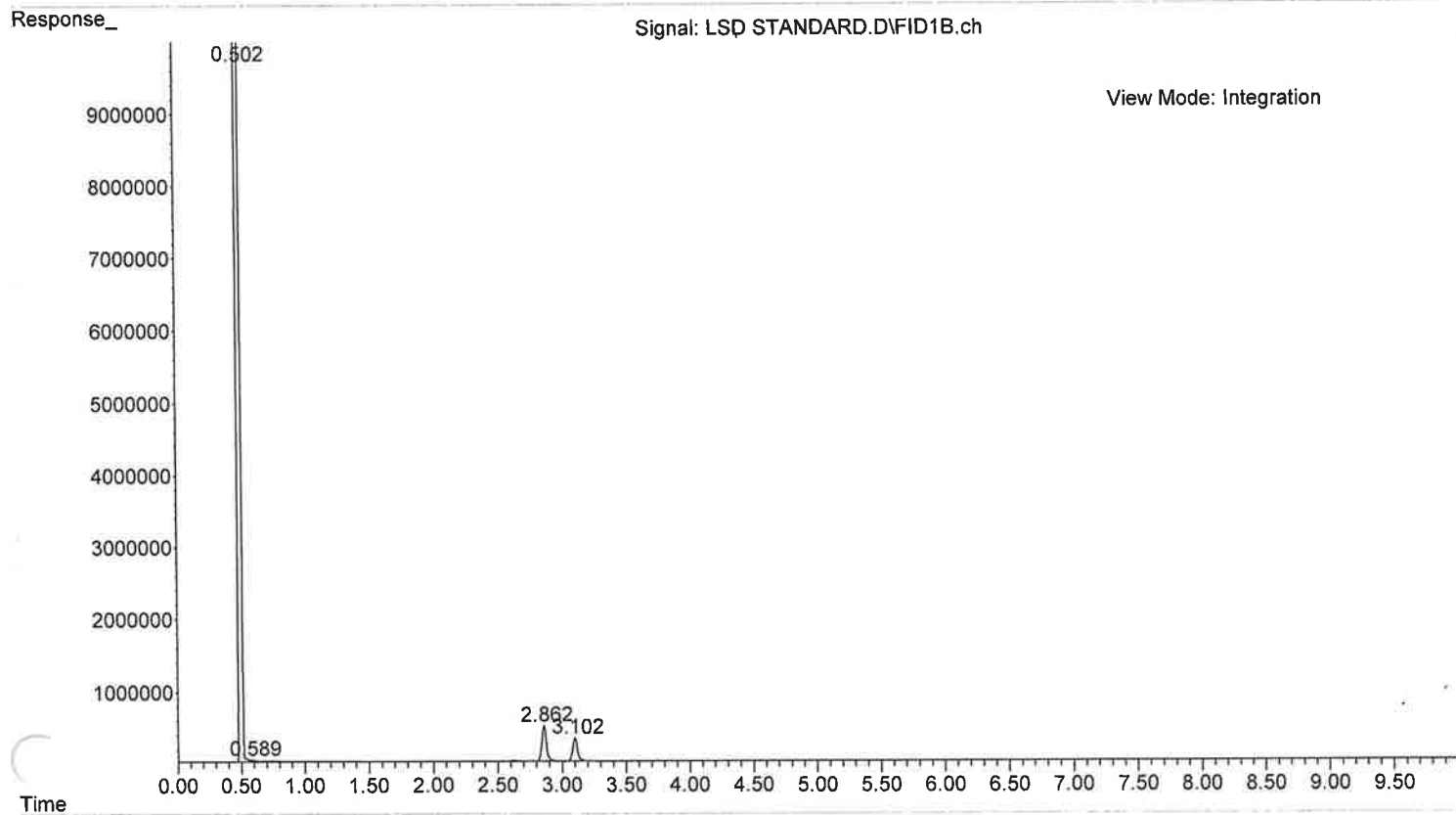
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quired : 01 May 2017 16:23 using AcqMethod ASGC280ISO.M
strument : Heisenberg
mple Name: LSD/LAMPA
s Info : MEOH
a umber: 5



File :D:\MassHunter\GCMS\1\data\Validation\ASGCVALIDATION\LSD STD
REPEAT.D
Operator : EMC
Instrument : Heisenberg
Acquired : 01 May 2017 16:46 using AcqMethod ASGC280ISO.M
Sample Name: LSD/LAMPA
Solvent Info : MEOH



File :D:\MassHunter\GCMS\1\data\Validation\GC280ISO\LSD STANDARD.D
Operator : EMC
Acquired : 03 May 2017 13:54 using AcqMethod GC280ISO.M
Instrument : Heisenberg
Sample Name: LSD/LAMPA MIX
Solvent : MEOH
Injection Number: 1



Forensic Chemistry Performance Verification

Gas Chromatograph (Model 7890B Serial Number CN16483010)

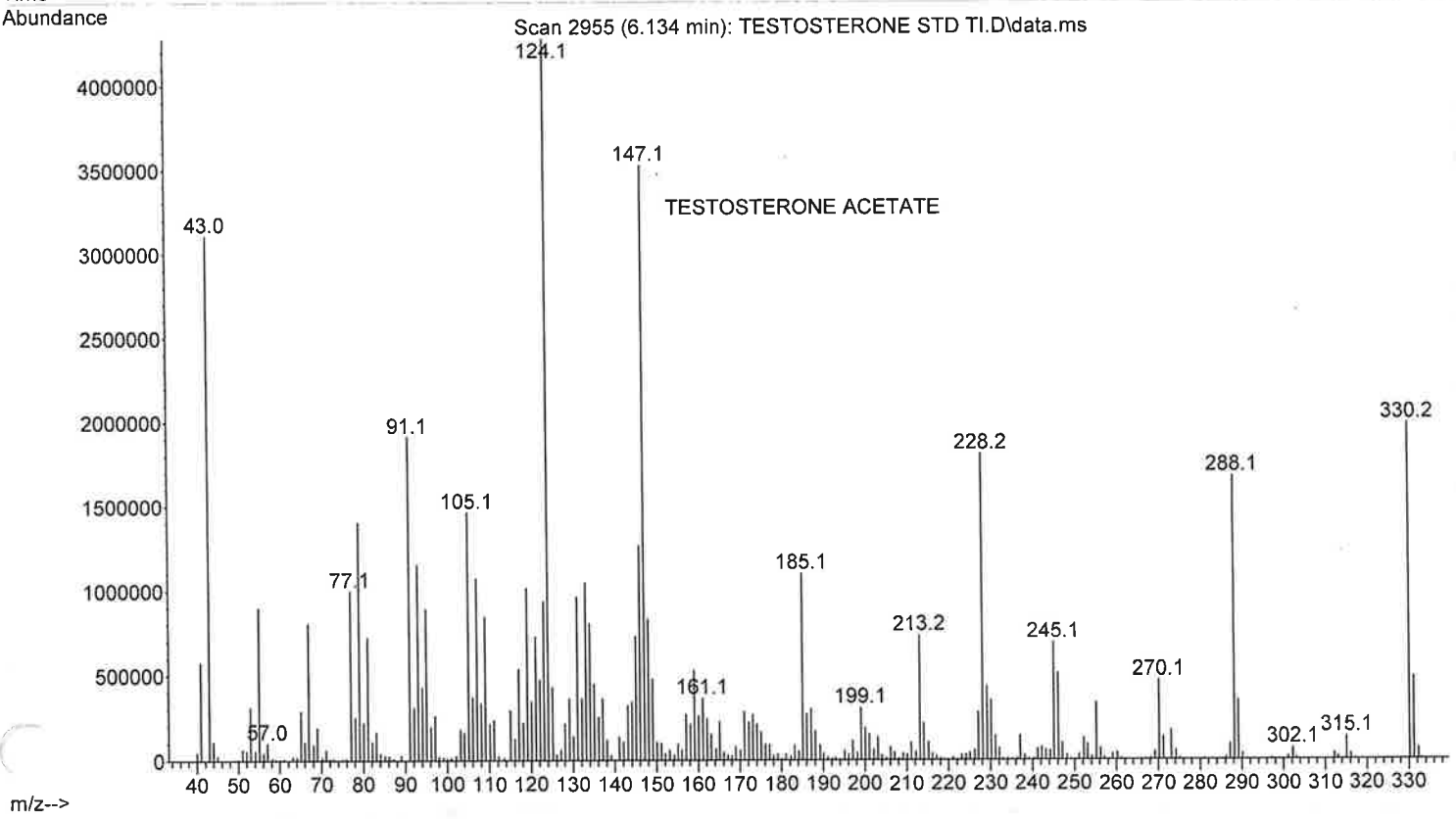
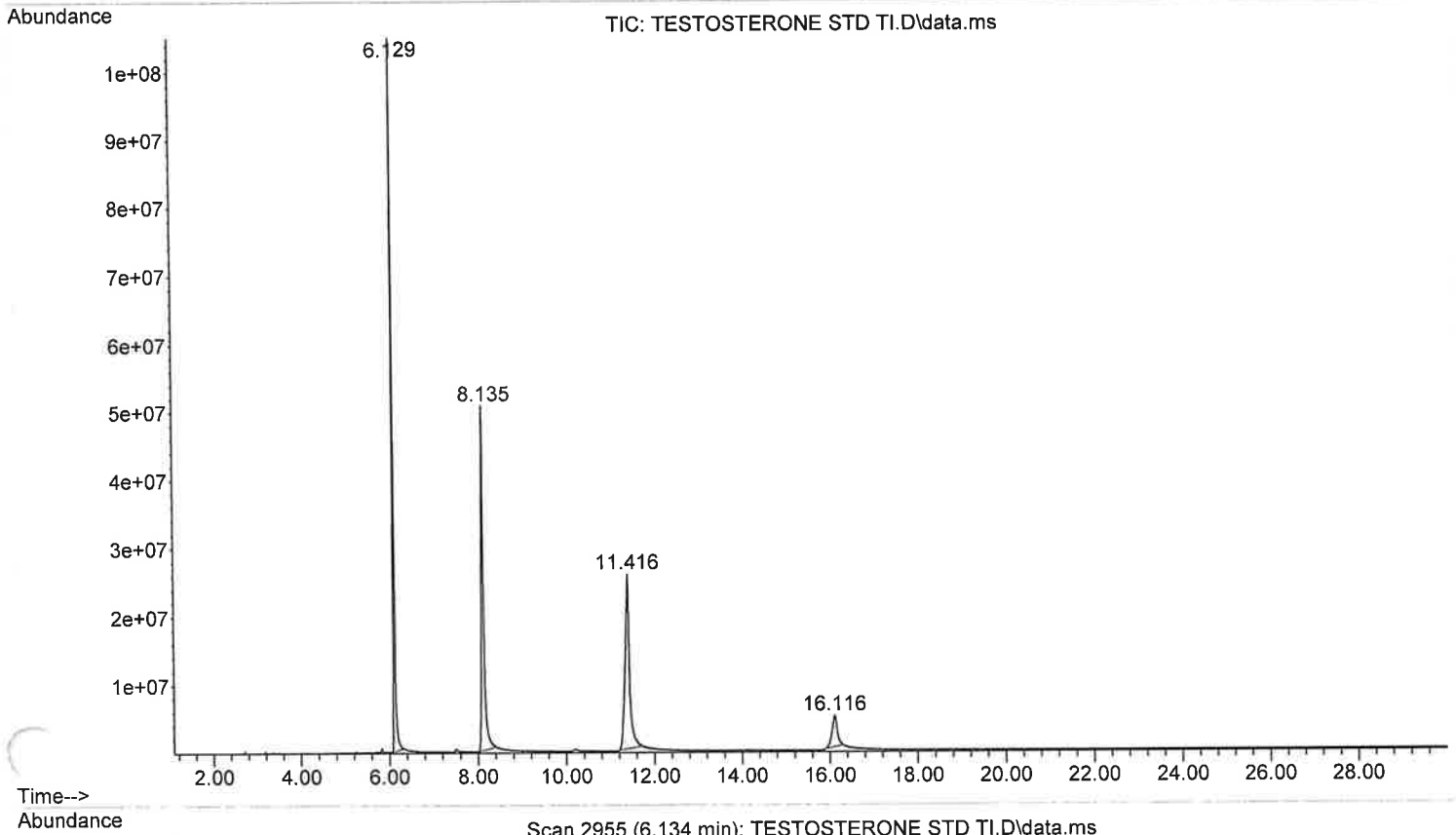
Mass Spectrometer (Model 5977B Serial Number US1648M021)

TBI FCU ID – Heisenberg

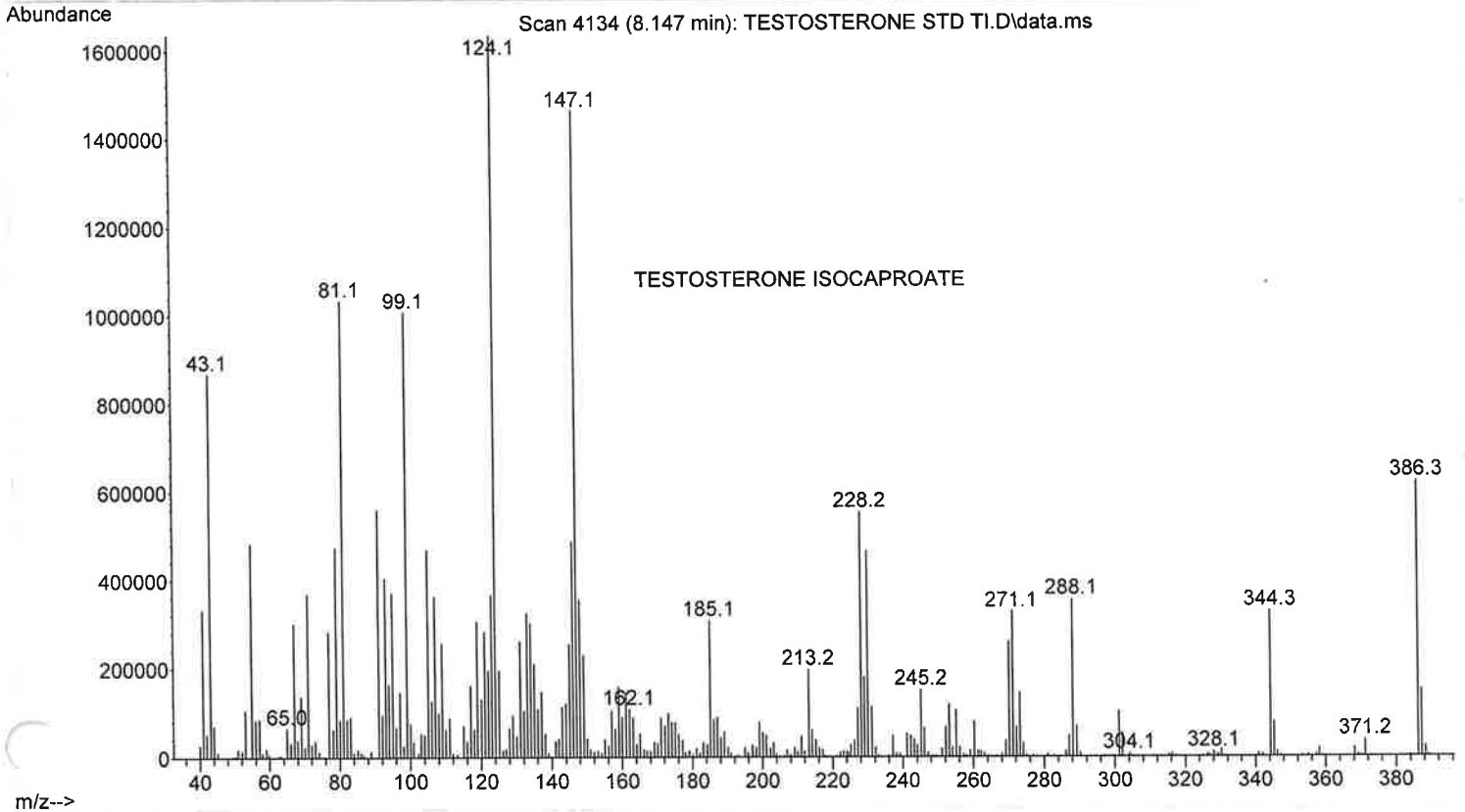
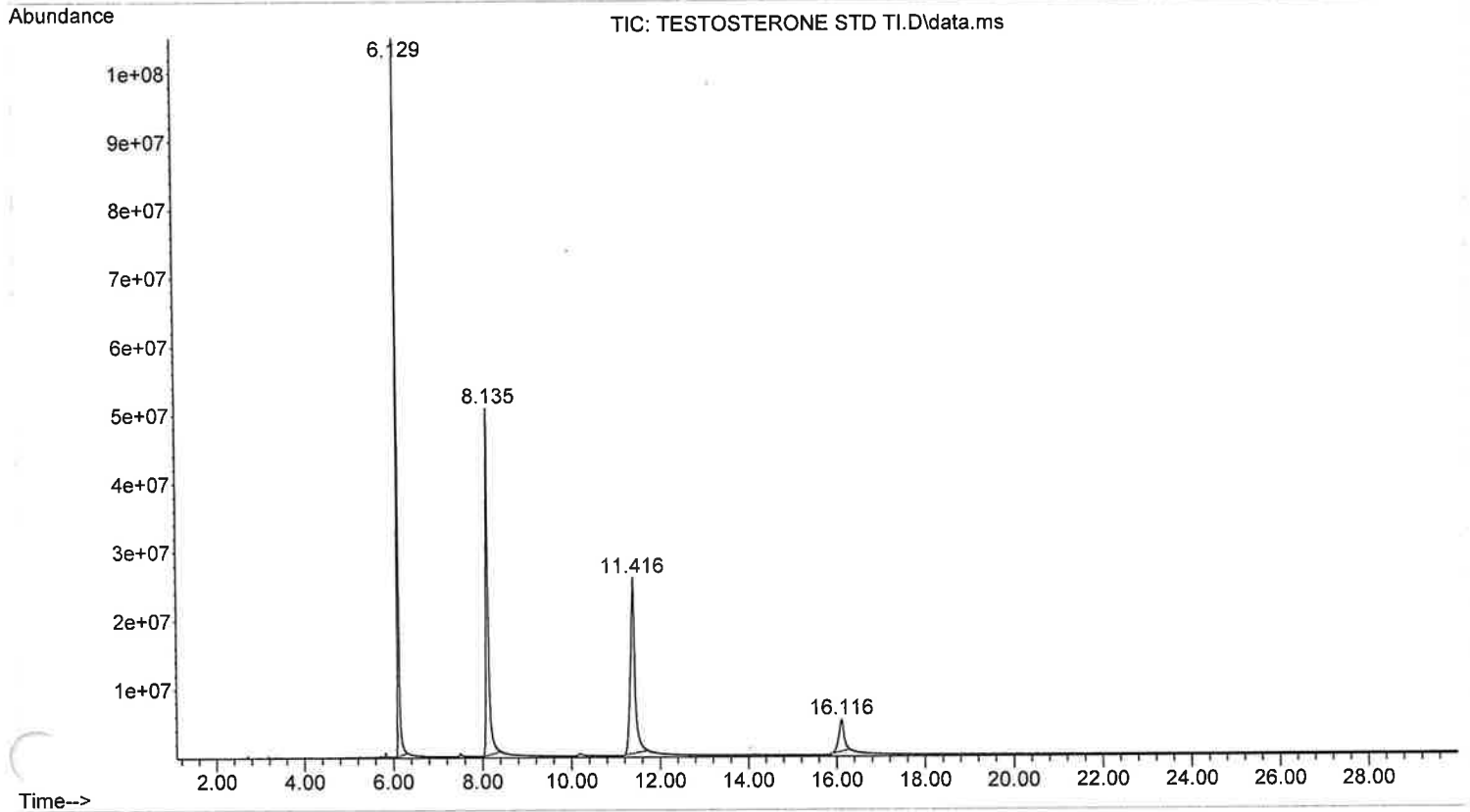
- *Testosterone Mixture Standard RT Comparisons*

Method	Compound	RT	Acceptable variance ($\pm 2\%$)	Repeat RT
ASMSDRUGSTI	T. acetate	6.129	± 0.123	6.134
	T. isocaproate	8.135	± 0.163	8.140
	T. benzoate	11.416	± 0.228	11.420
	T. undecanoate	16.116	± 0.322	16.127
ASGC280ISOTI	T. acetate	1.640	± 0.033	1.641
	T. isocaproate	3.005	± 0.060	3.005
	T. benzoate	5.378	± 0.108	5.376
	T. undecanoate	8.801	± 0.176	8.800

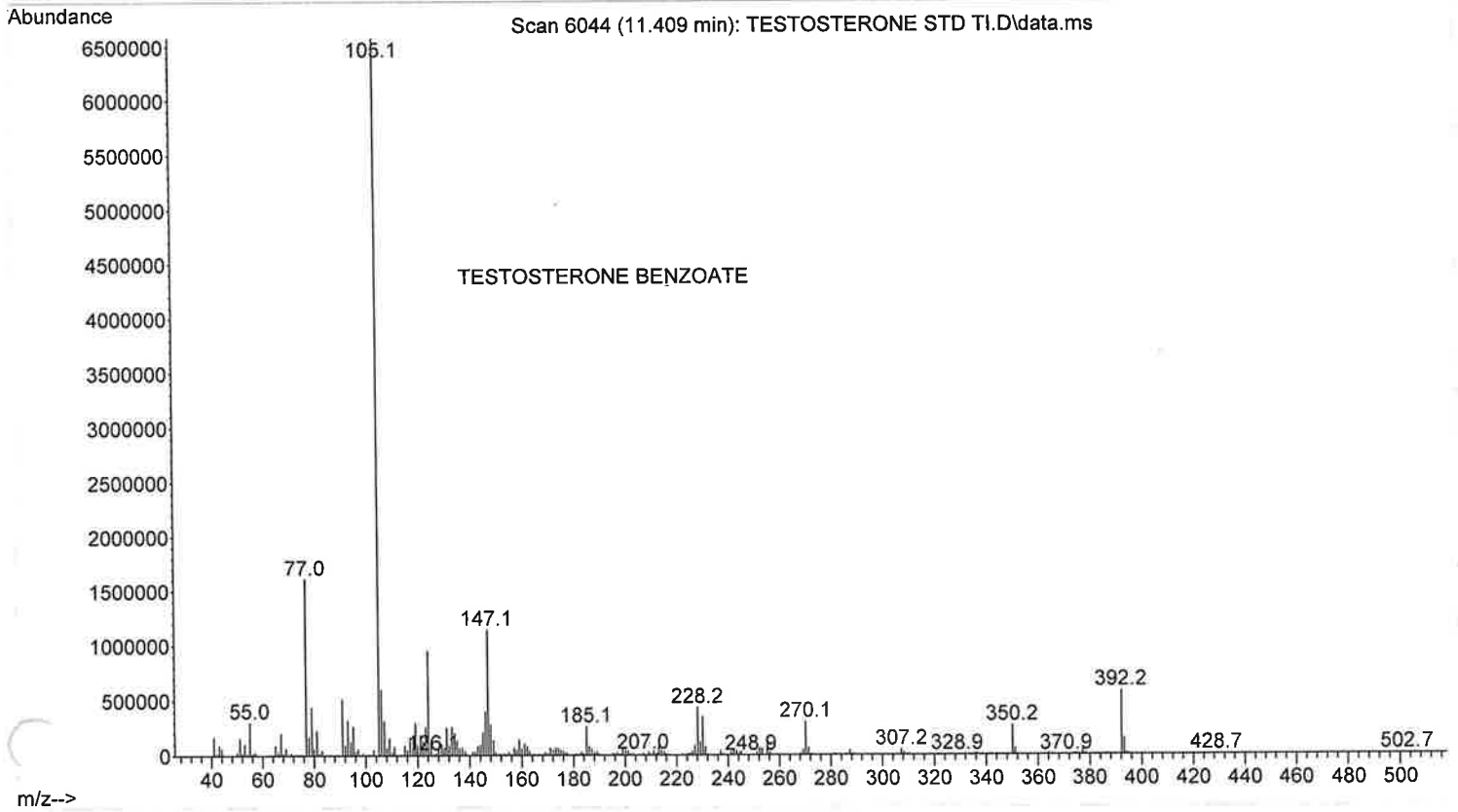
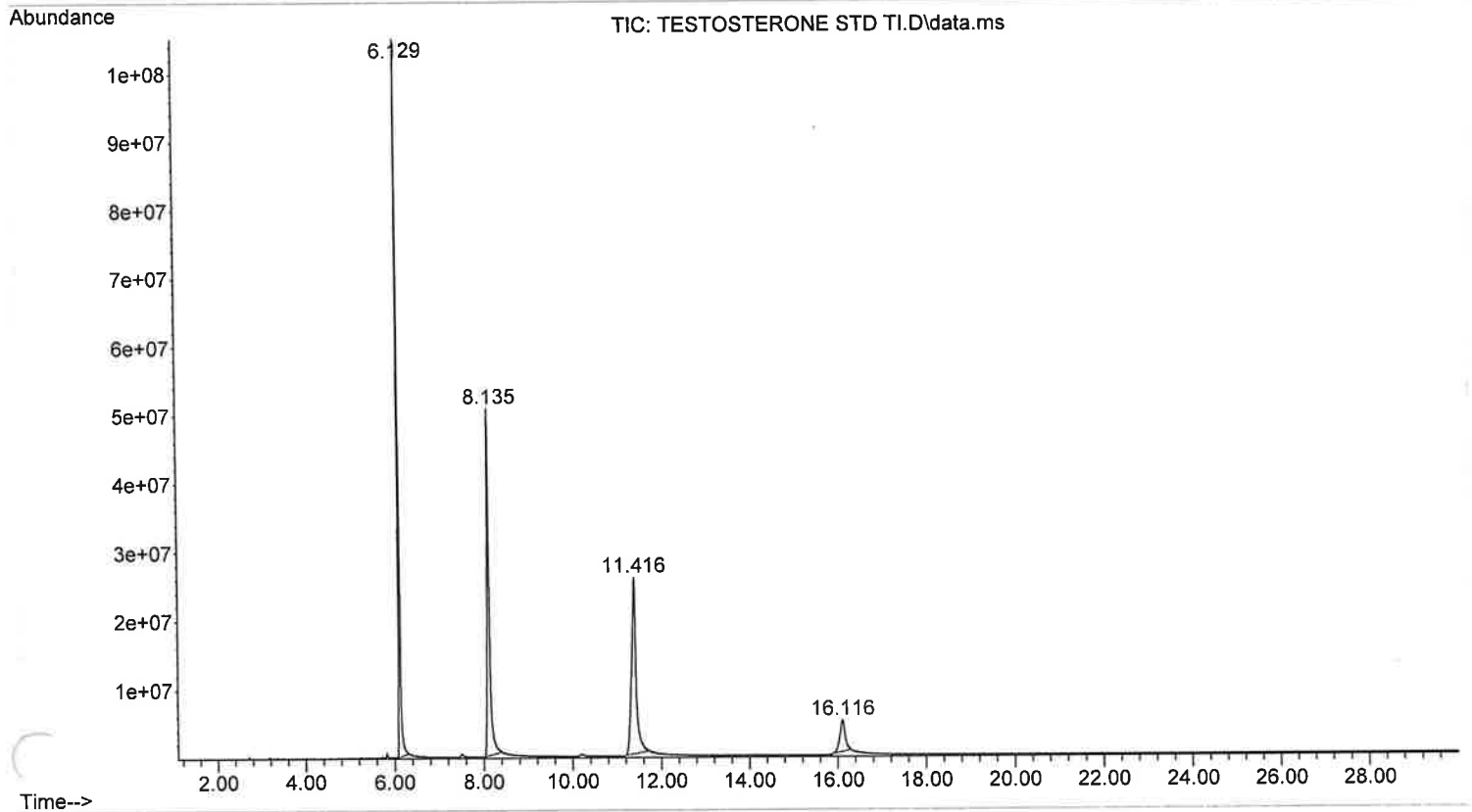
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TD TI.D
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strument : Heisenberg
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Name: TESTOSTERONE STD MIX
nfo : MEOH



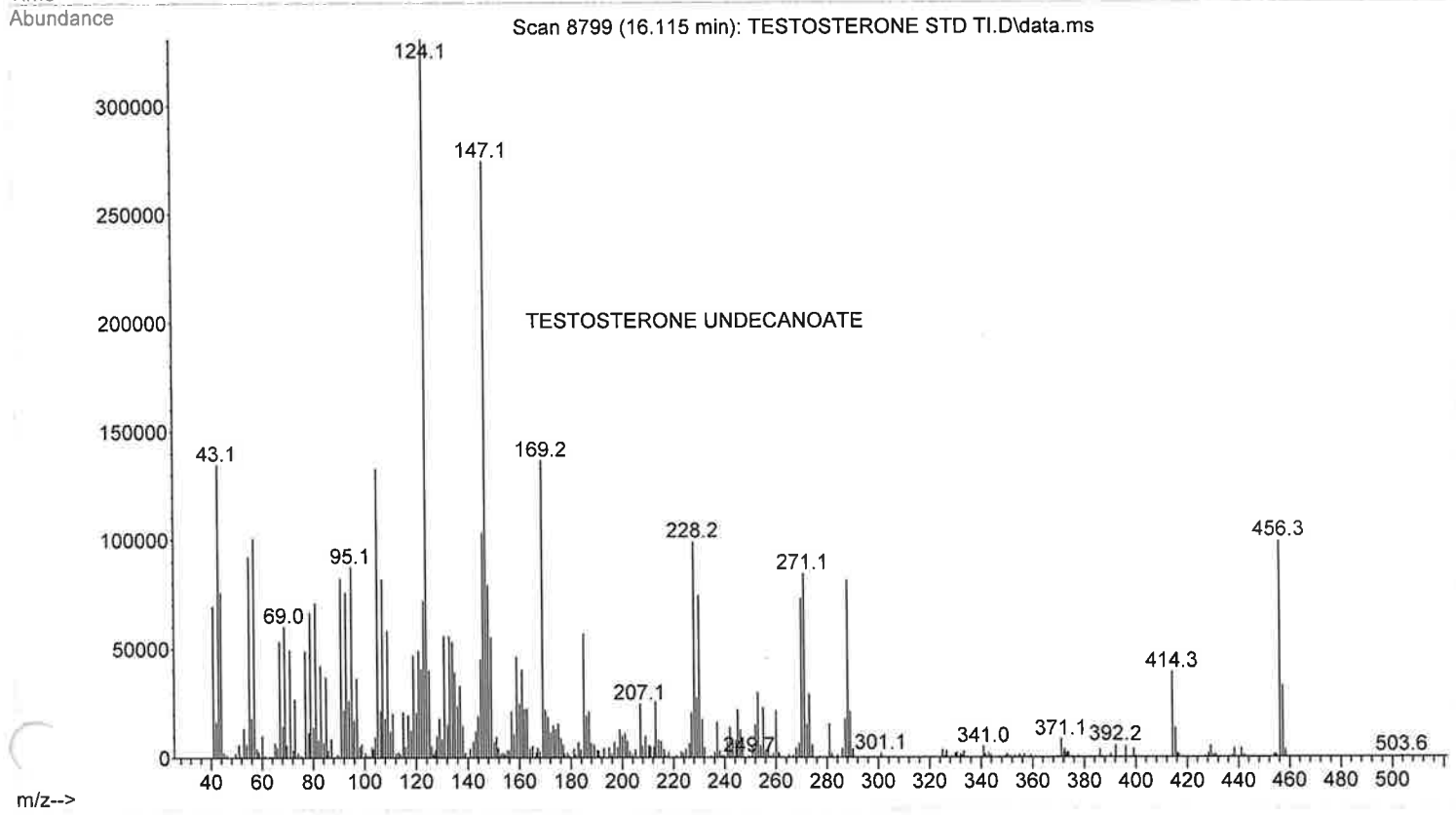
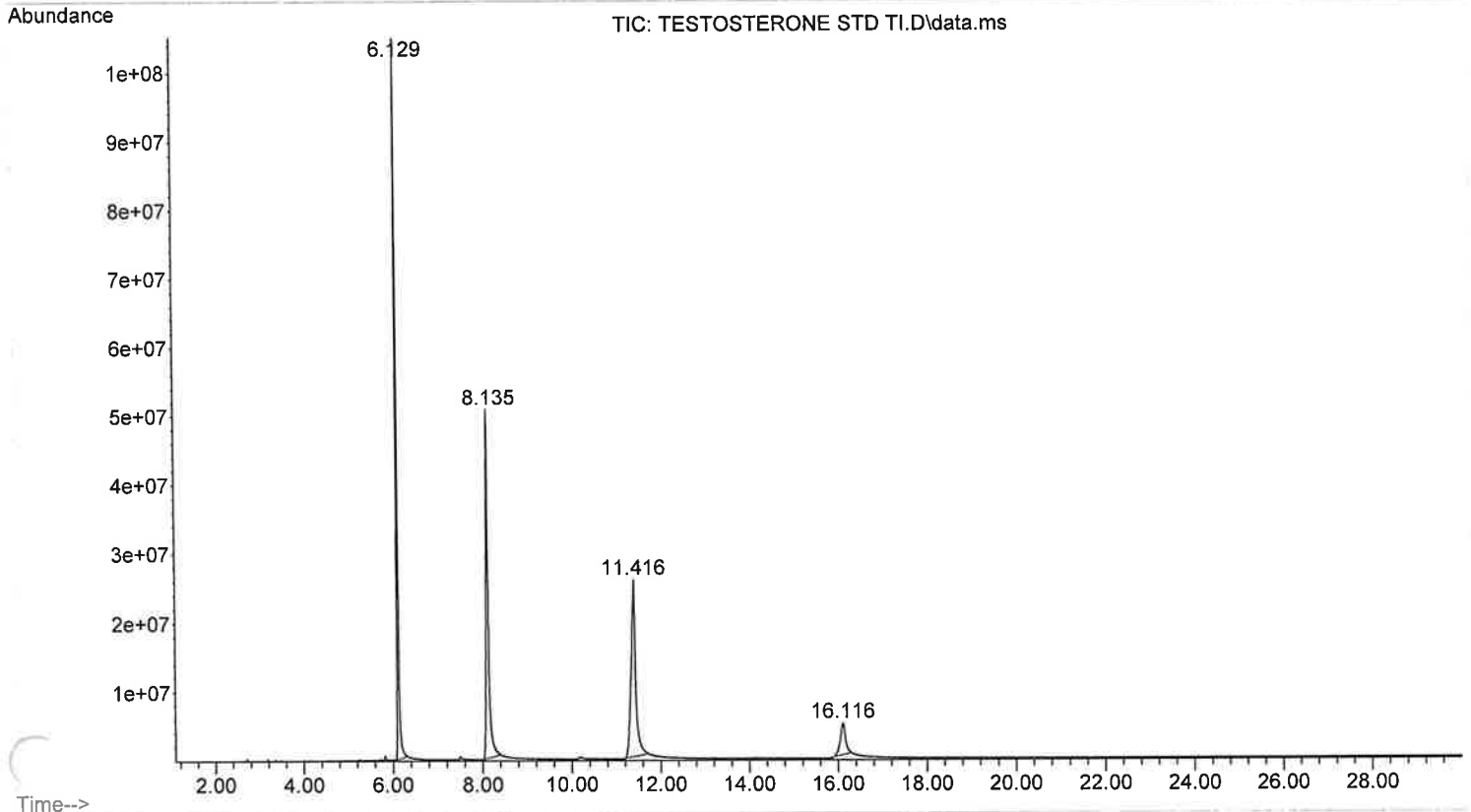
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nfo : MEQH



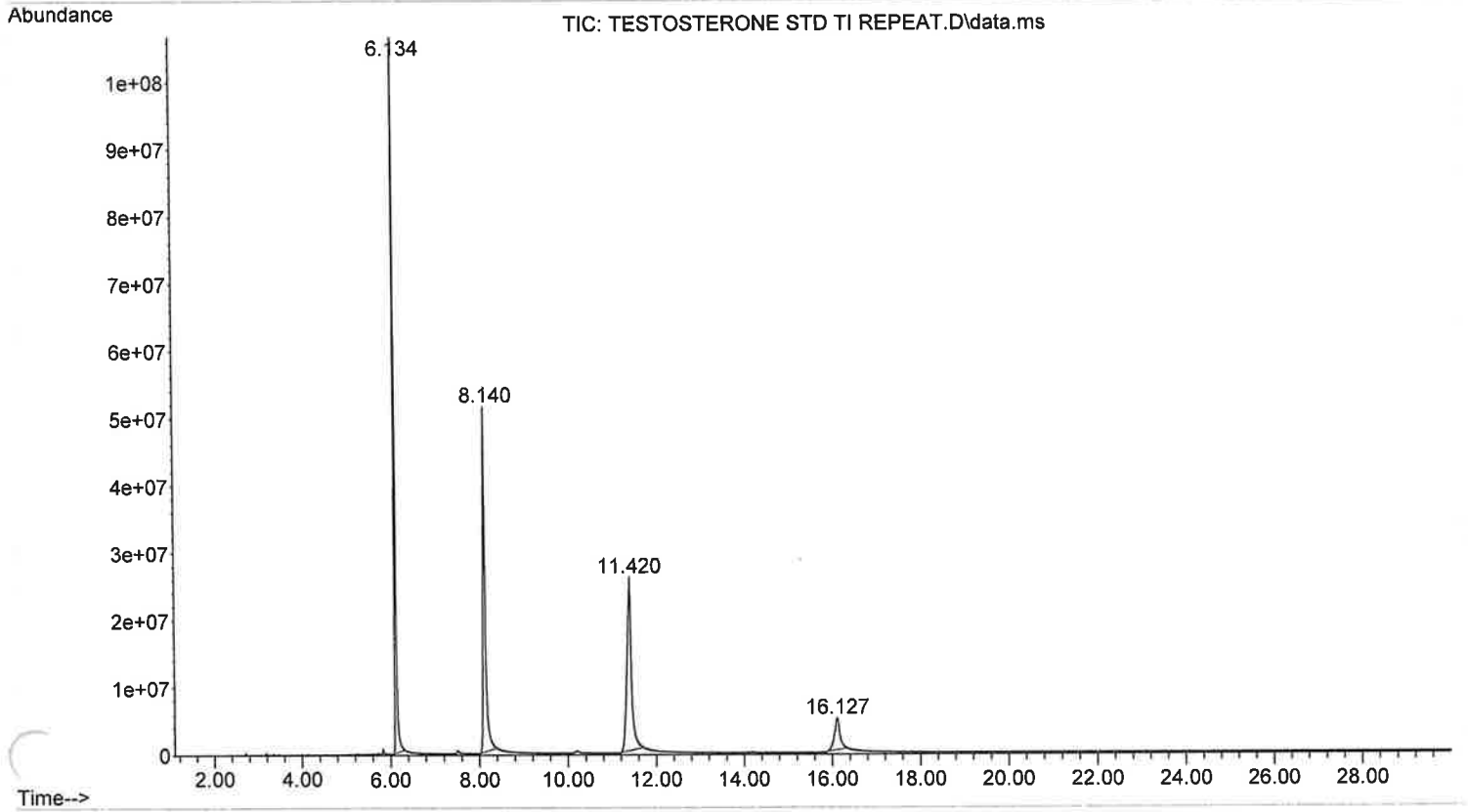
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Info : MEOH



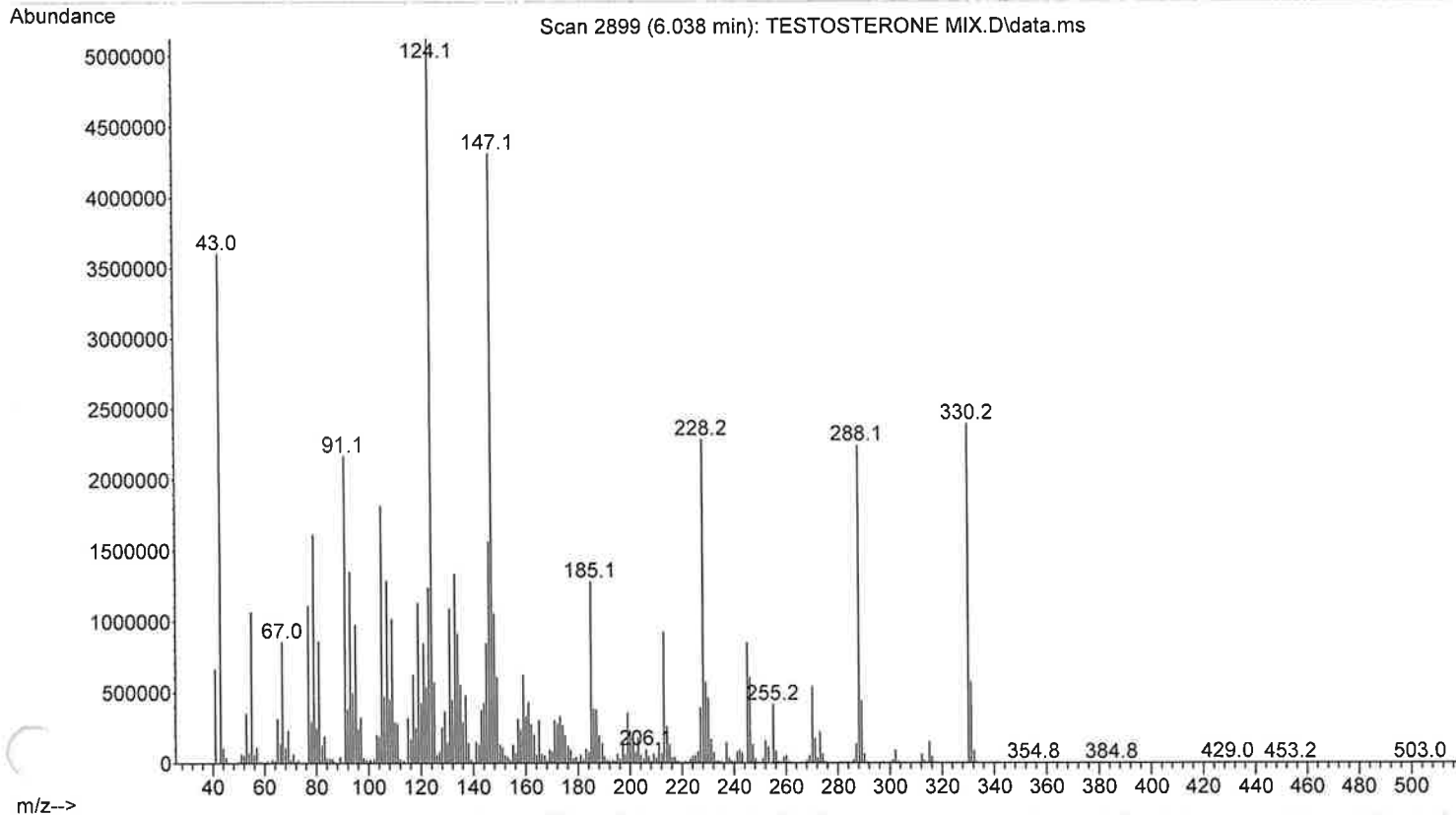
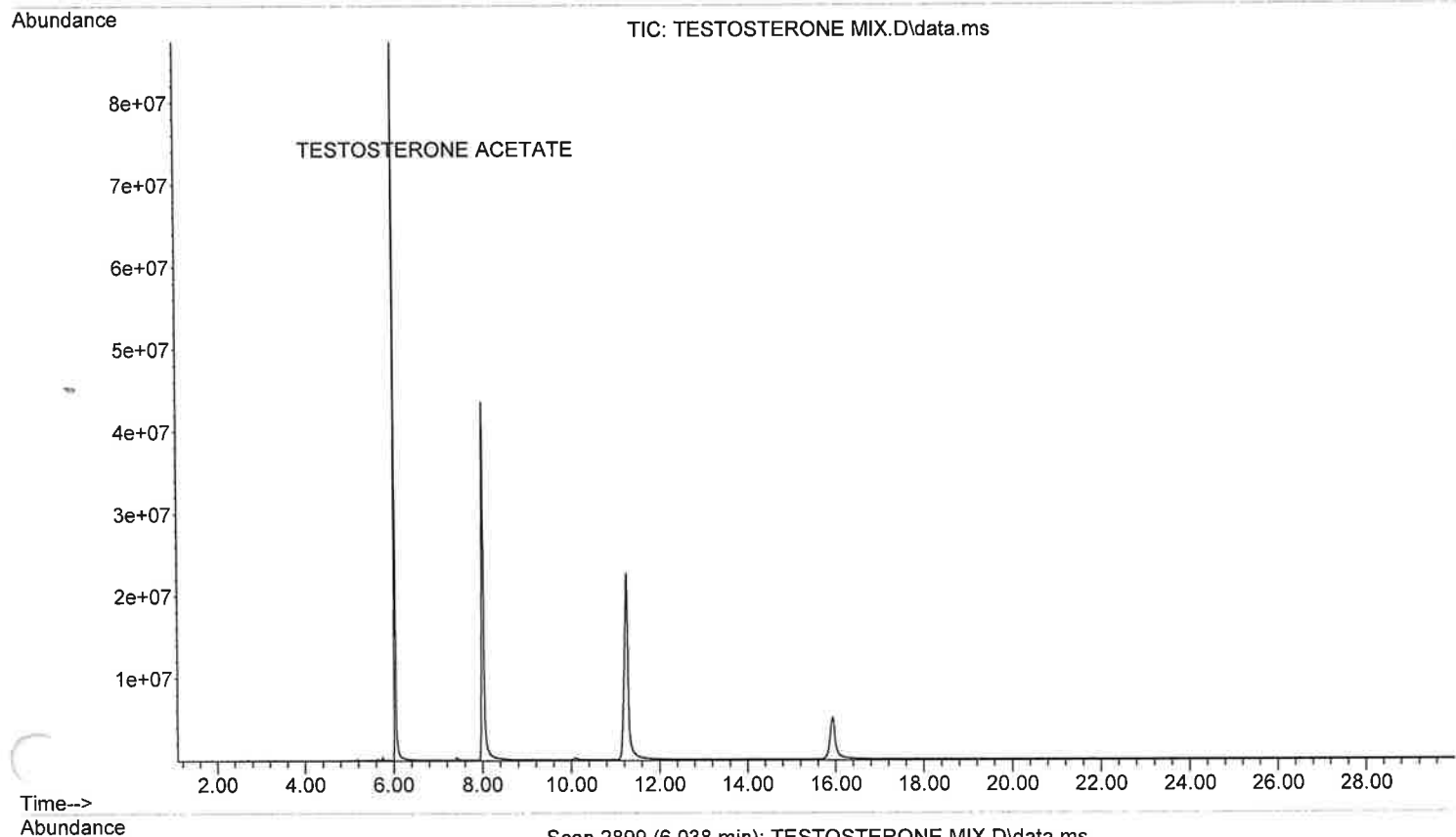
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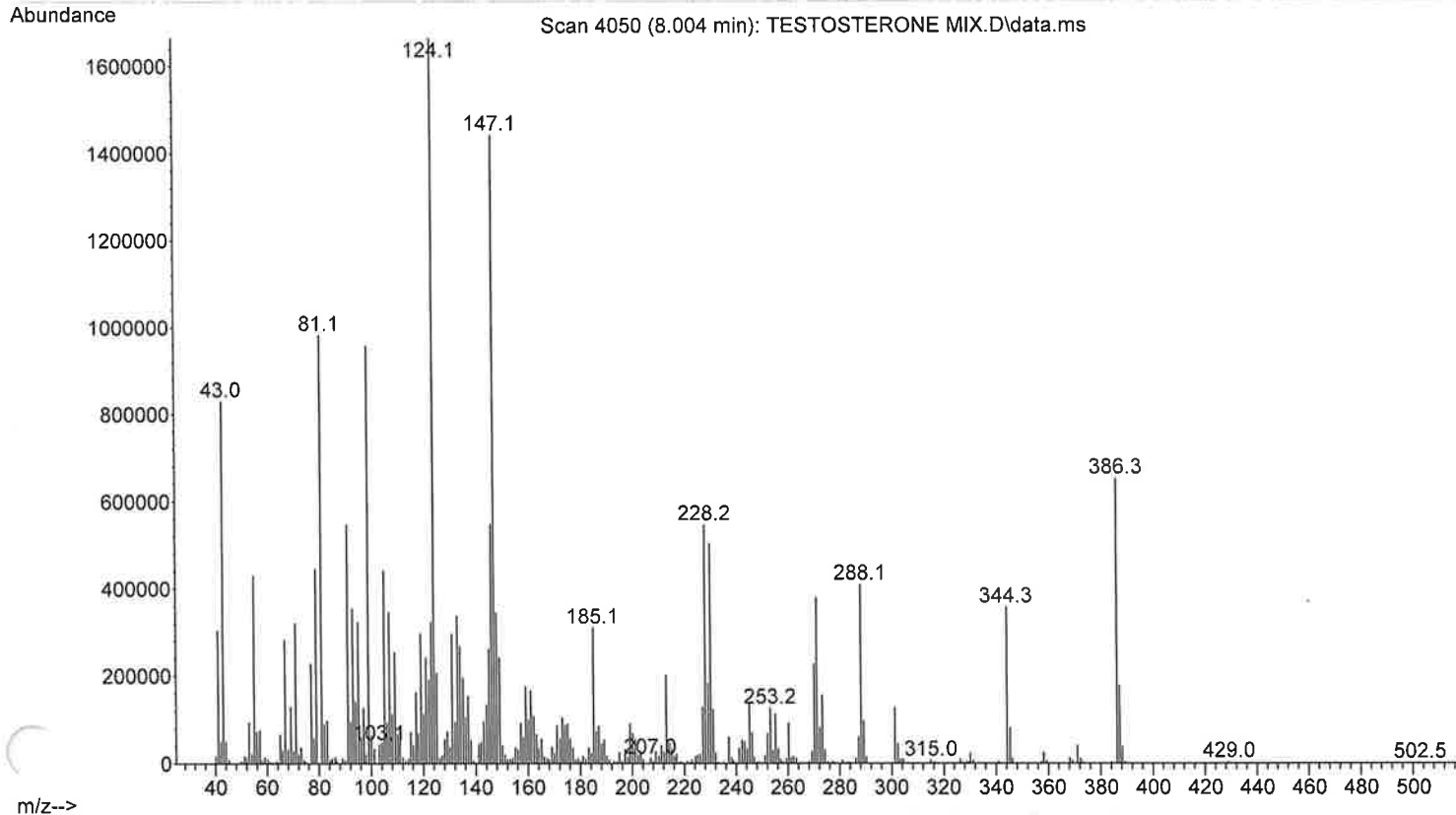
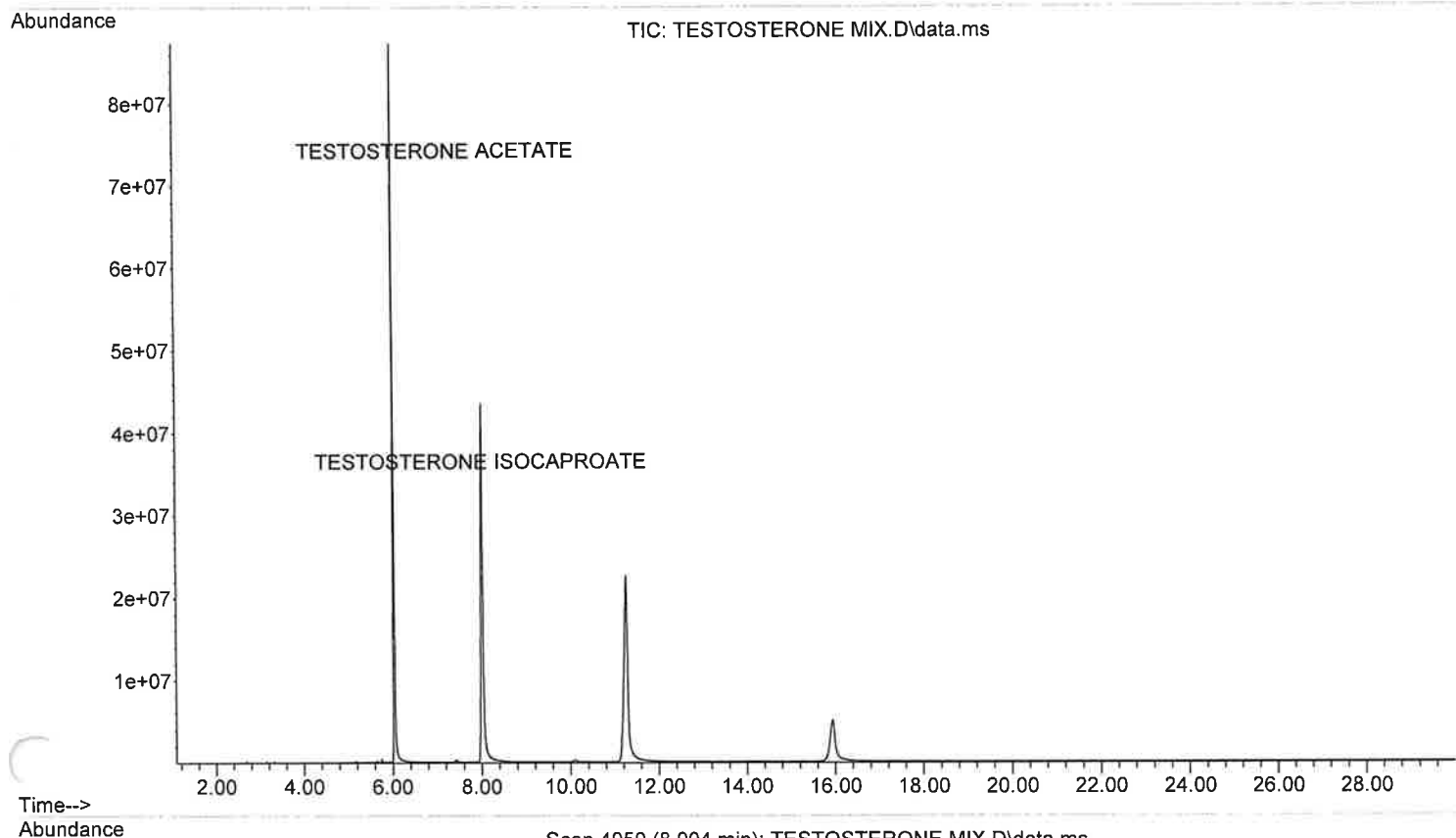
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nfo : MEOH



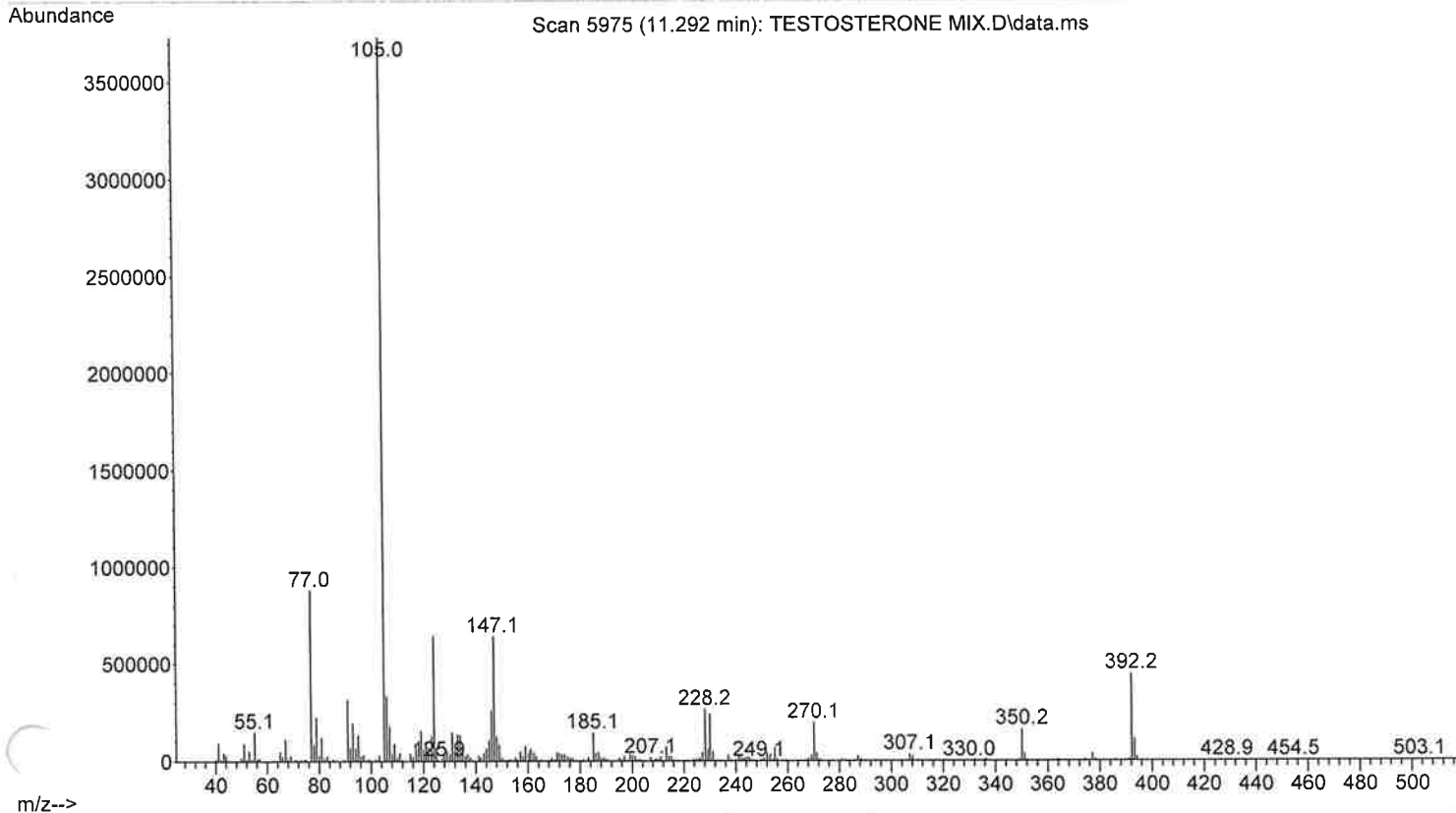
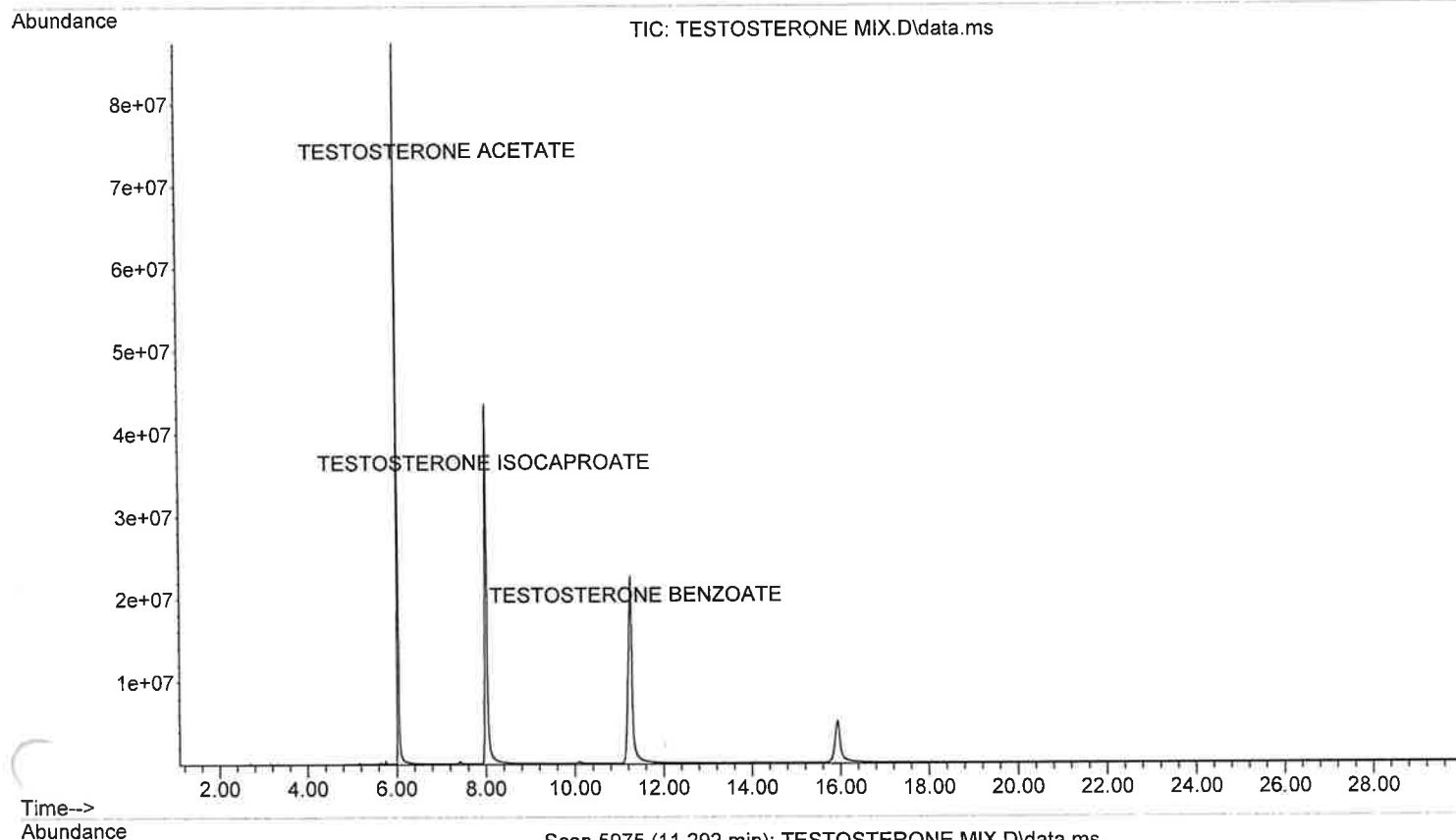
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Sample Name: TESTOSTERONE MIX
Solvent : MEOH



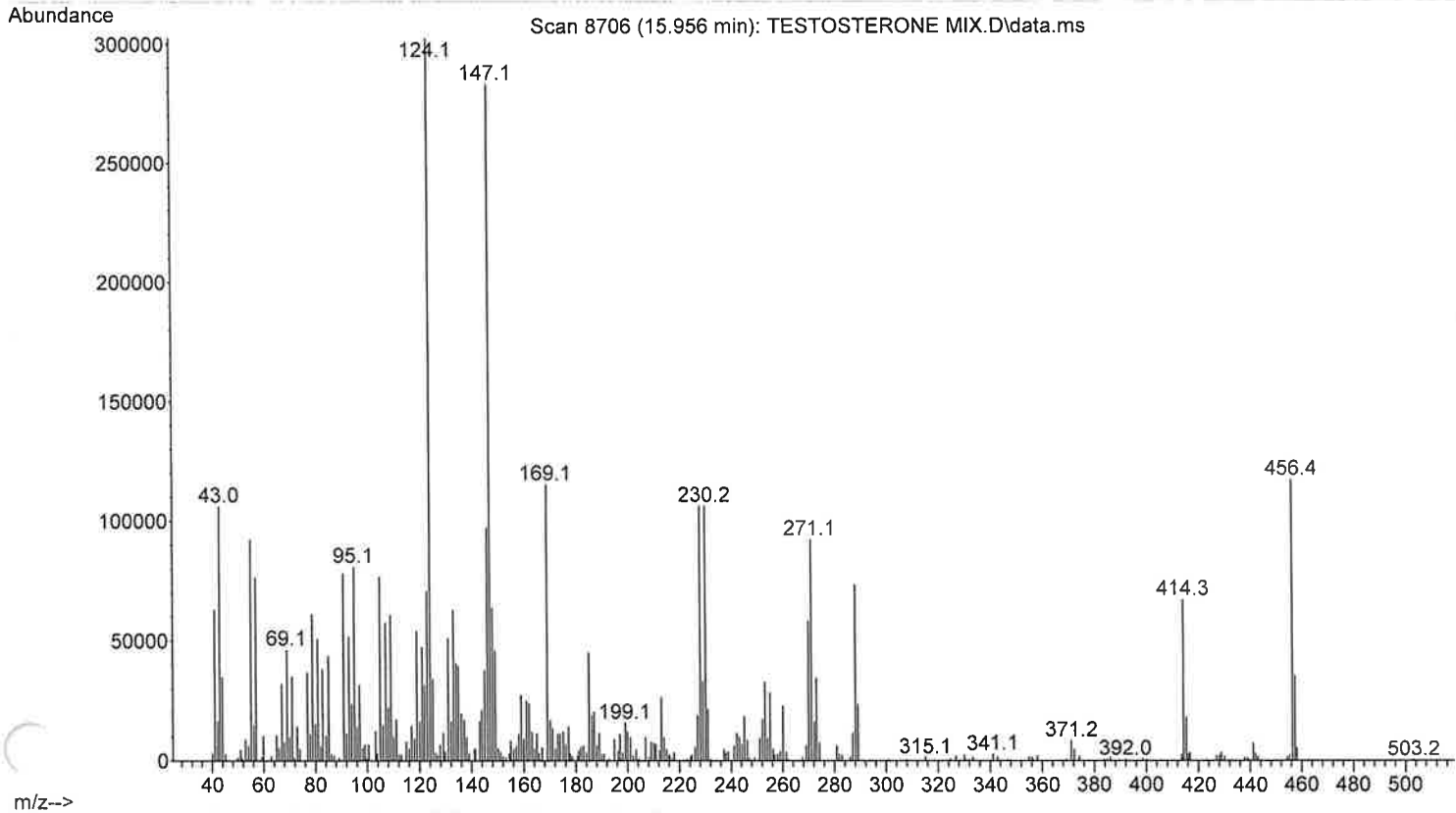
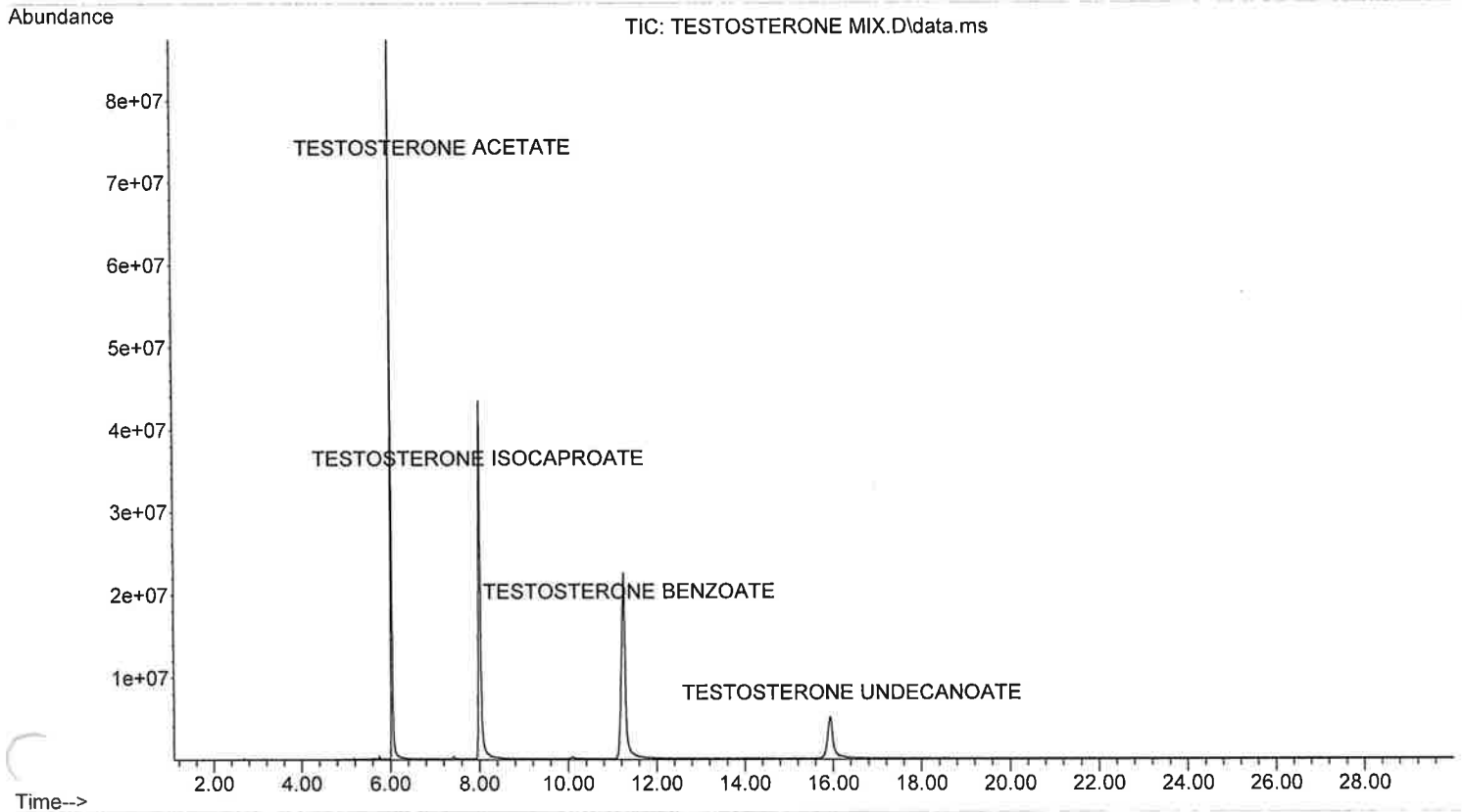
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Solvent : MEOH



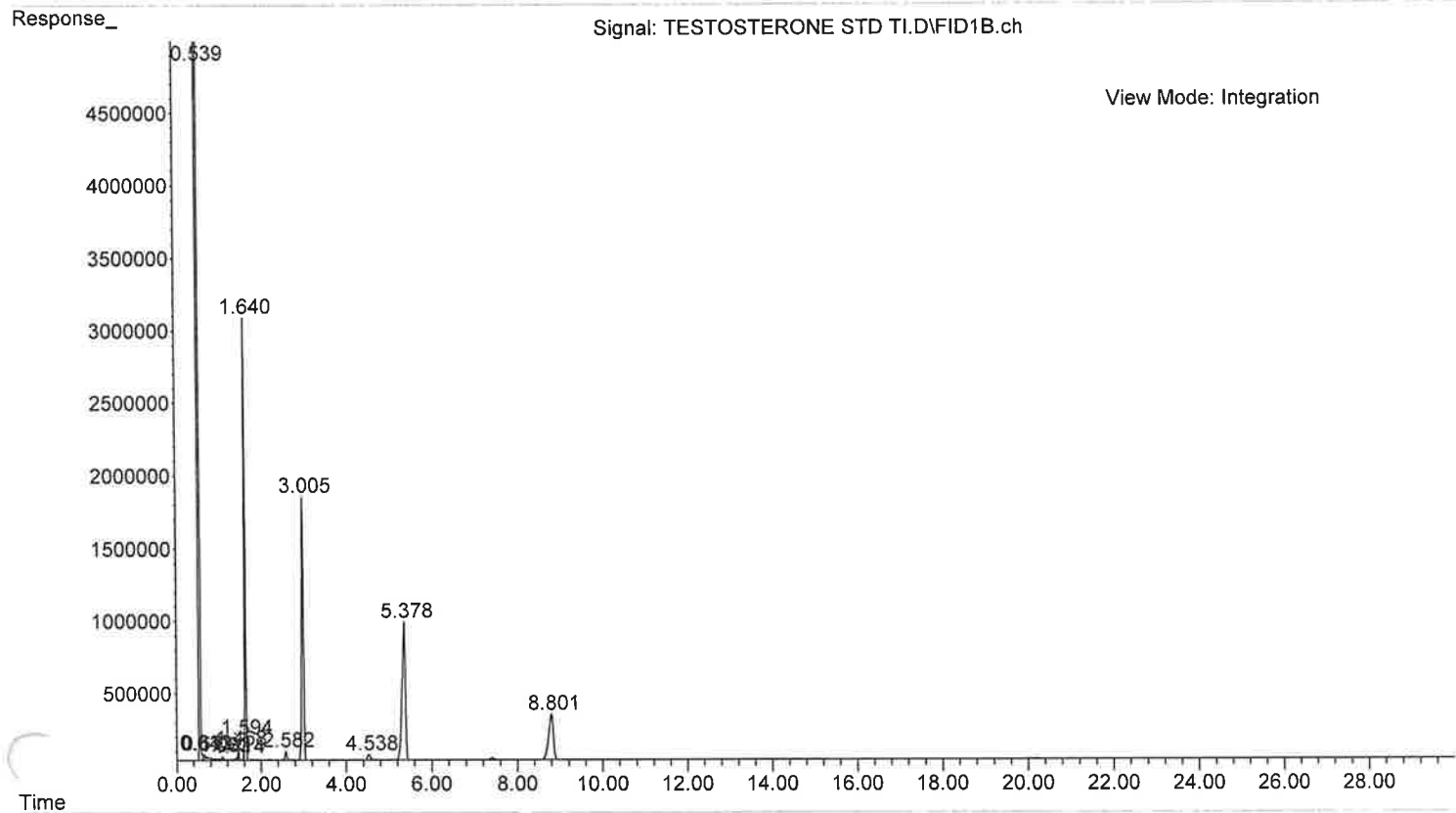
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nfo : MEOH



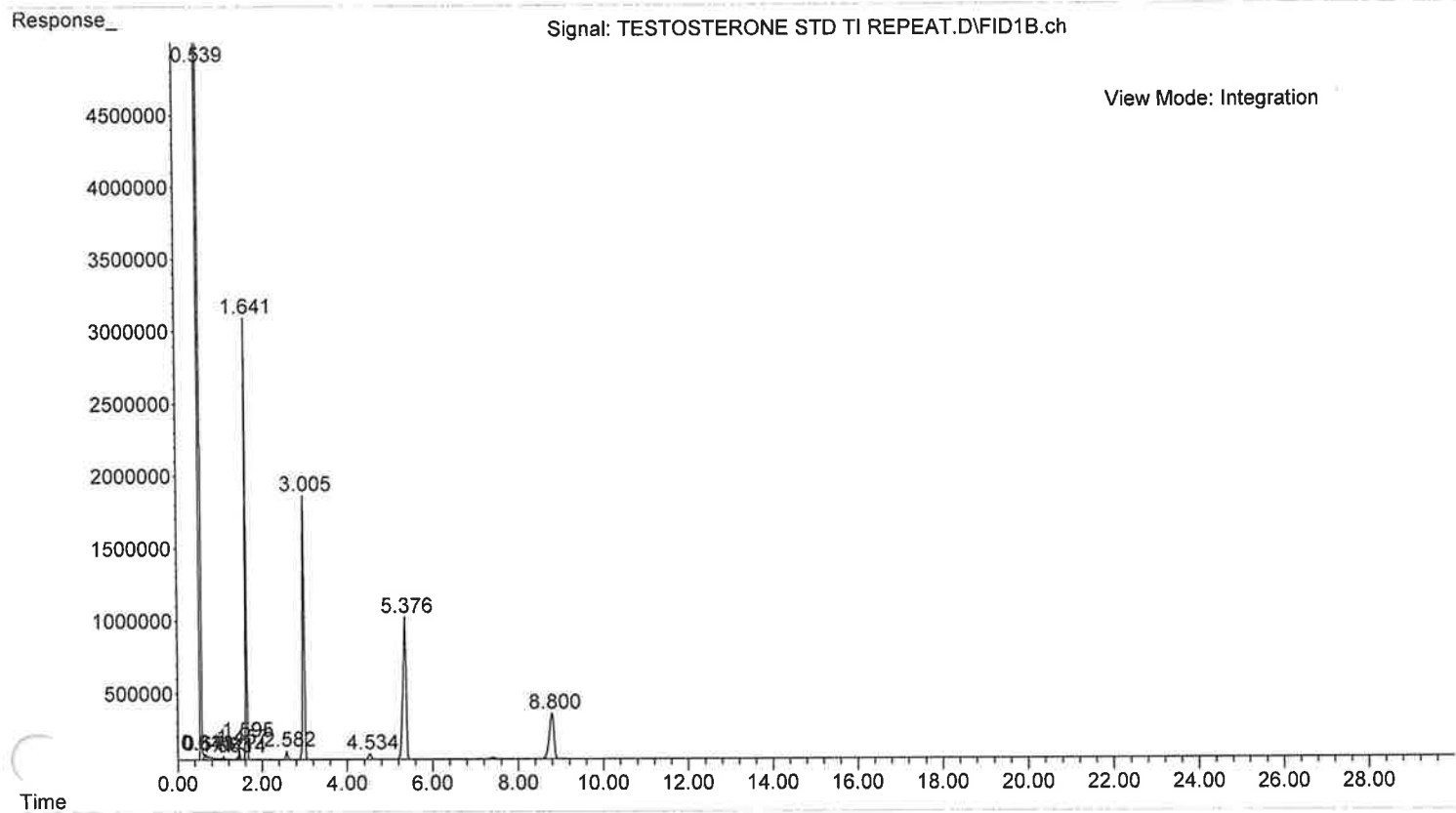
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Sample Name: TESTOSTERONE MIX
Info : MEOH



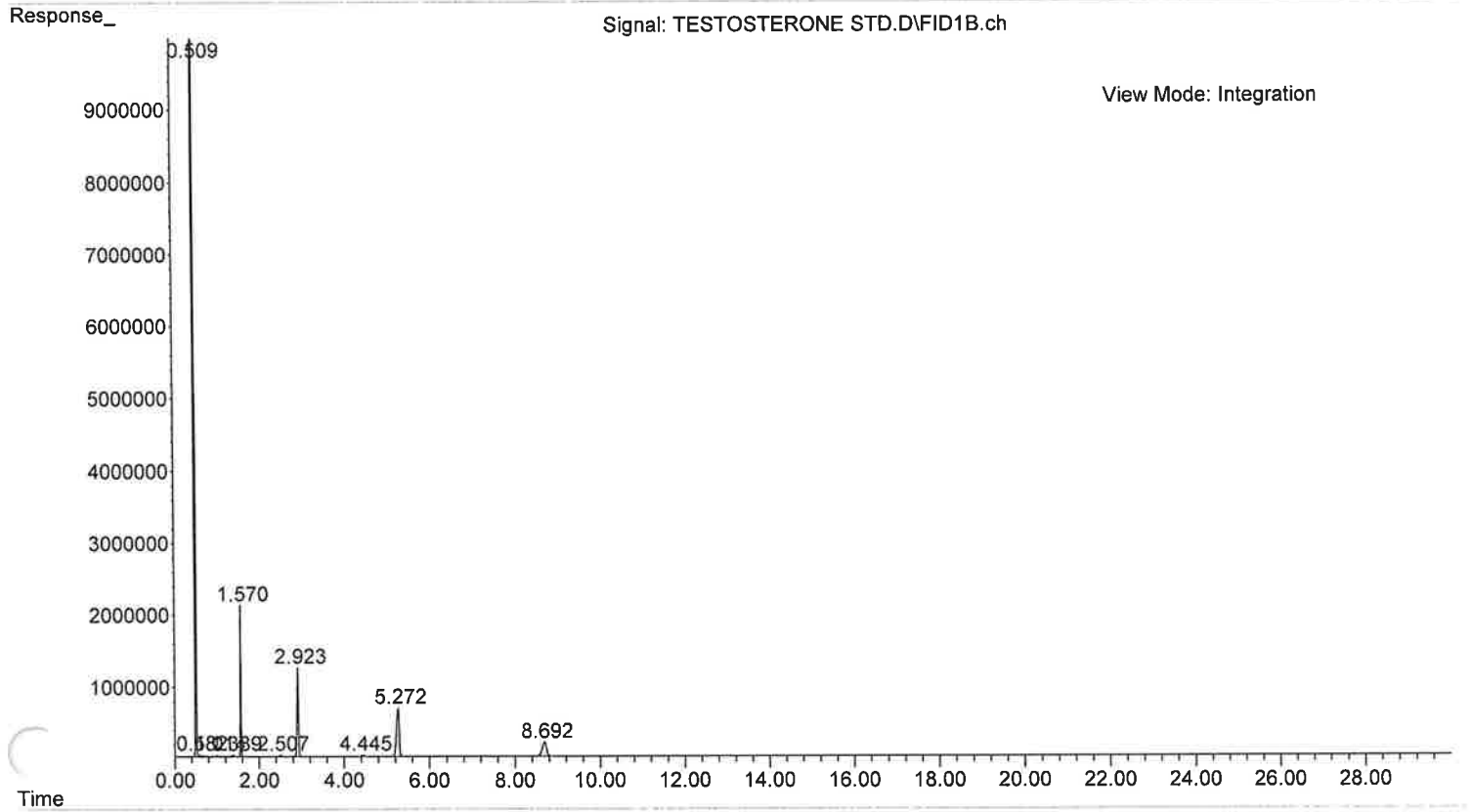
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Solvent : MEOH



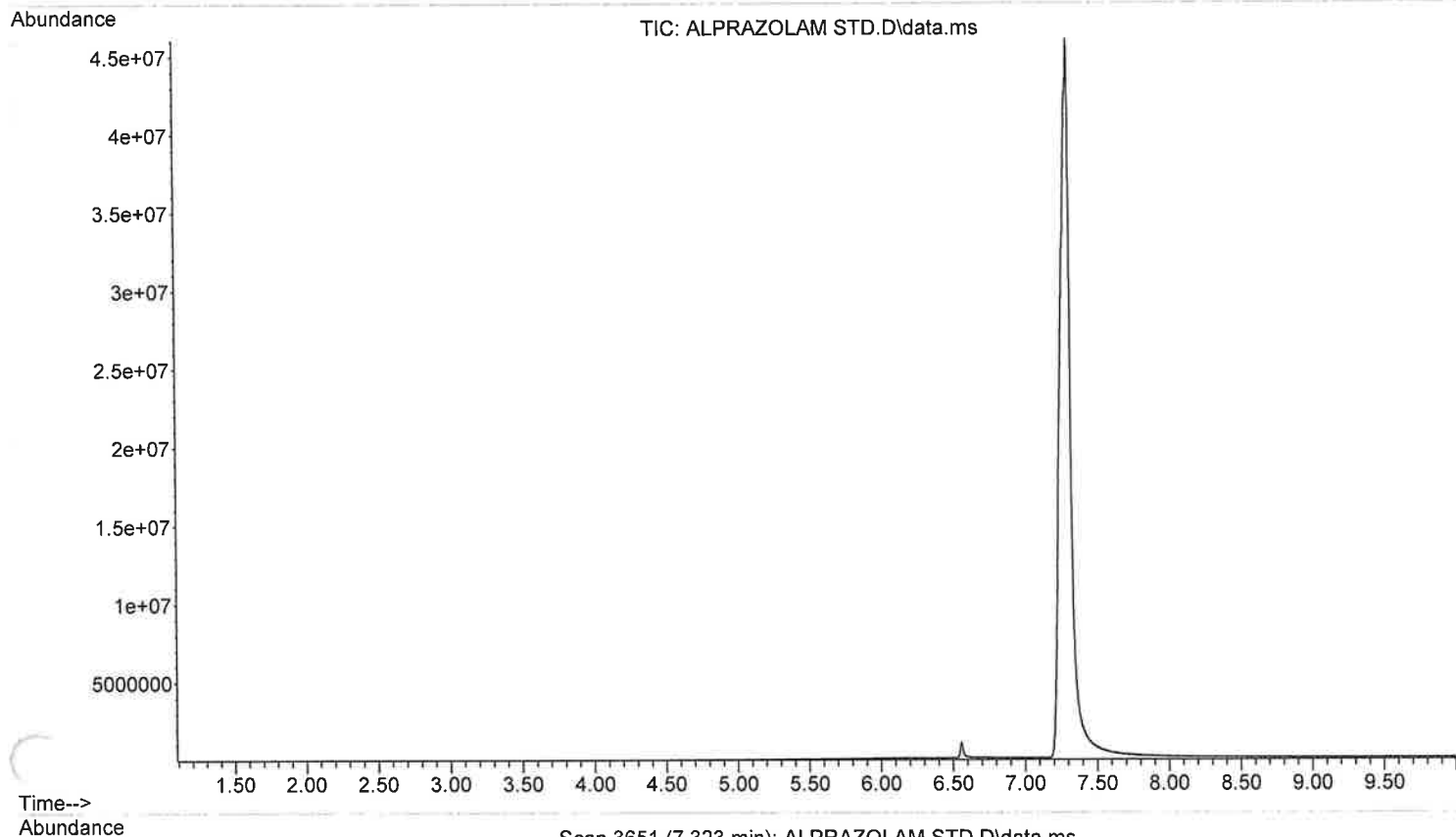
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Name: TESTOSTERONE STD MIX
nfo : MEOH



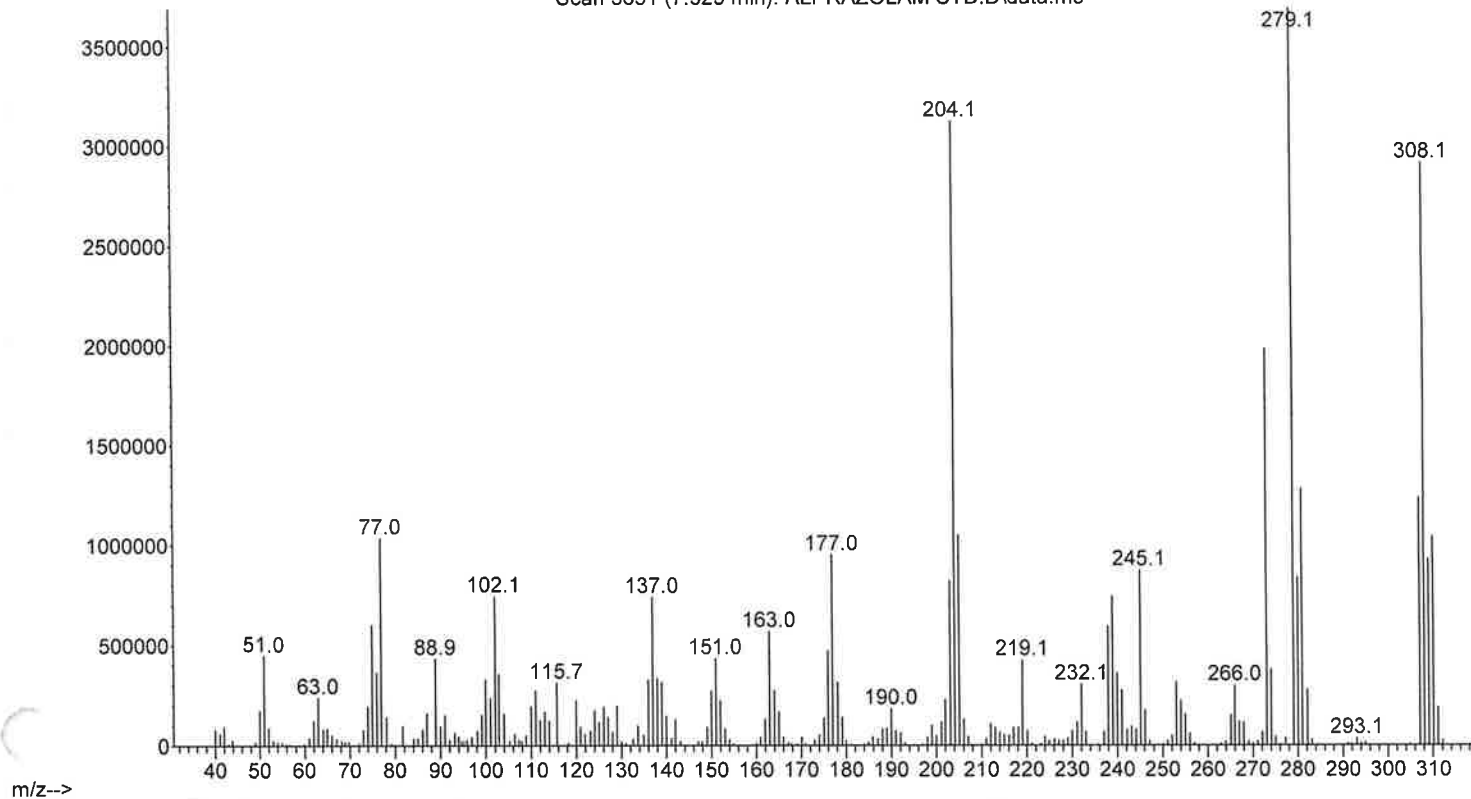
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Solvent Info : MEOH



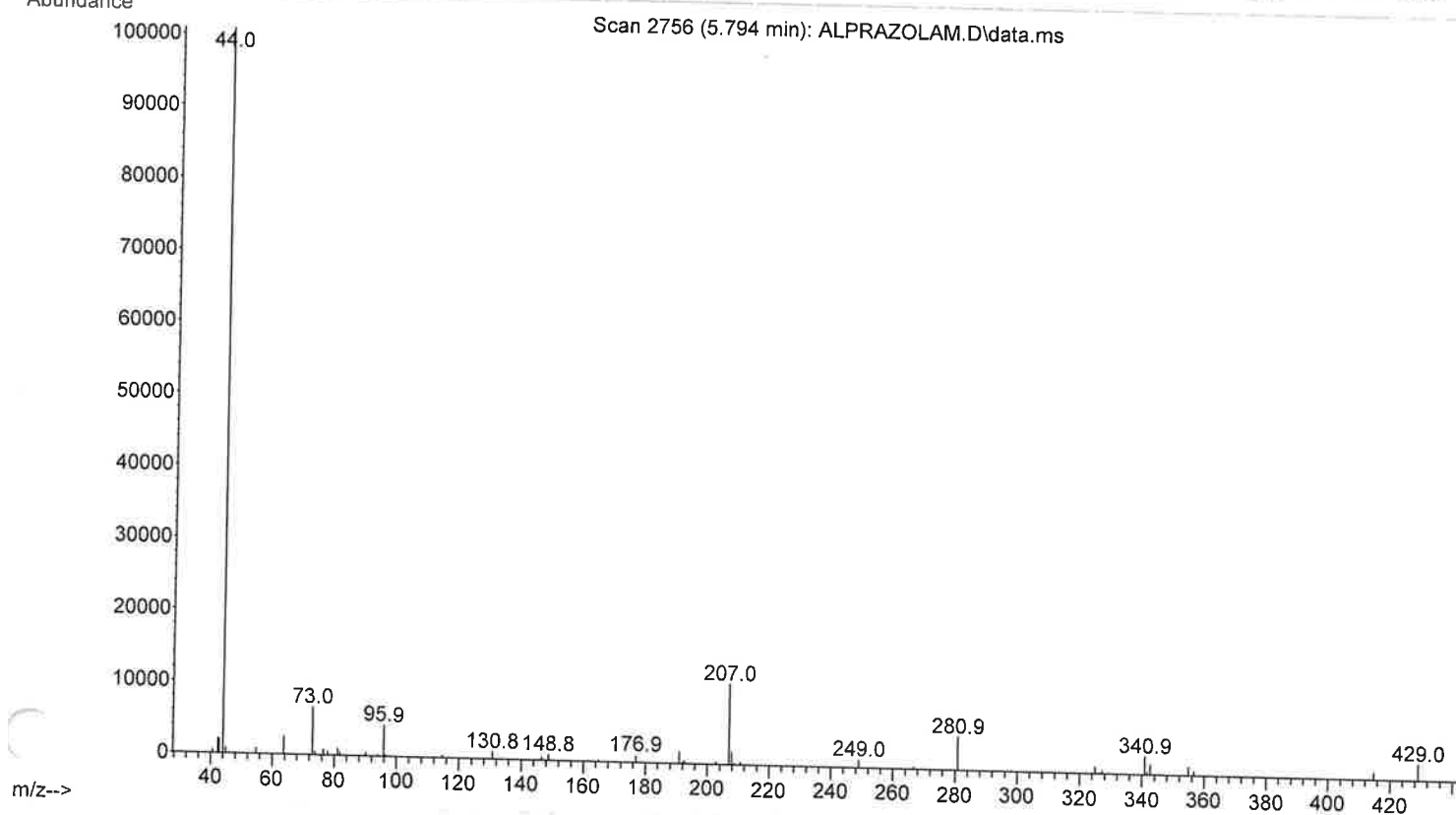
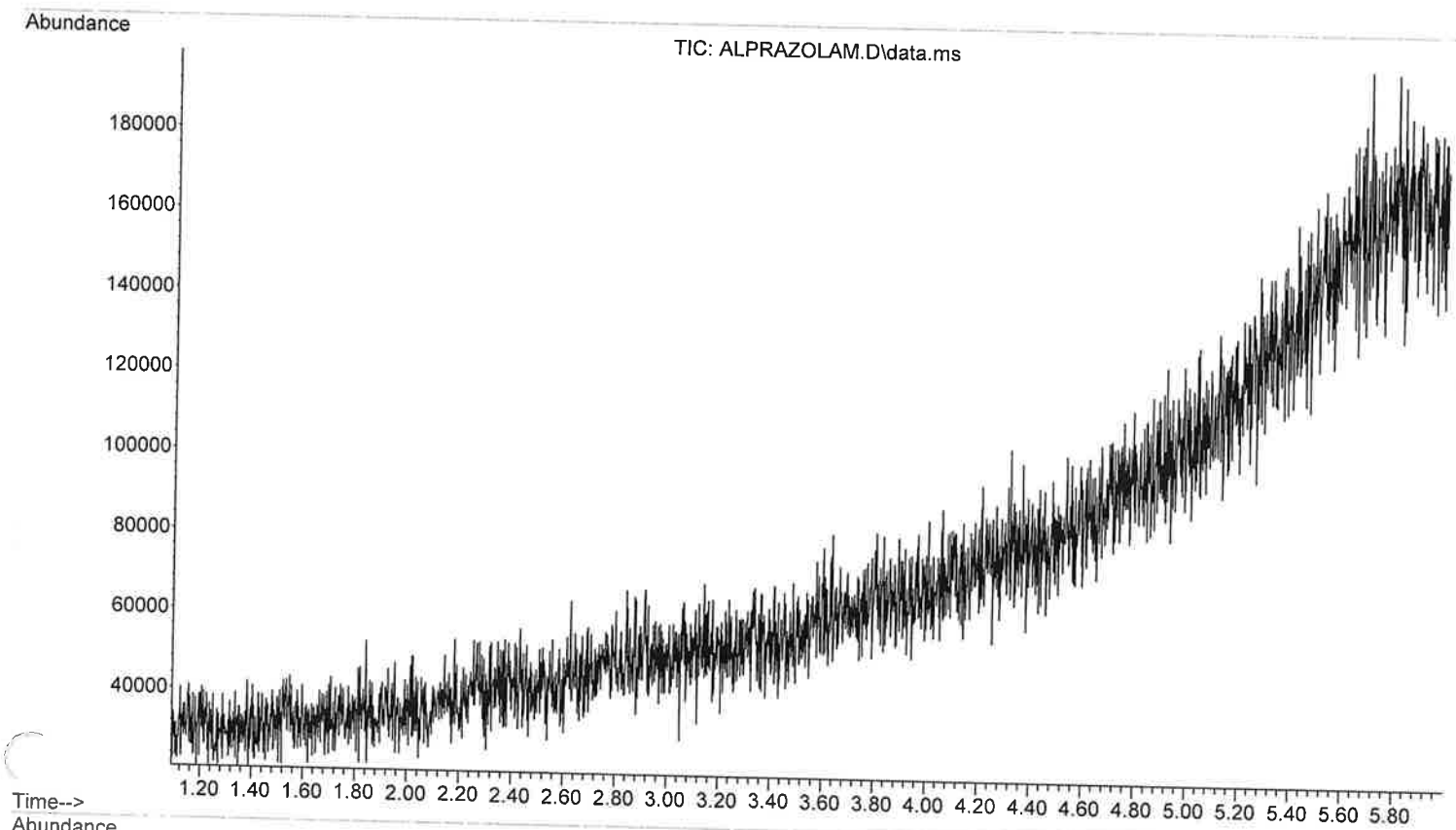
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Acquired: 04 May 2017 07:02 using AcqMethod MSDRUGS100.M
Sample Name:
Info: ME0H



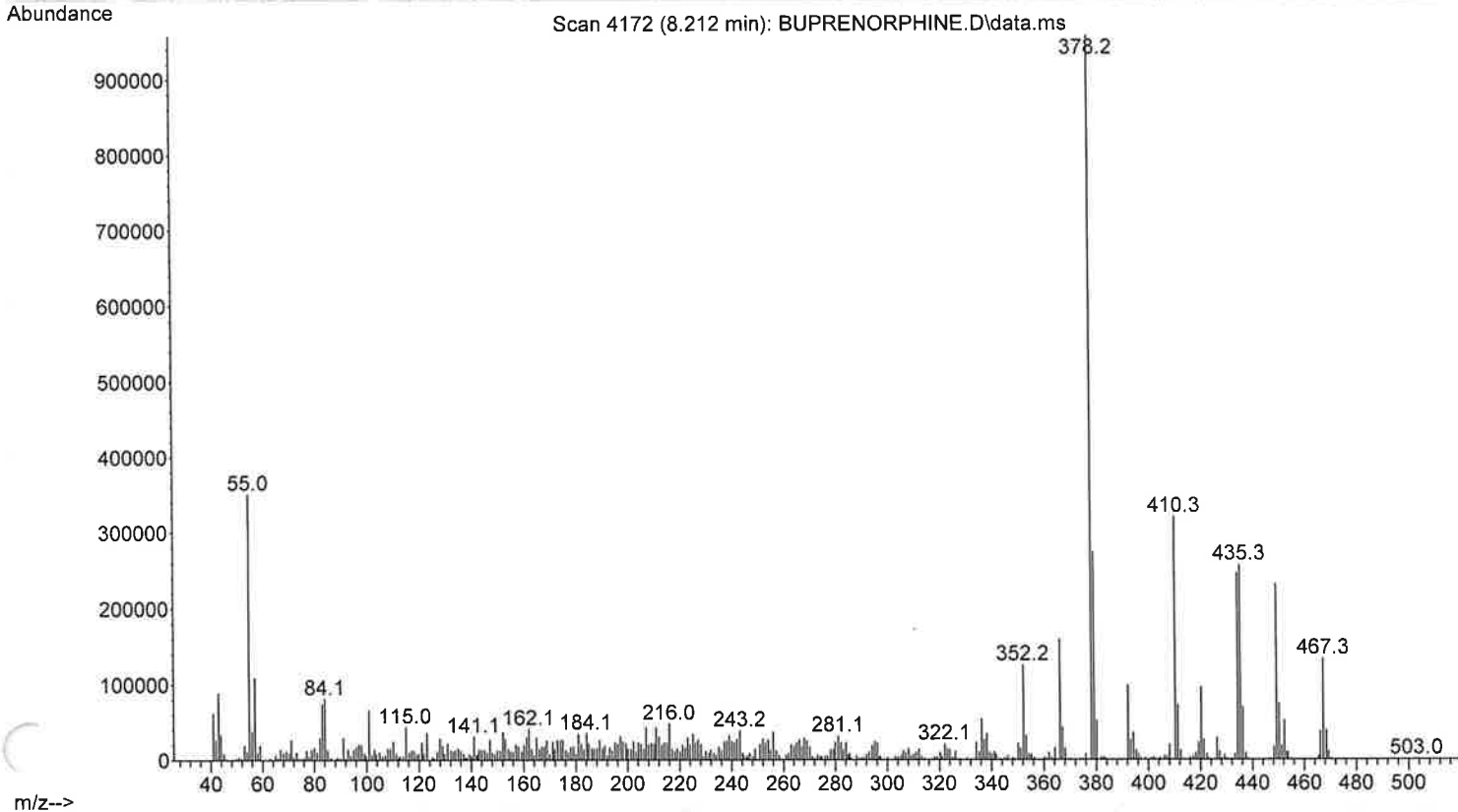
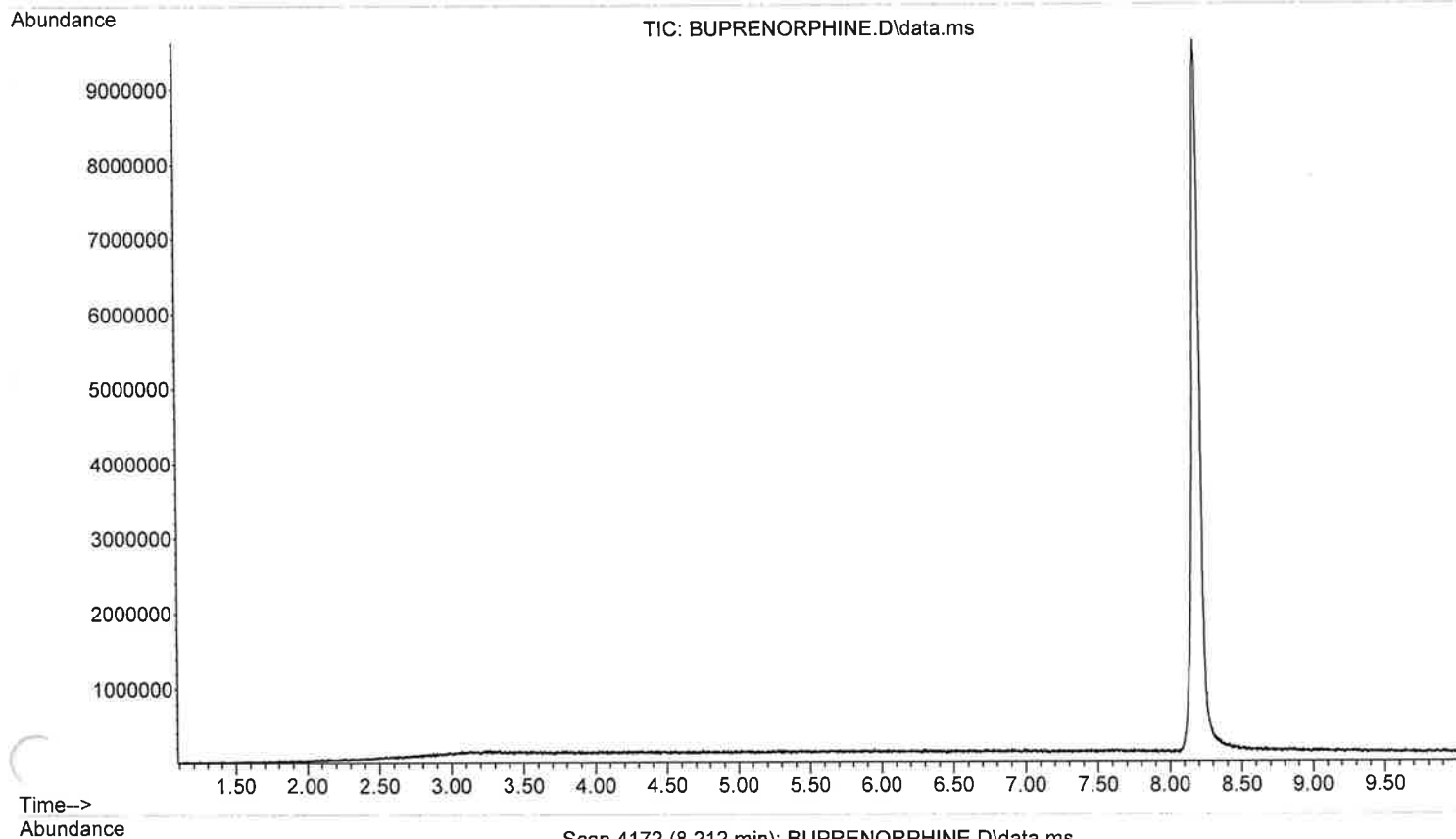
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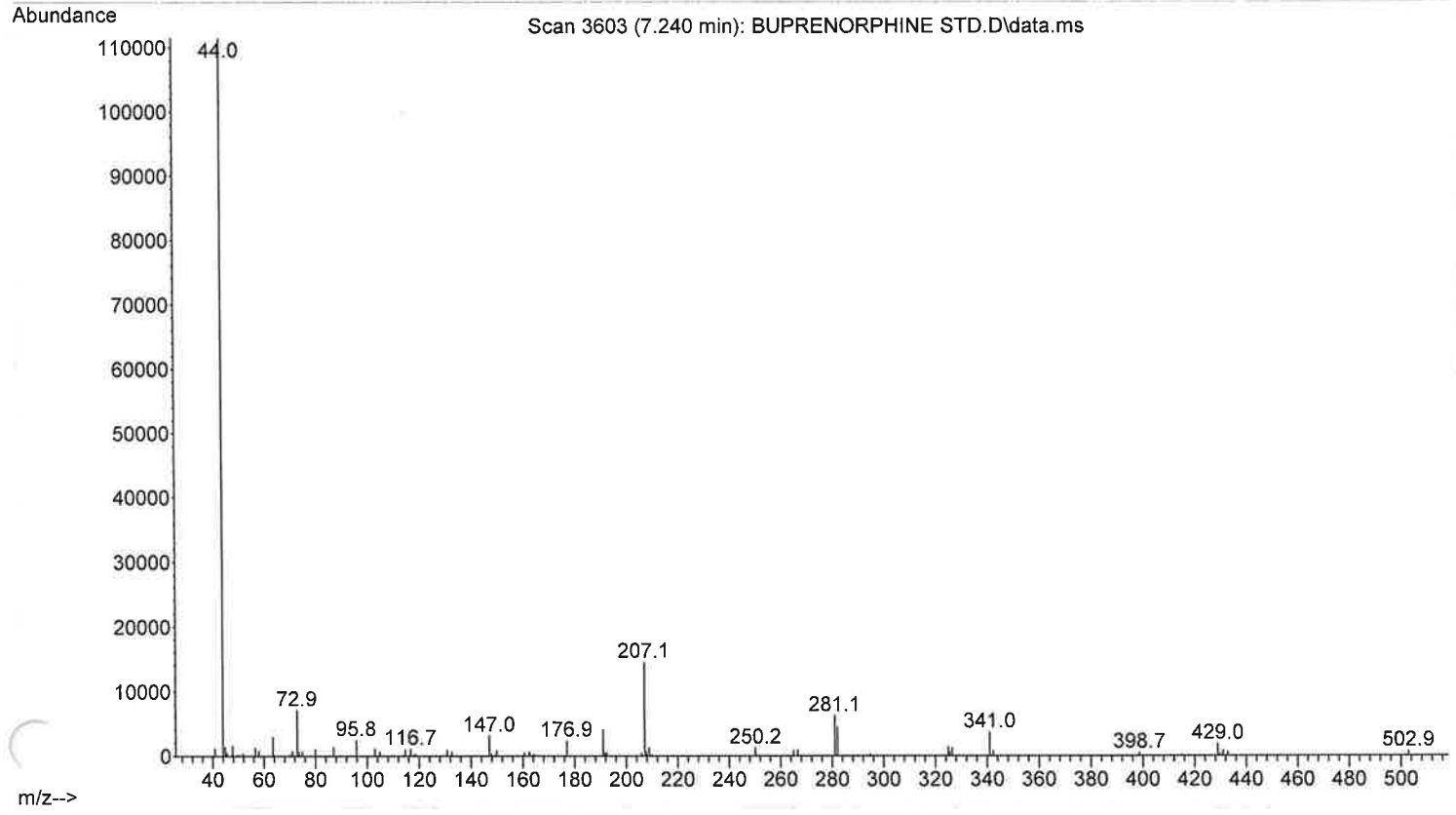
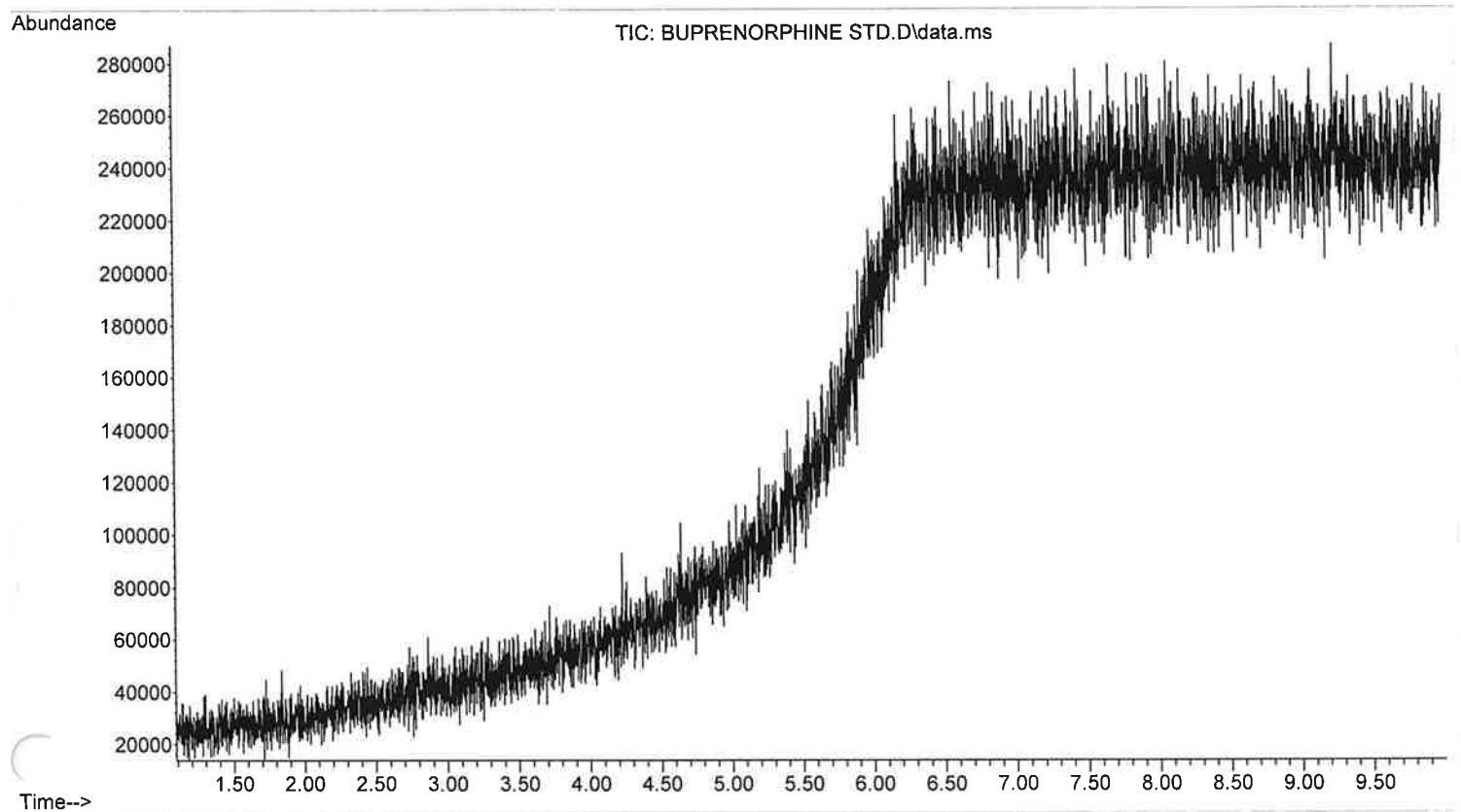
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Instrument : Heisenberg
Sample Name: ALPRAZOLAM
Misc Info : MEOH
Injection Number: 1



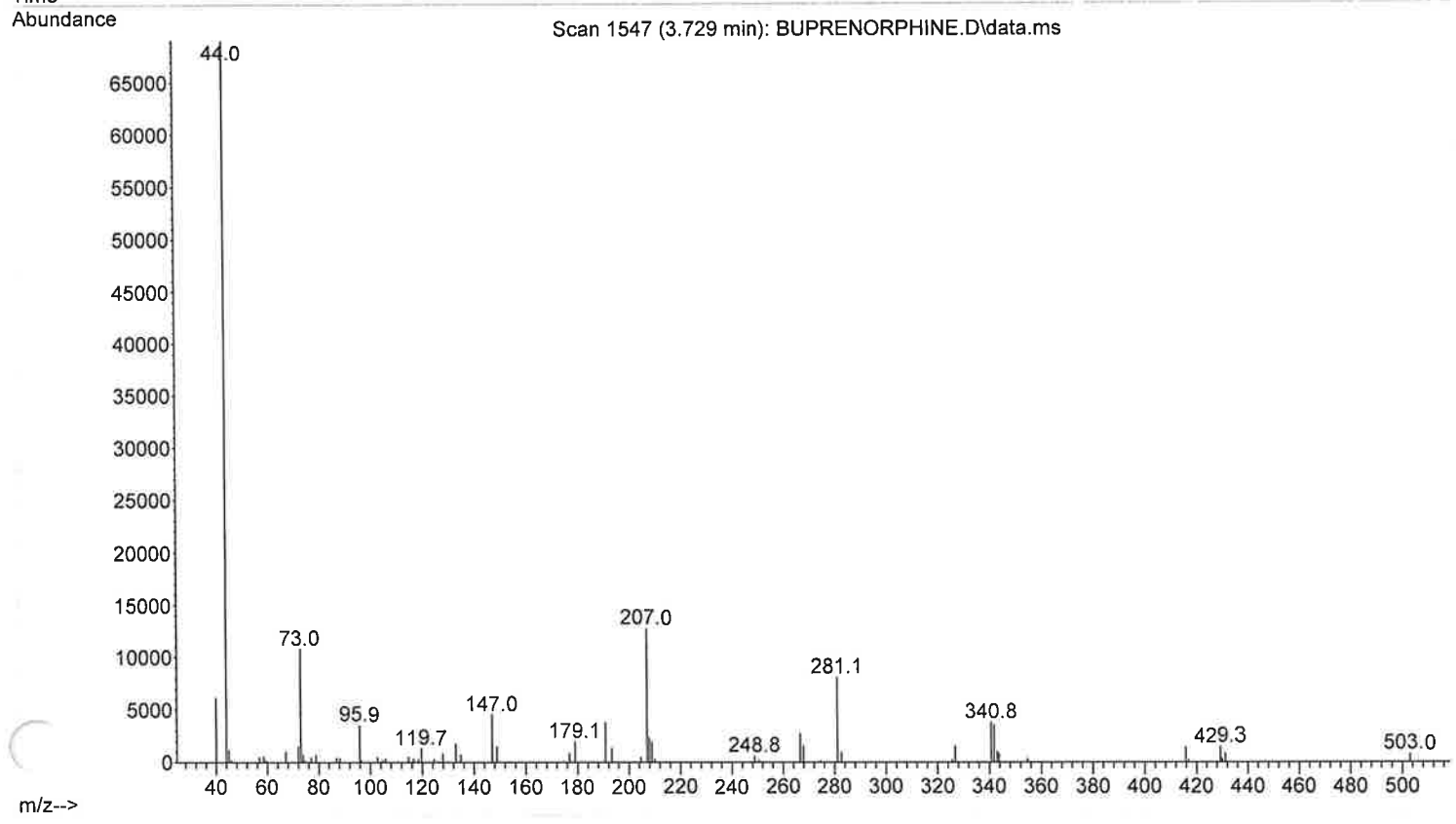
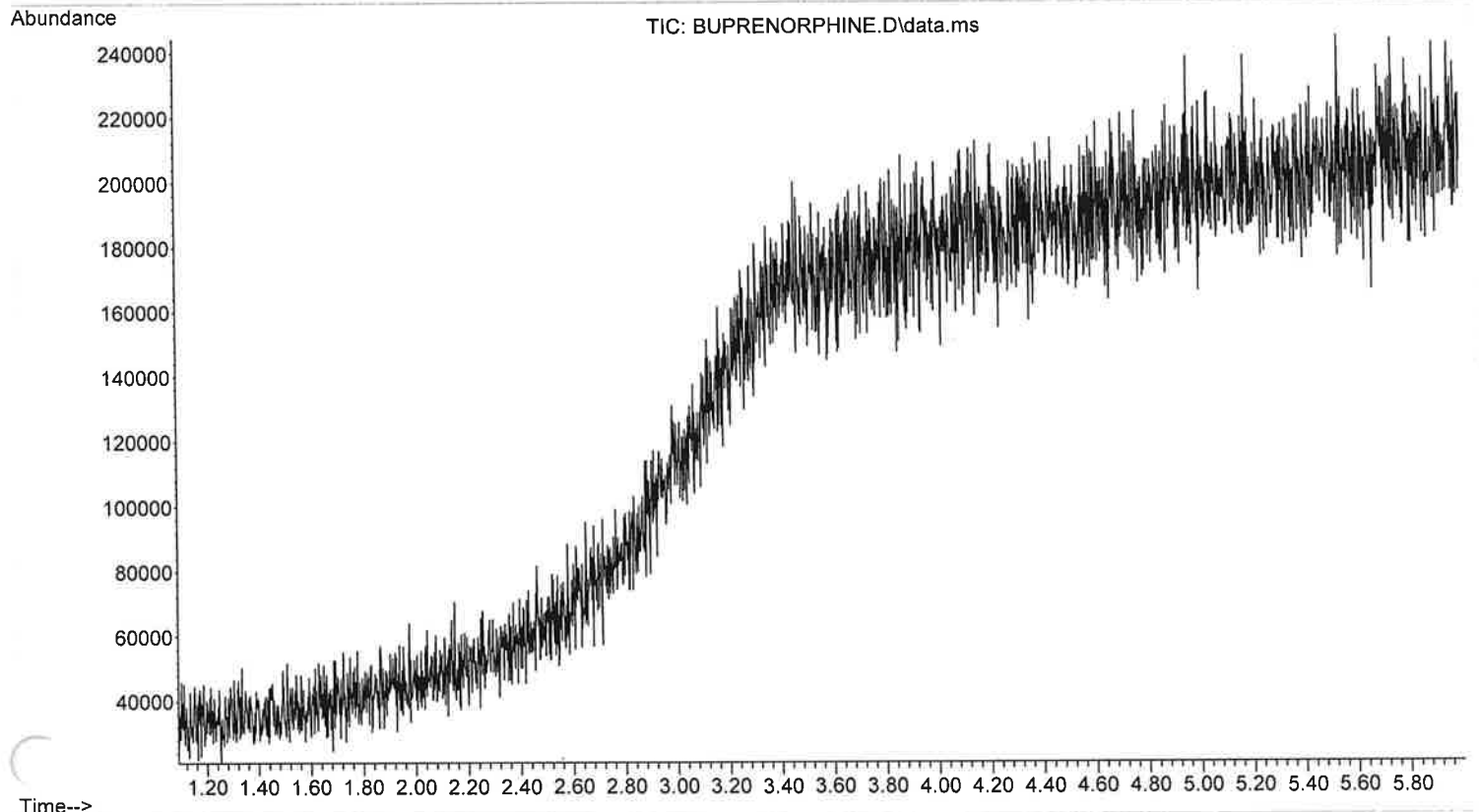
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PHINE.D
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Sample Name:
Info : ACETONITRILE



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Instrument : Heisenberg
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Sample Name: BUPRENORPHINE STD
Solvent Info : MEOH



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strument : Heisenberg
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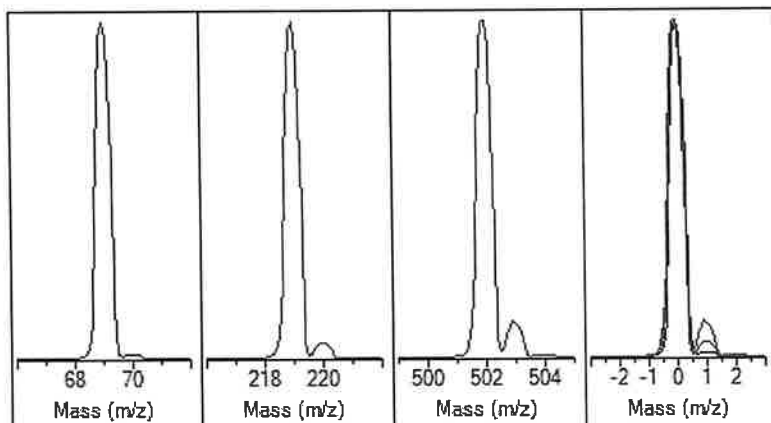
Autotune - 5977

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Heisenberg

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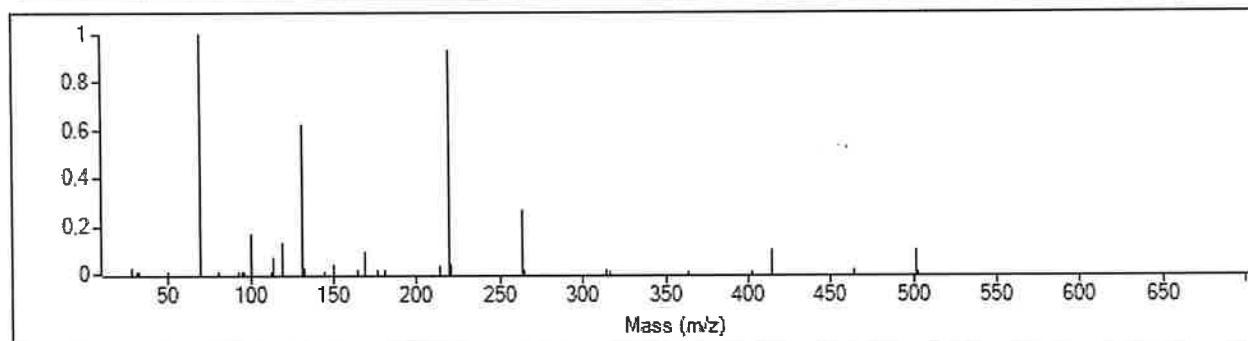
Ion Polarity	Pos	PFTBA	Open
Emission	34.6	Mass Gain	445
Electron Energy	70.0	Mass Offset	-24
Filament	1	Amu Gain	2914
Repeller	23.35	Amu Offset	135.88
Ion Focus	90.3	Width219	-0.033
Entrance Lens	17.6	DC Polarity	Pos
Ent Lens Offset	13.40	HED Enable	On
Ion Body	0.00	EM Volts	946.7
Post Extractor 1	0	Extractor Lens	0.00
Post Extractor 2	0	Scan Speed	3
JetClean Flow	0	Averages	3

Temperatures and Pressures

Actual m/z	Abund	Rel Abund	Pw50
69.00	569,847	100.0%	0.60
219.00	533,974	93.7%	0.60
502.00	55,710	9.8%	0.60

MS Source	230 Turbo Speed	100.0
MS Quad	150 Hi Vac	1.15e-05

Low	High	Step	Speed	Threshold	Peaks	Base	Abundance	Total Ion
10.00	701.00	0.10	3	100	135	69.00	549,632	2,154,162



Target m/z	Actual m/z	Abund	Rel Abund	Iso m/z	Iso Abund	Iso Ratio
69.00	69.00	549,632	100.0%	70.00	5,645	1.0%
219.00	219.00	510,144	92.8%	220.00	22,184	4.3%
502.00	502.00	53,720	9.8%	503.00	5,333	9.9%

Air/Water Check: H2O ~0.3% N2 ~2.6% O2 ~0.7% CO2 ~0.2% N2/H2O ~968.0%

Column(1) Flow: 1.00 Column(2): 1.00 ml/min Interface Temp: 280

Ramp Criteria:

Ion Focus maximum 90 volts using Ion 502; Electron Multiplier Gain 95874.169

Repeller maximum 35 volts using ion 219; Gain Factor 0.9587

Mass Gain Values(Scan Speed): 453(3) 459(2) 473(1) 492(0) 544(FS1) 543(FS2)

[illegible]

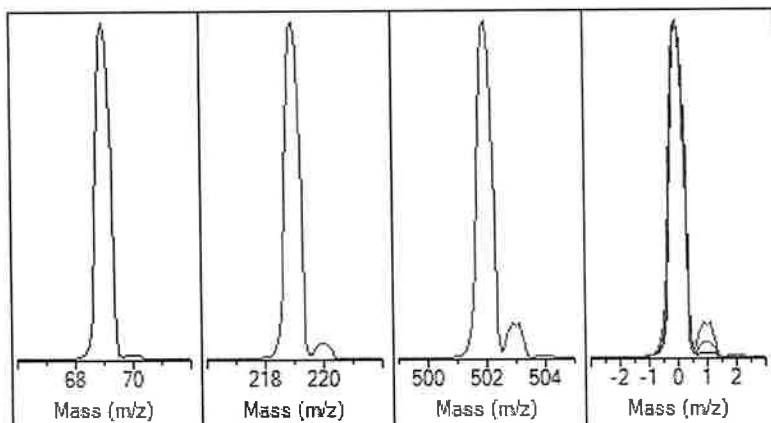
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Heisenberg

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US1648M021



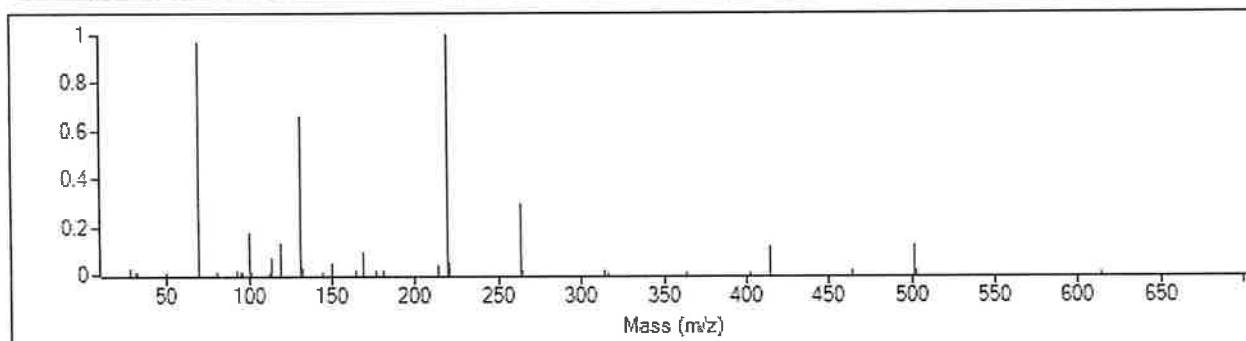
Ion Polarity	Pos	PFTBA	Open
Emission	34.6	Mass Gain	445
Electron Energy	70.0	Mass Offset	-24
Filament	1	Amu Gain	2918
Repeller	25.74	Amu Offset	134.63
Ion Focus	90.3	Width219	-0.037
Entrance Lens	17.6	DC Polarity	Pos
Ent Lens Offset	13.40	HED Enable	On
Ion Body	0.00	EM Volts	964.3
Post Extractor 1	0	Extractor Lens	0.00
Post Extractor 2	0	Scan Speed	3
JetClean Flow	0	Averages	3

Temperatures and Pressures

Actual m/z	Abund	Rel Abund	Pw50
69.00	498,106	100.0%	0.60
219.00	501,794	100.7%	0.60
502.00	63,816	12.8%	0.59

MS Source	230 Turbo Speed	100.0
MS Quad	150 Hi Vac	1.07e-05

Low	High	Step	Speed	Threshold	Peaks	Base	Abundance	Total Ion
10.00	701.00	0.10	3	100	156	219.00	486,144	2,009,609



Target m/z	Actual m/z	Abund	Rel Abund	Iso m/z	Iso Abund	Iso Ratio
69.00	69.00	471,616	100.0%	70.00	5,327	1.1%
219.00	219.00	486,144	103.1%	220.00	21,712	4.5%
502.00	502.00	60,496	12.8%	503.00	6,107	10.1%

Air/Water Check: H₂O ~0.4% N₂ ~2.1% O₂ ~0.7% CO₂ ~0.1% N₂/H₂O ~588.6%

Column(1) Flow: 1.00 Column(2): 1.00 ml/min Interface Temp: 280

Ramp Criteria:

Ion Focus maximum 90 volts using ion 502; Electron Multiplier Gain 113921.495

Repeller maximum 35 volts using ion 219; Gain Factor 1.1392

Mass Gain Values(Scan Speed): 452(3) 458(2) 472(1) 485(0) 572(FS1) 519(FS2)

[illegible]

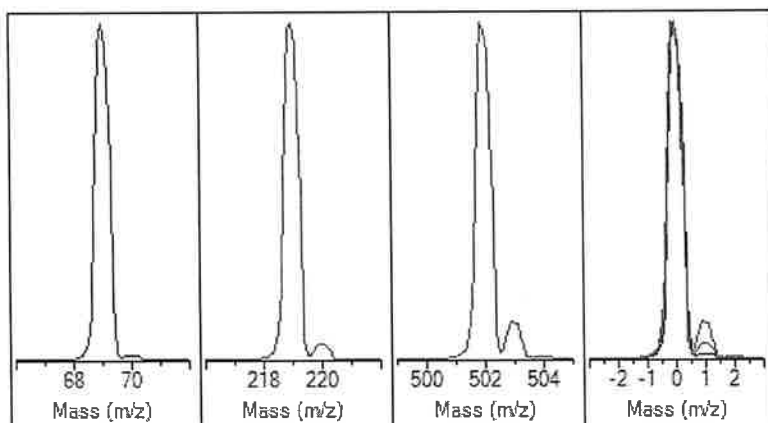
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Heisenberg

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US1648M021



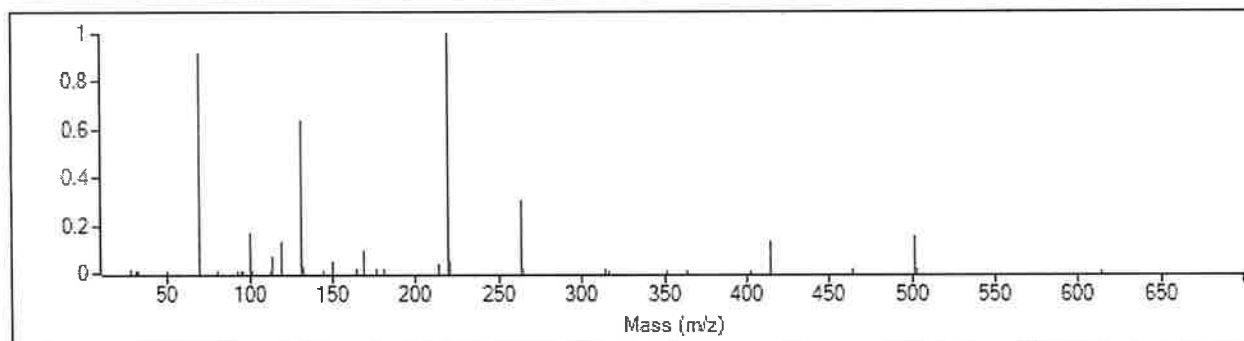
Ion Polarity	Pos	PFTBA	Open
Emission	34.6	Mass Gain	445
Electron Energy	70.0	Mass Offset	-24
Filament	1	Amu Gain	2919
Repeller	27.53	Amu Offset	134.81
Ion Focus	90.3	Width219	-0.039
Entrance Lens	17.6	DC Polarity	Pos
Ent Lens Offset	12.36	HED Enable	On
Ion Body	0.00	EM Volts	984.6
Post Extractor 1	0	Extractor Lens	0.00
Post Extractor 2	0	Scan Speed	3
JetClean Flow	0	Averages	3

Temperatures and Pressures

Actual m/z	Abund	Rel Abund	Pw50
69.00	460,428	100.0%	0.60
219.00	497,180	108.0%	0.60
501.90	74,948	16.3%	0.59

MS Source	230 Turbo Speed	100.0
MS Quad	150 Hi Vac	1.03e-05

Low	High	Step	Speed	Threshold	Peaks	Base	Abundance	Total Ion
10.00	701.00	0.10	3	100	150	219.00	481,472	1,978,872



Target m/z	Actual m/z	Abund	Rel Abund	Iso m/z	Iso Abund	Iso Ratio
69.00	69.00	442,304	100.0%	70.00	5,175	1.2%
219.00	219.00	481,472	108.9%	220.00	20,544	4.3%
502.00	502.00	73,000	16.5%	503.00	7,177	9.8%

Air/Water Check: H₂O ~0.4% N₂ ~1.9% O₂ ~0.6% CO₂ ~0.1% N₂/H₂O ~477.1%

Column(1) Flow: 1.00 Column(2): 1.00 ml/min Interface Temp: 280

Ramp Criteria:

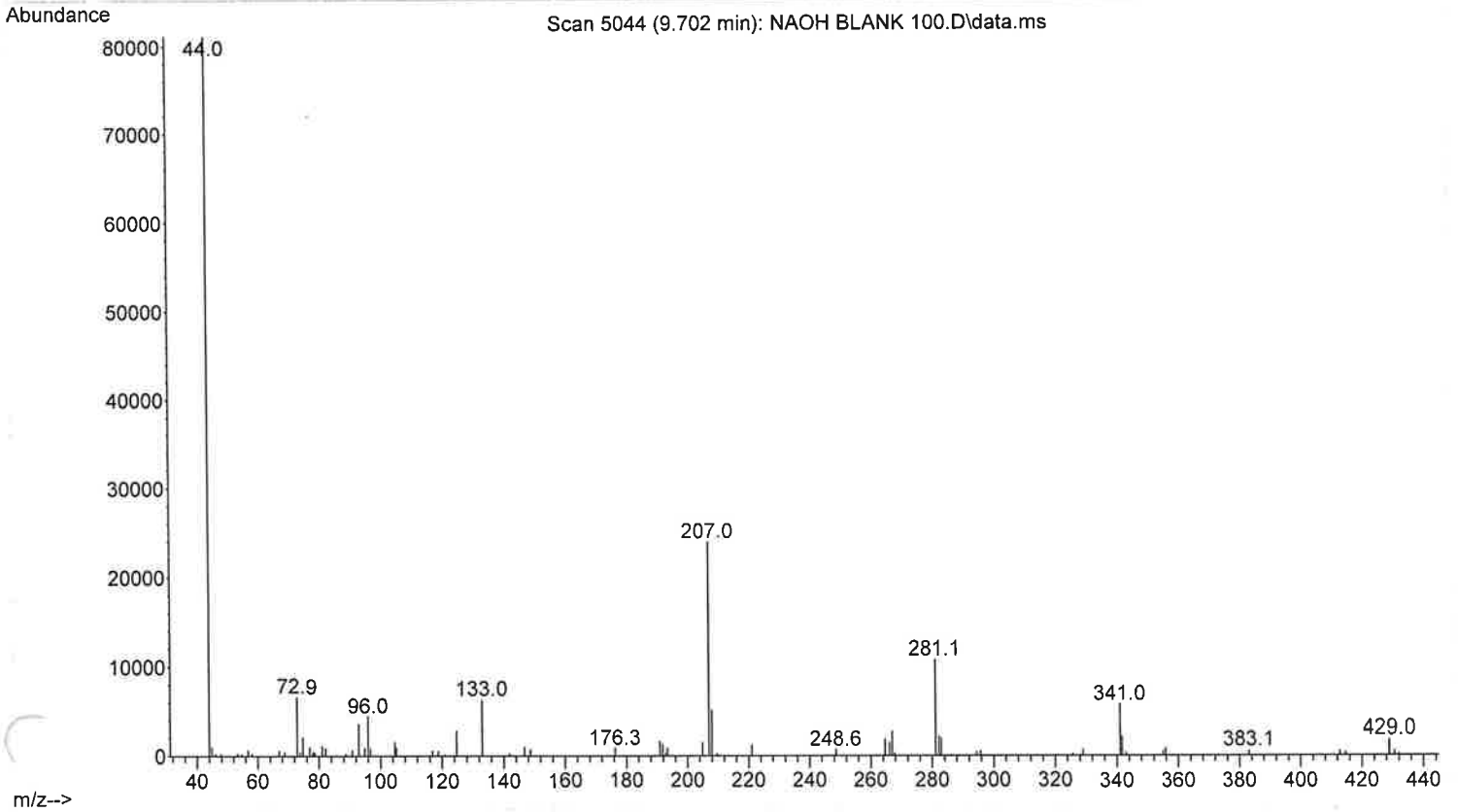
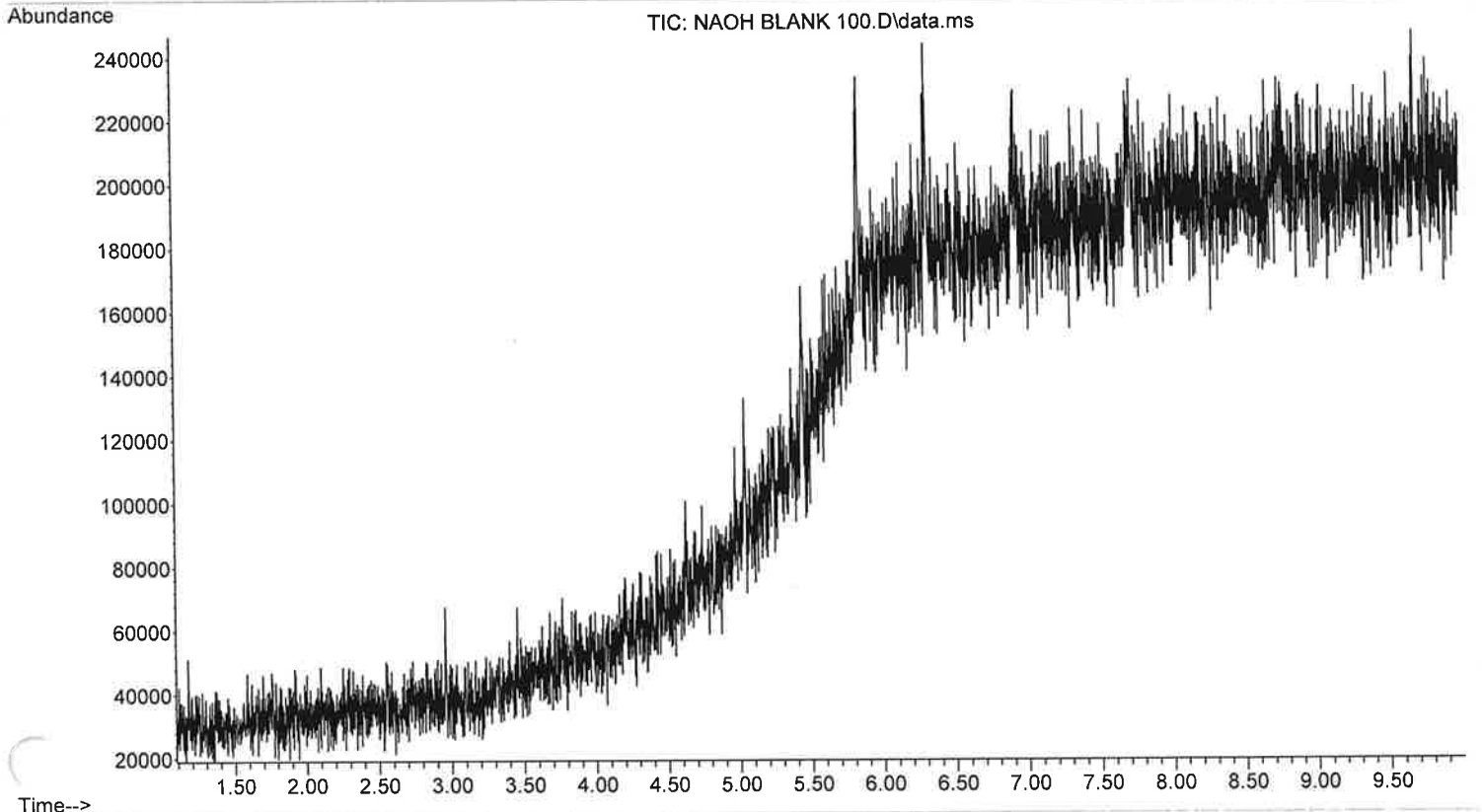
Ion Focus maximum 90 volts using ion 502; Electron Multiplier Gain 139654.115

Repeller maximum 35 volts using ion 219; Gain Factor 1.3965

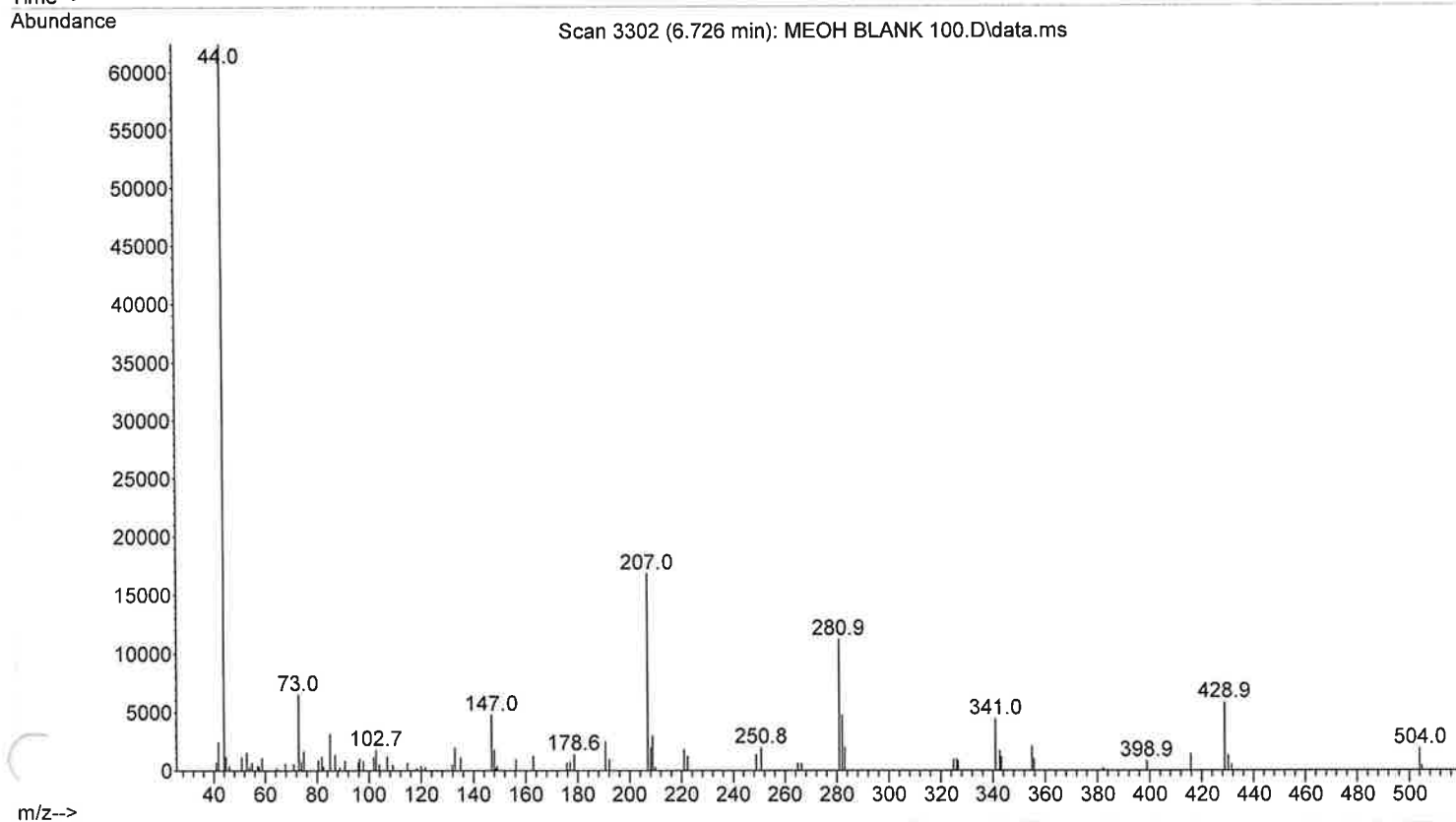
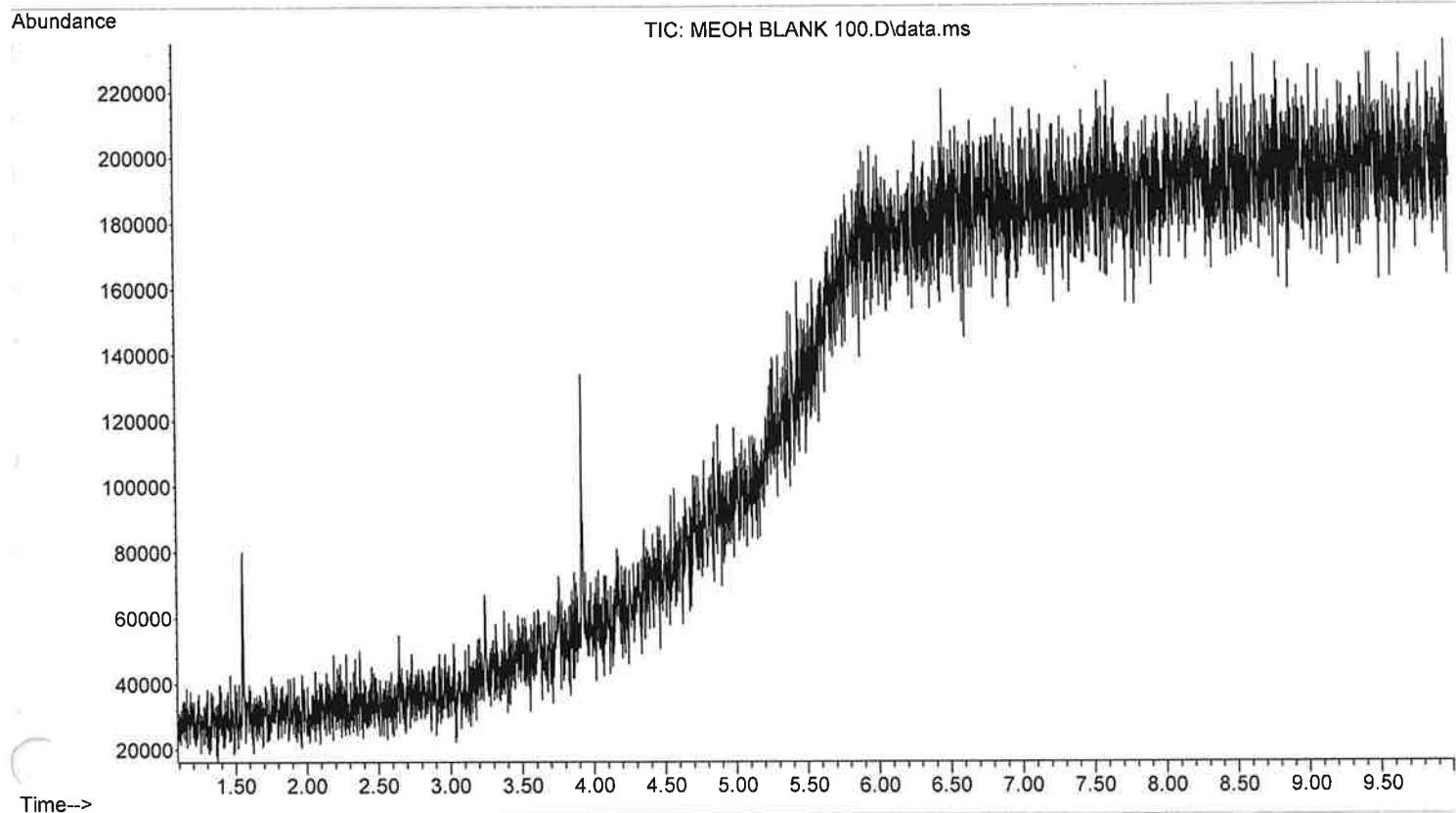
Mass Gain Values(Scan Speed): 452(3) 458(2) 467(1) 484(0) 527(FS1) 527(FS2)

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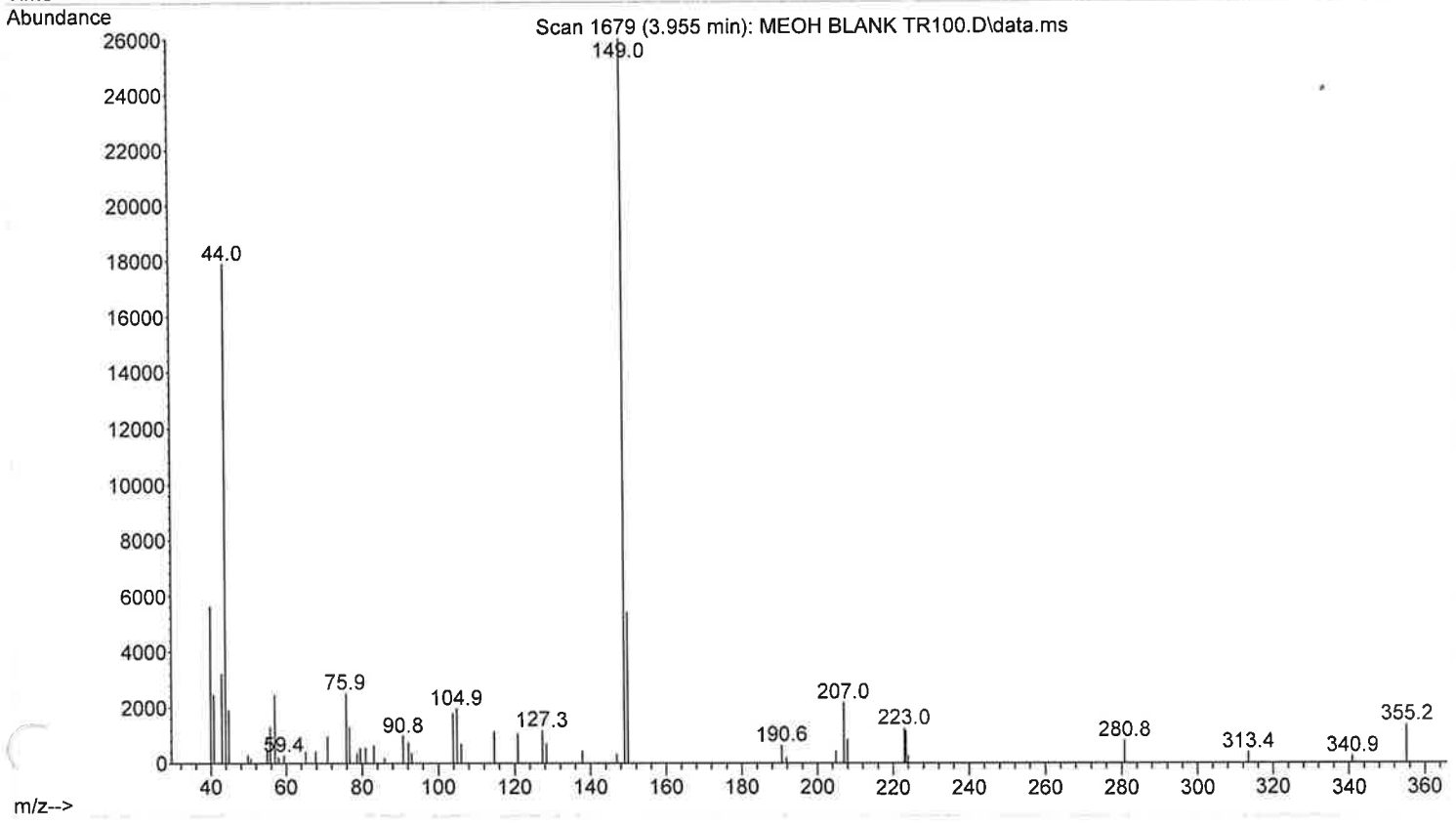
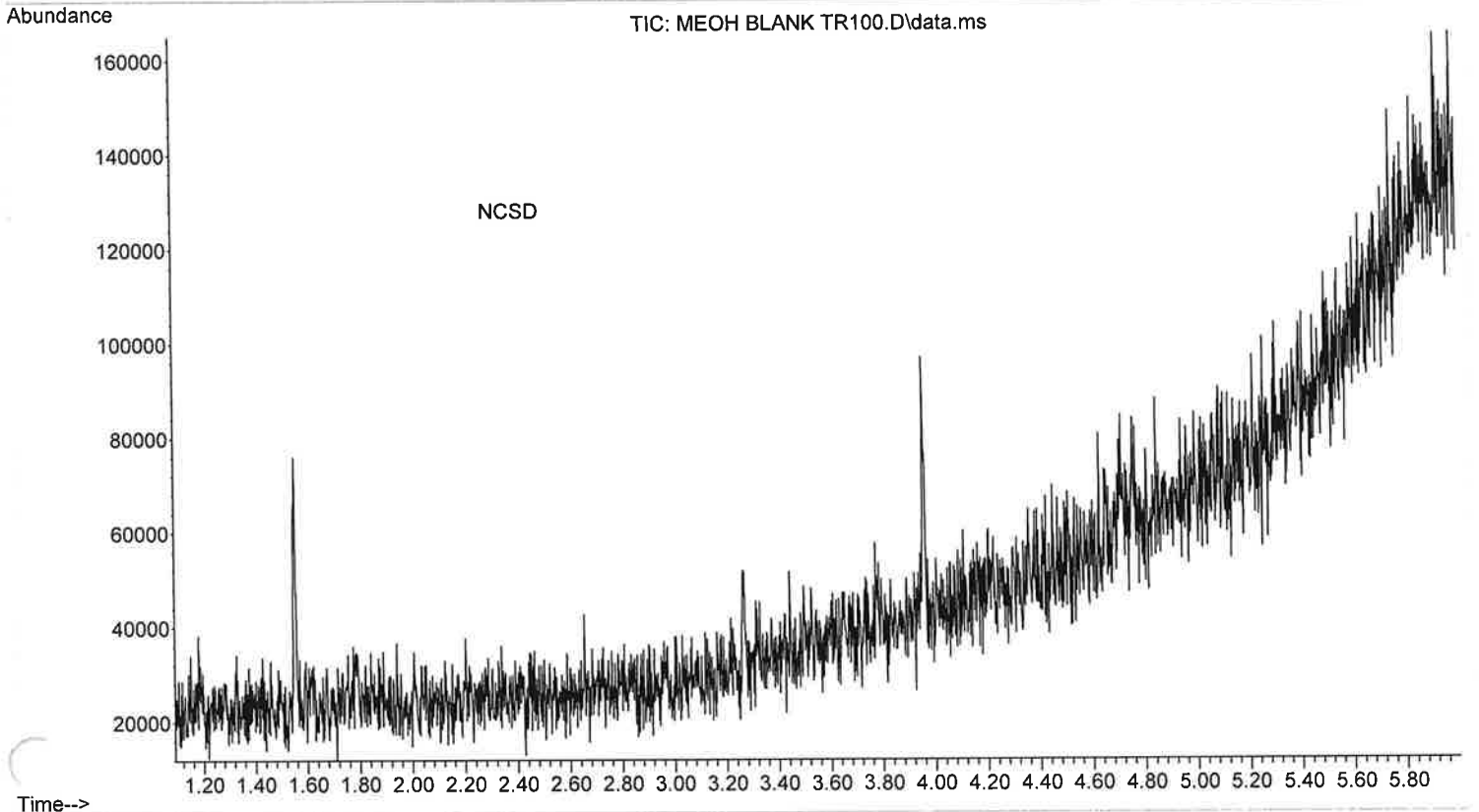
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.D
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strument : Heisenberg
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m Name: 0.5N NAOH/CHCL3 BLANK
fo : 0.5N NAOH/CHCL3



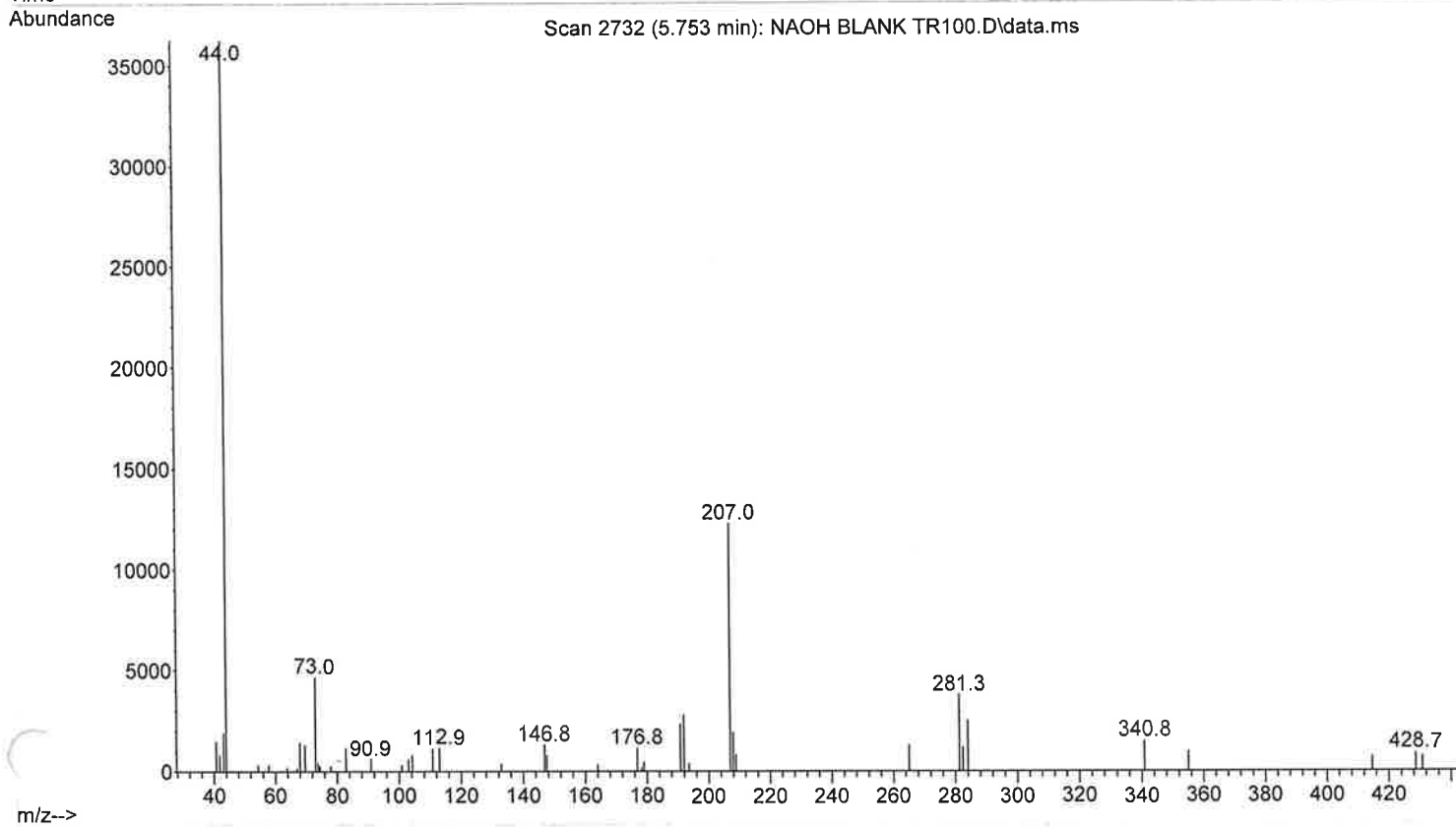
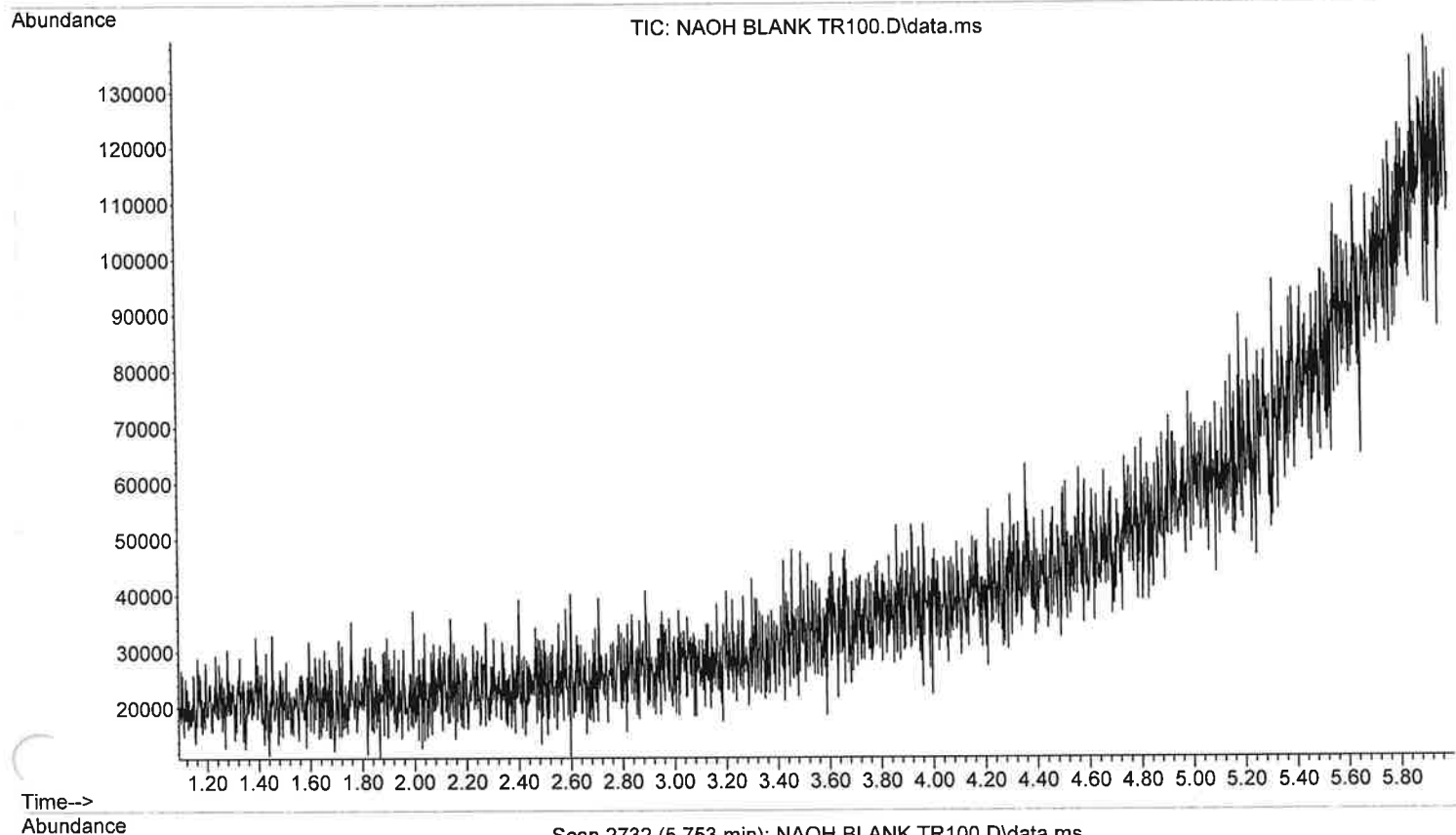
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strument : Heisenberg
quired : 26 Apr 2017 15:12 using AcqMethod ASMSDRUGS100.M
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nfo : MEOH



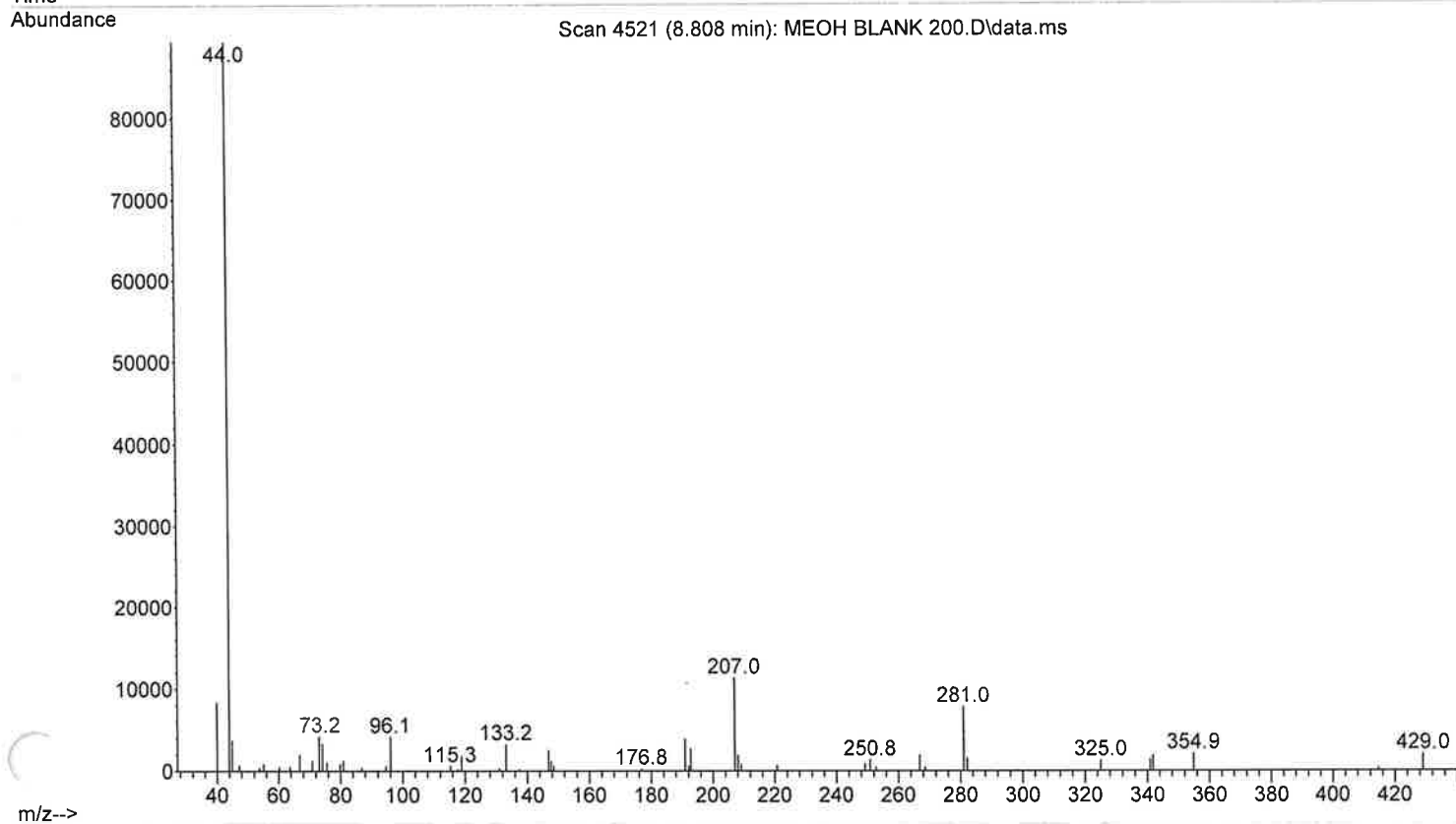
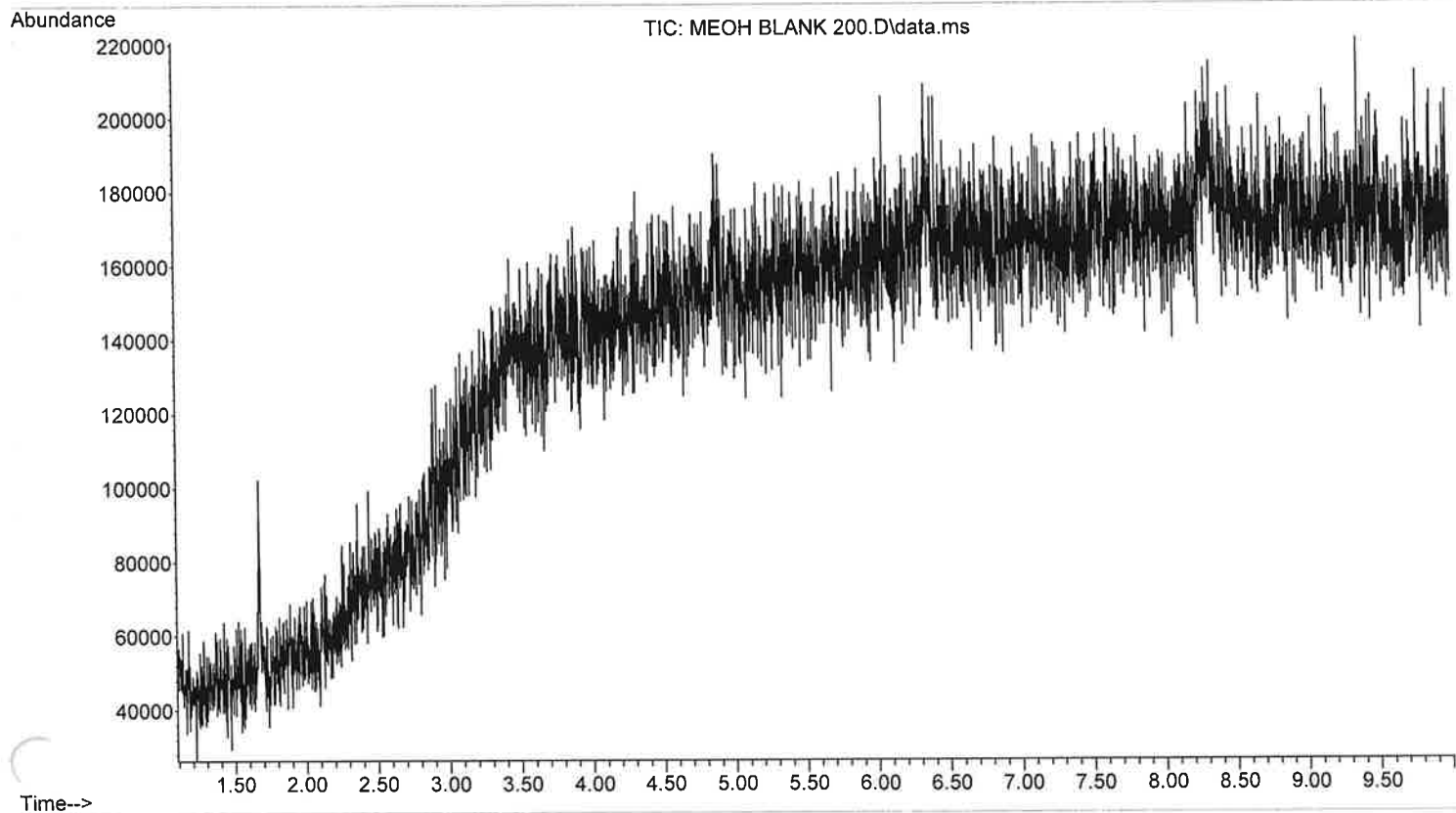
le :D:\MassHunter\GCMS\1\data\Validation\AS042617\MEOH BLANK TR1
. 00.D
erator : EMC
strument : Heisenberg
quired : 26 Apr 2017 18:36 using AcqMethod ASMS100TR.M
me Name: MEOH BLANK
fo : MEOH



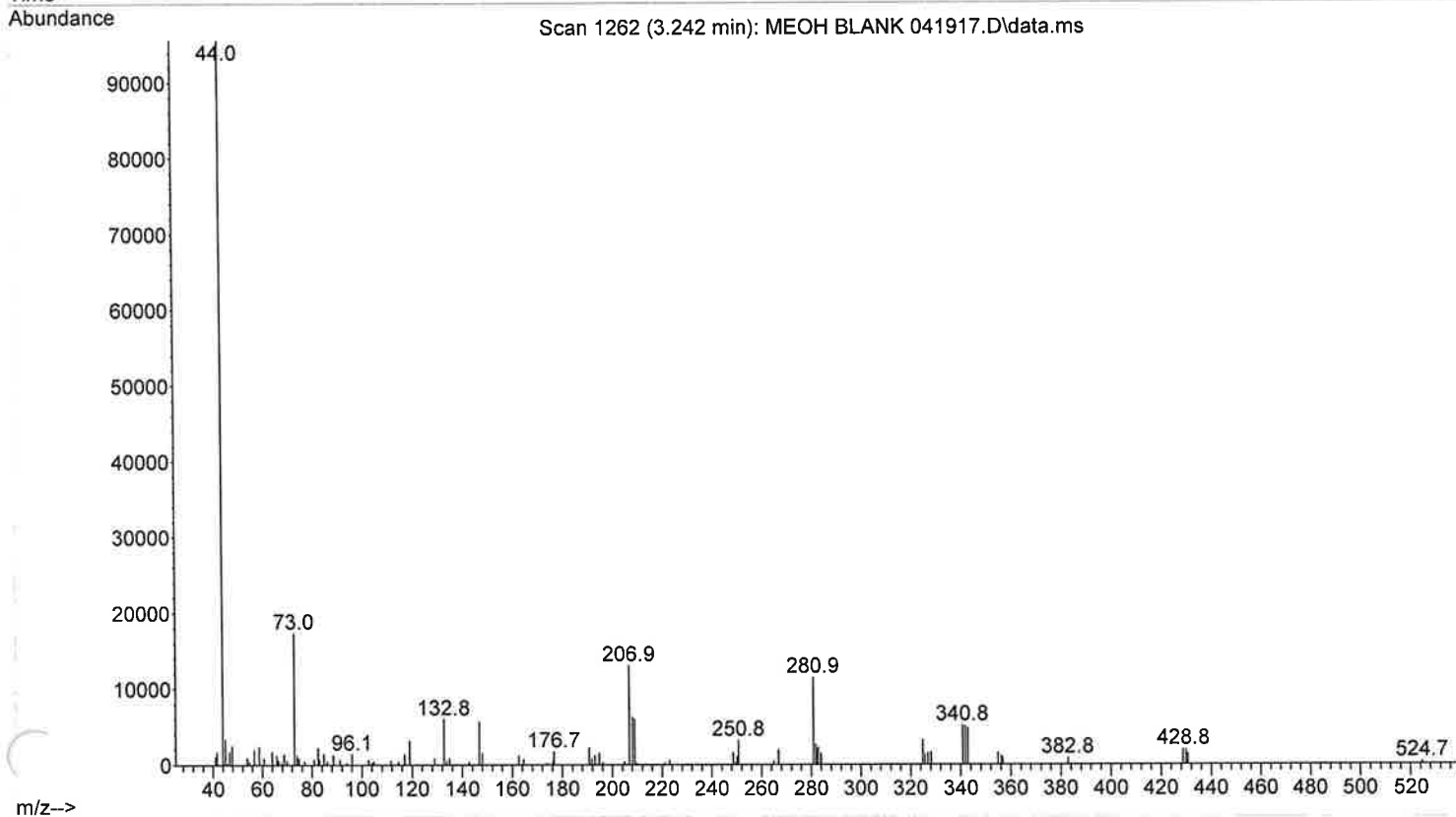
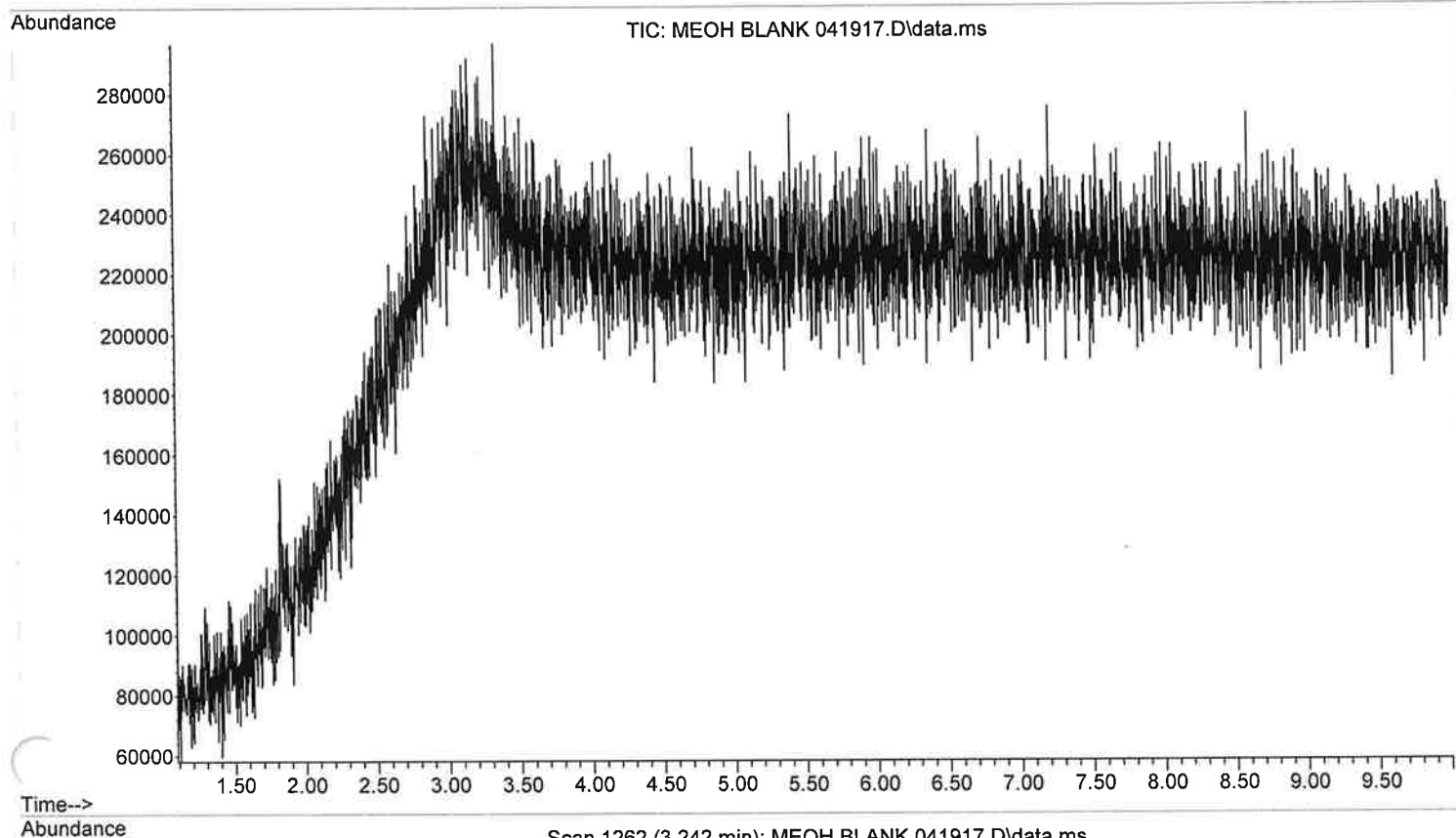
le :D:\MassHunter\GCMS\1\data\Validation\AS042617\NAOH BLANK TR1
 . 00.D
erator : EMC
strument : Heisenberg
quired : 26 Apr 2017 17:56 using AcqMethod ASMS100TR.M
Name: 0.5N NAOH/CHCL3 BLANK
Info : 0.5N NAOH/CHCL3



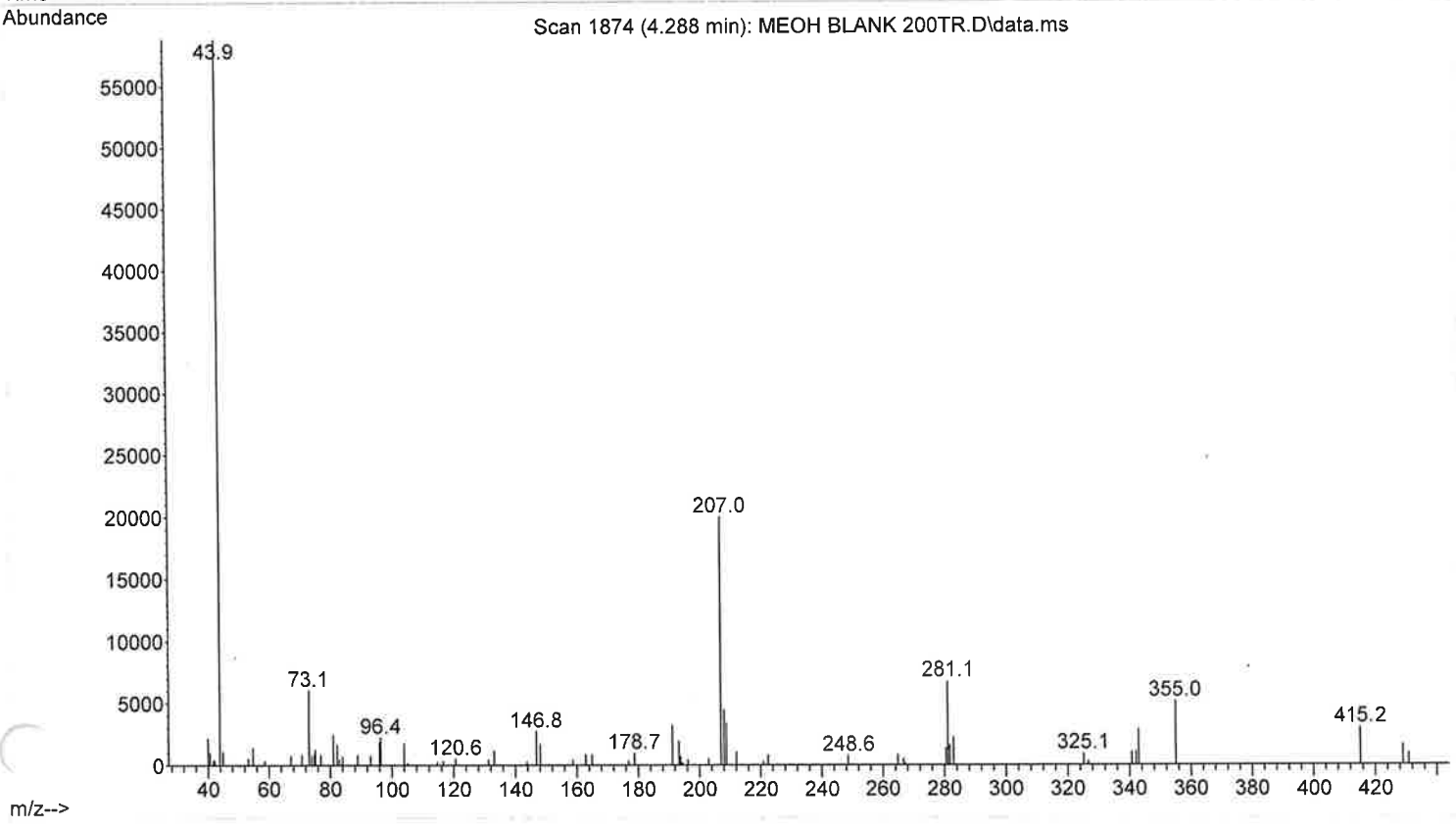
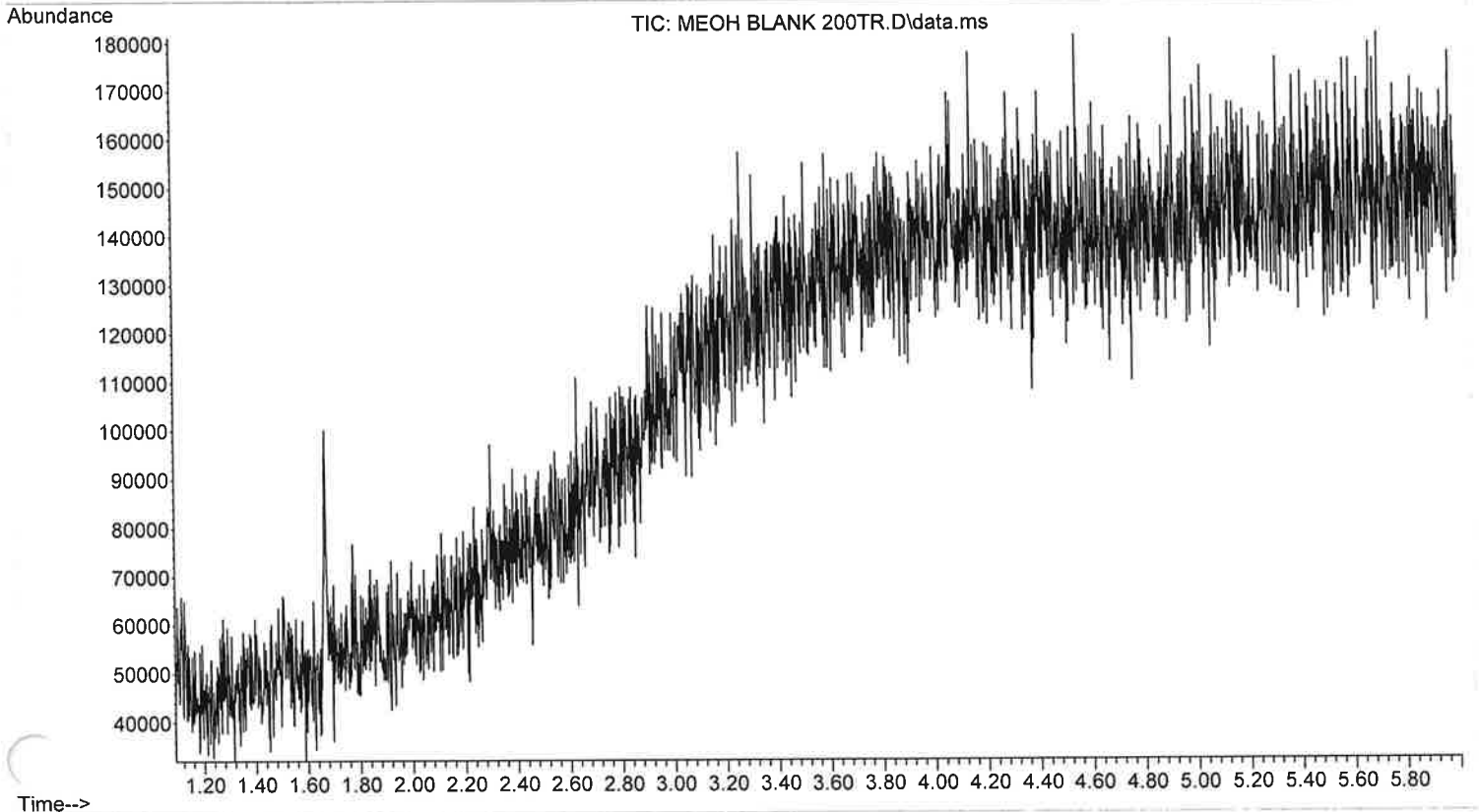
le :D:\MassHunter\GCMS\1\data\Validation\AS042617\MEOH BLANK 200
.D
erator : EMC
strument : Heisenberg
quired : 26 Apr 2017 19:15 using AcqMethod ASMSDRUGS200.M
mple Name: MEOH BLANK
nfo : MEOH



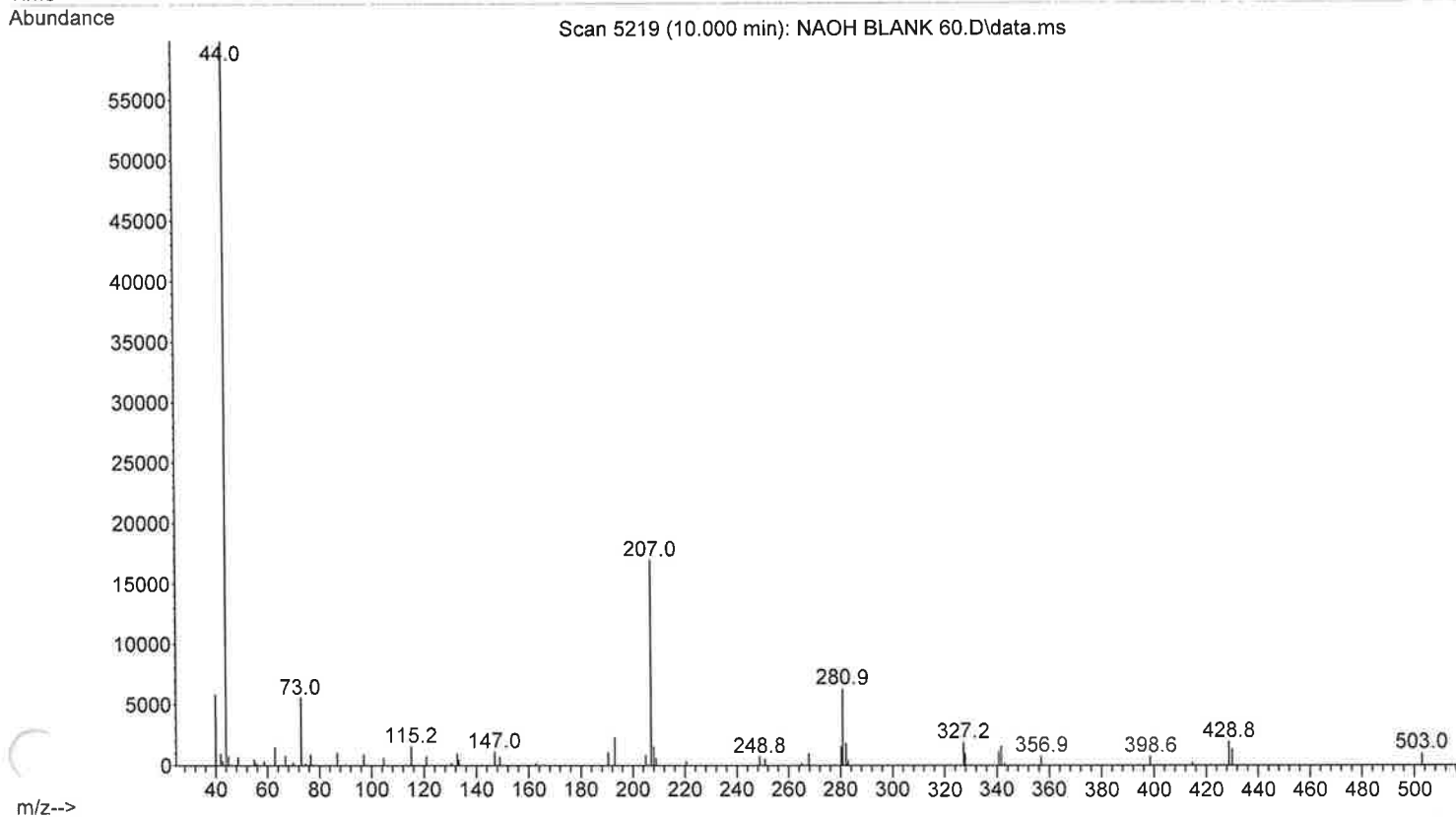
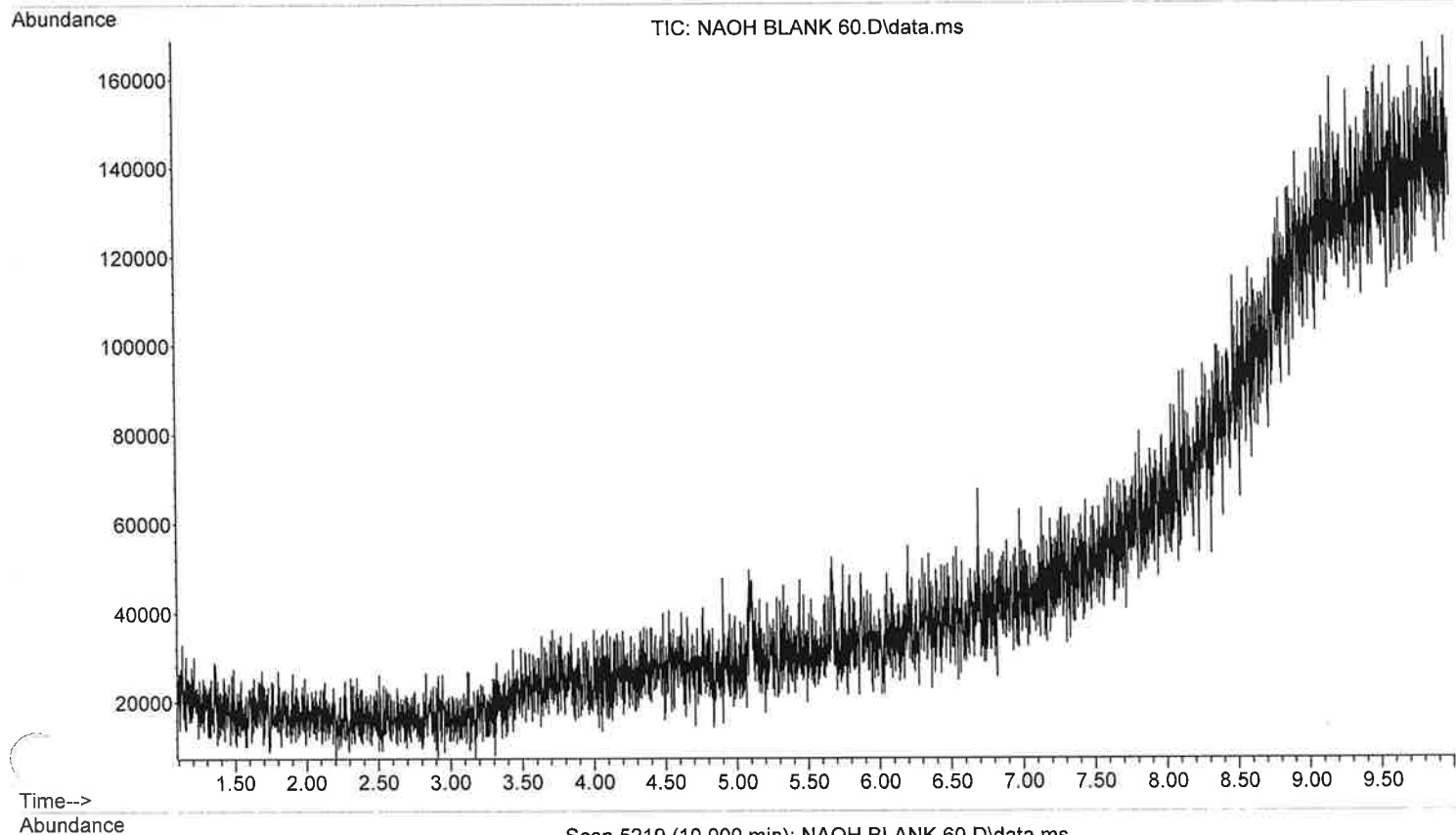
le :D:\MassHunter\GCMS\1\data\Validation\MSDRUGS200\MEOH BLANK 0
. 41917.D
erator : EMC
strument : Heisenberg
quired : 19 Apr 2017 12:54 using AcqMethod MSDRUGS200.M
m Name: MEOH BLANK 4/19/17
nfo : MEOH



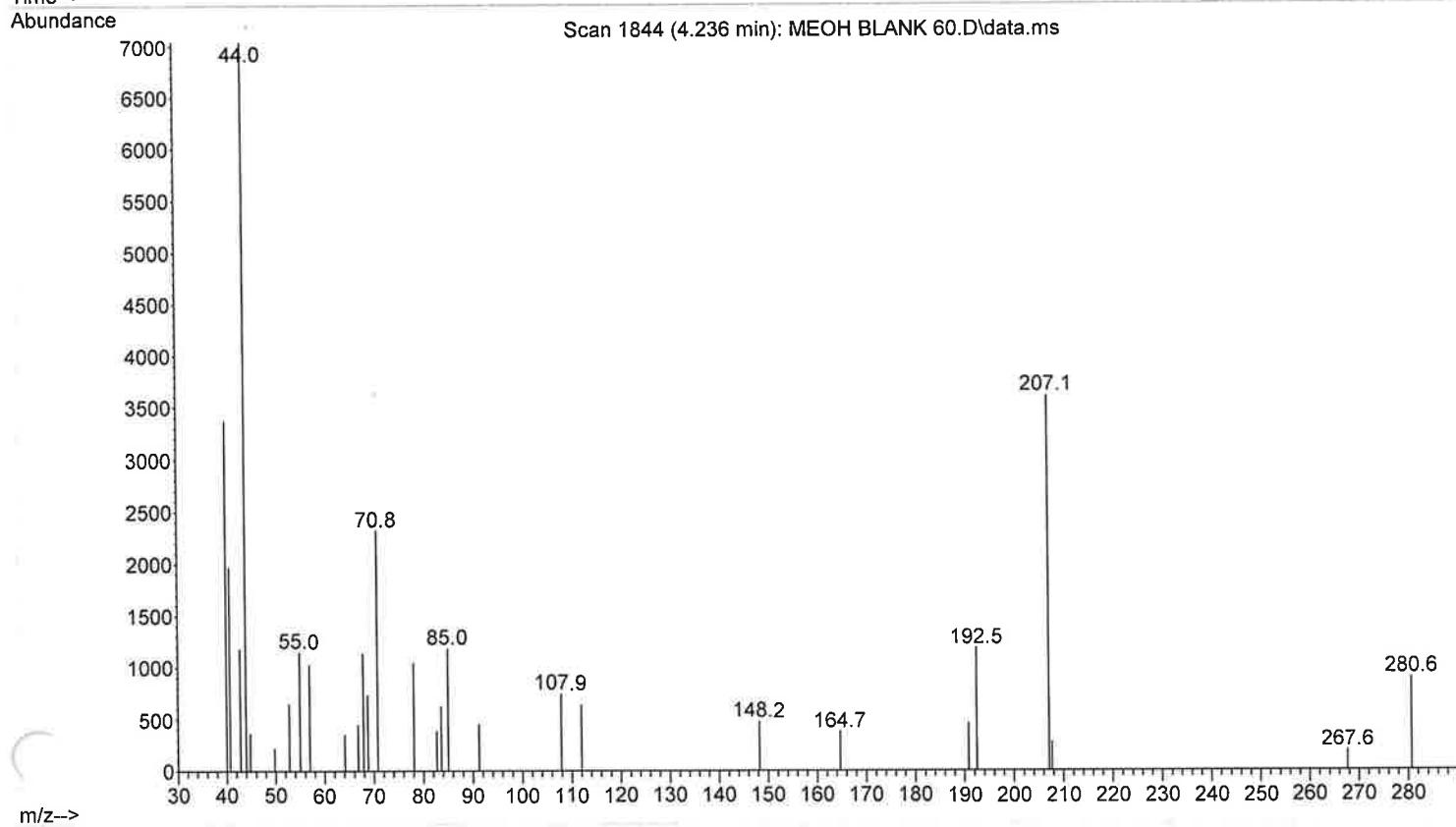
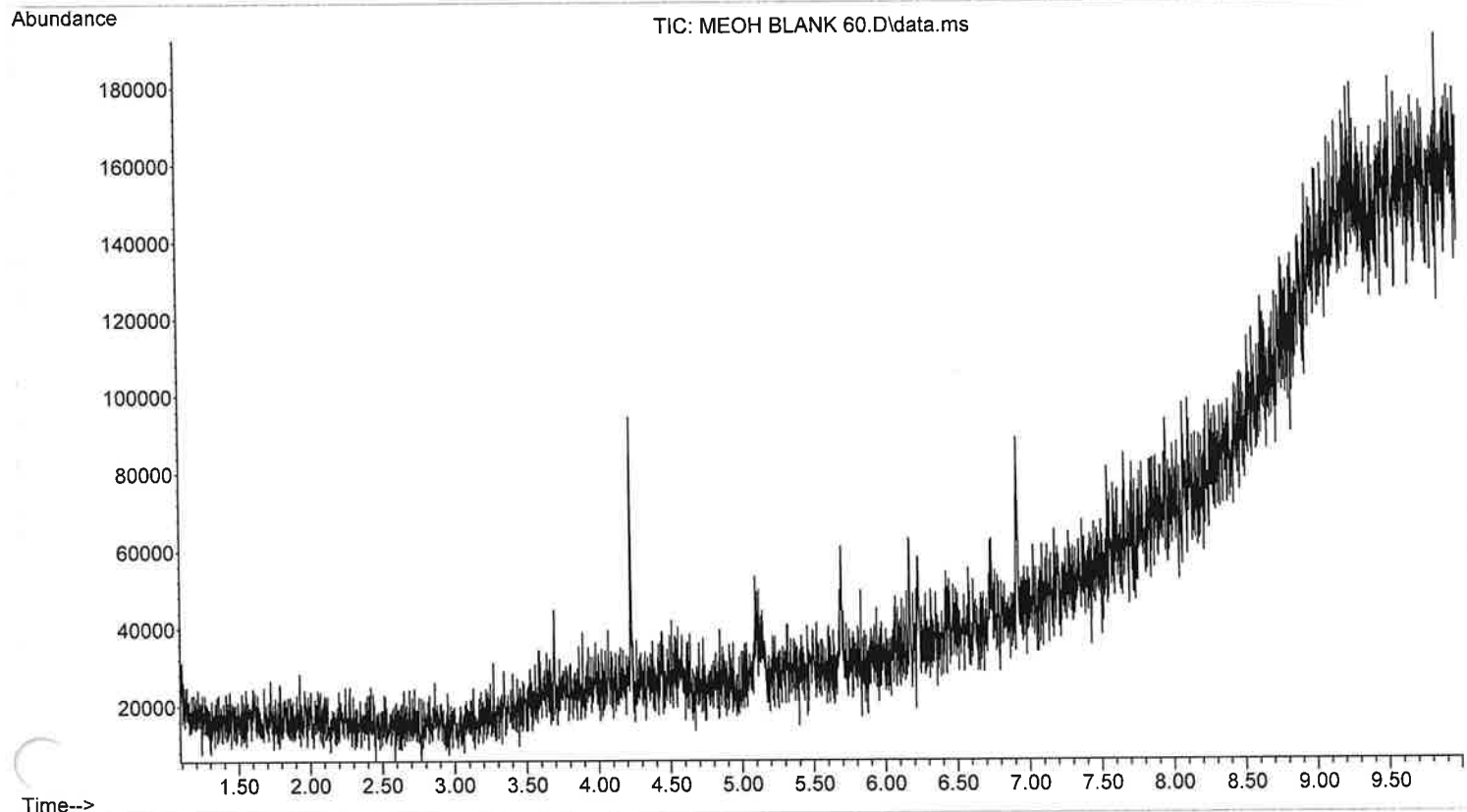
le :D:\MassHunter\GCMS\1\data\Validation\AS042617\MEOH BLANK 200
TR.D
erator : EMC
strument : Heisenberg
quired : 26 Apr 2017 20:05 using AcqMethod ASMS200TR.M
Name: MEOH BLANK
nfo : MEOH



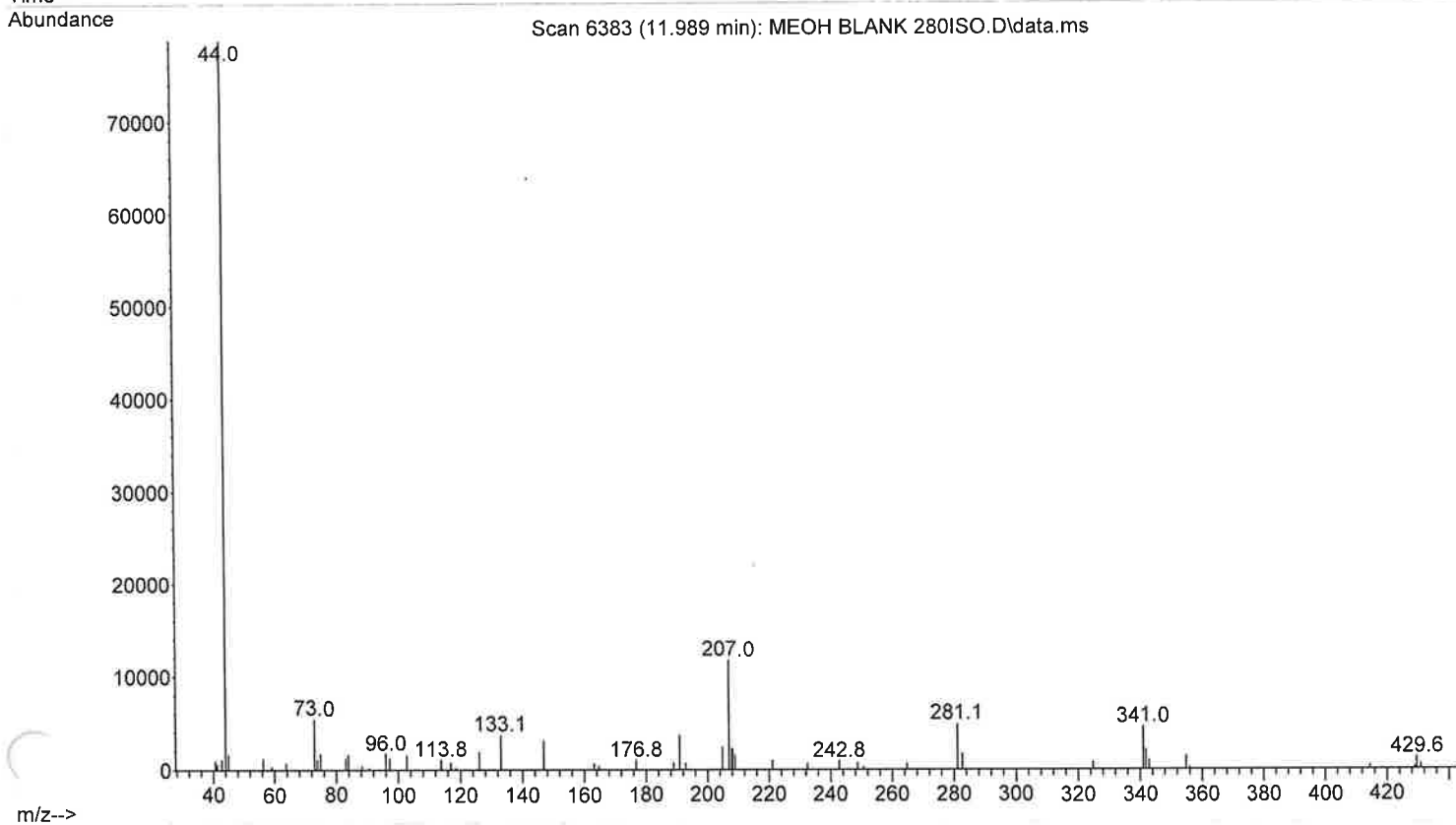
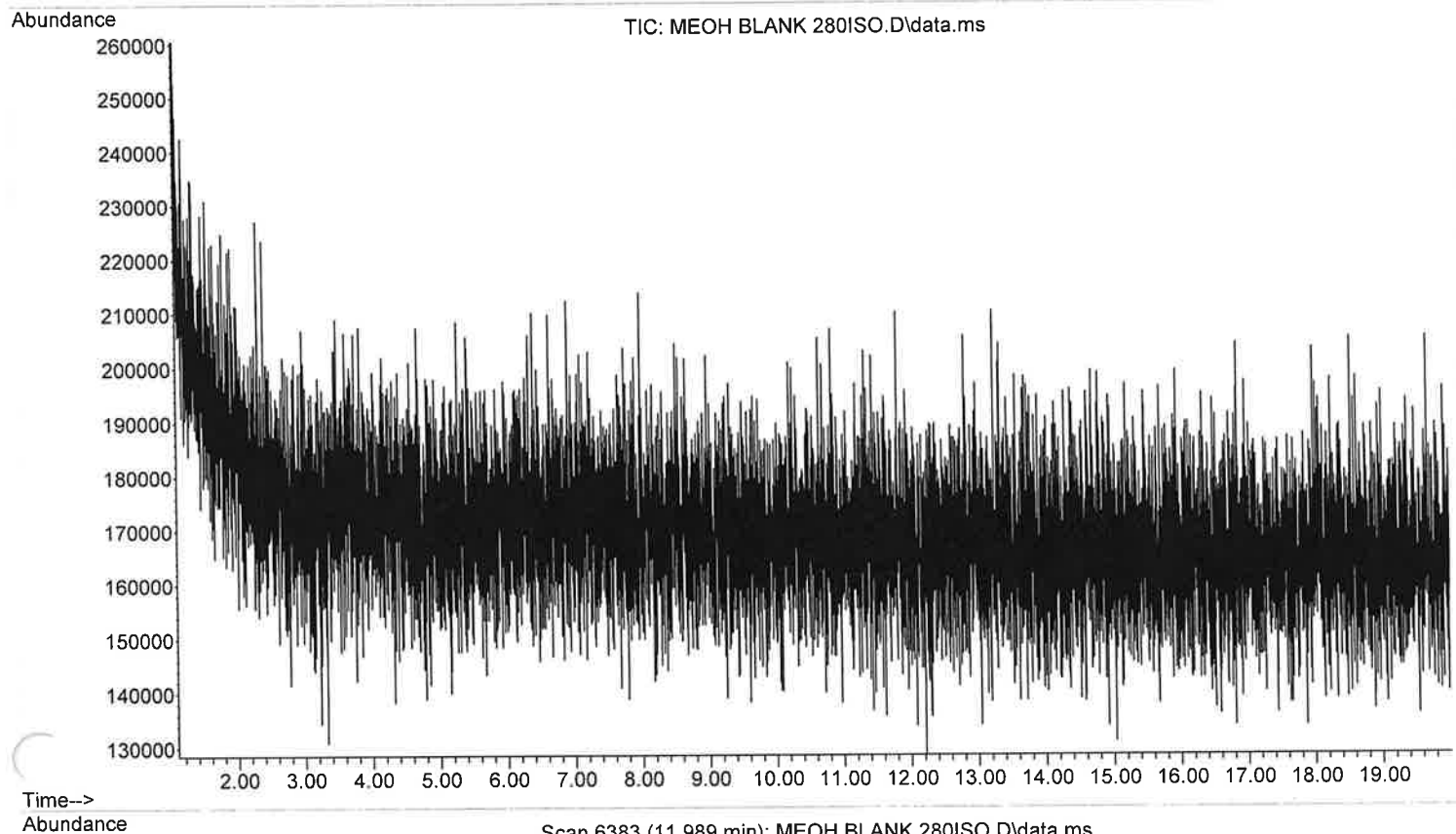
le :D:\MassHunter\GCMS\1\data\Validation\AS042617\NAOH BLANK 60.D
erator : EMC
quired : 26 Apr 2017 16:05 using AcqMethod ASMSDRUGS60.M
strument : Heisenberg
mple Name: 0.5N NAOH/CHCL3 BLANK
Info : 0.5N NAOH/CHCL3
umber: 2



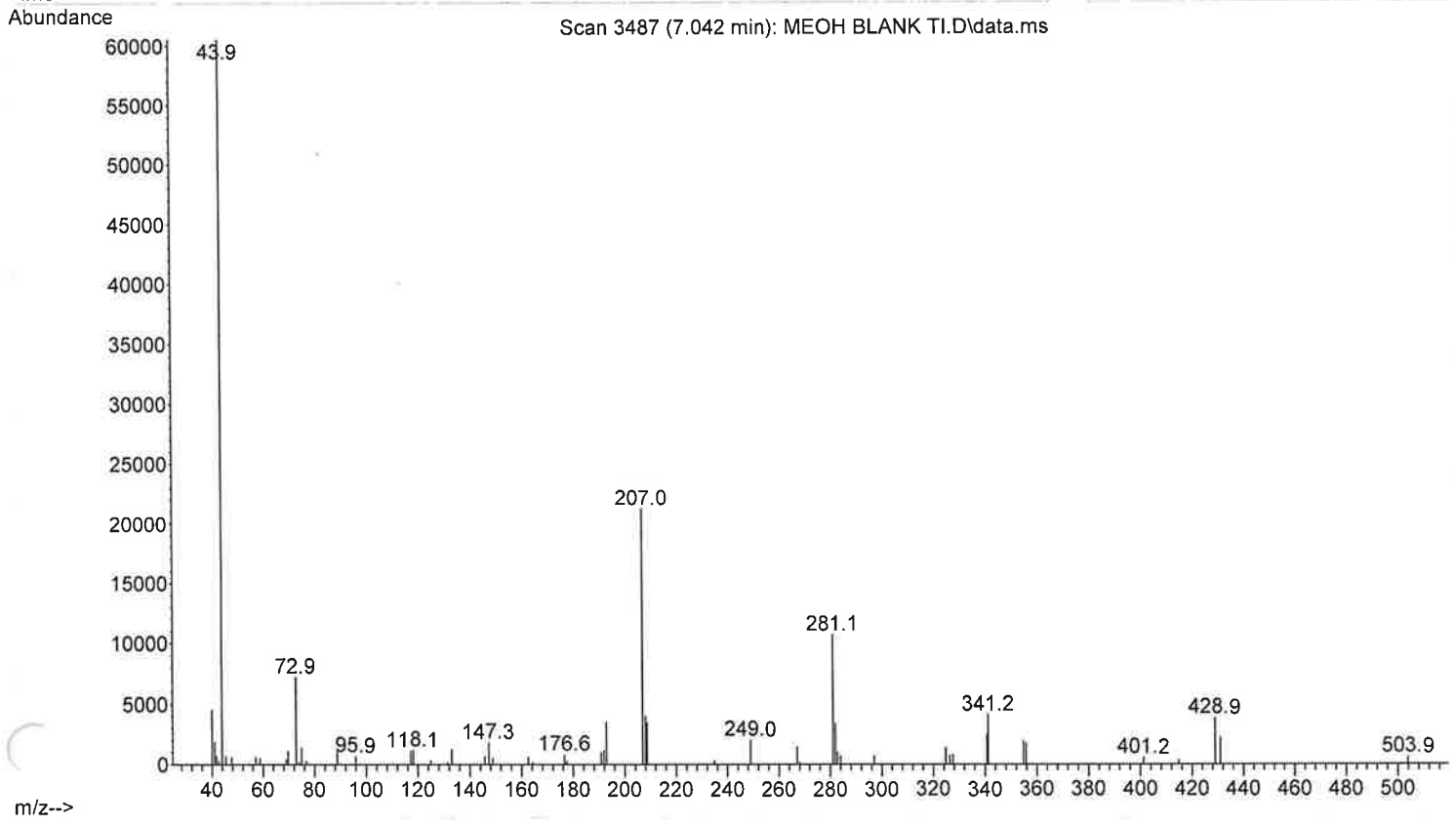
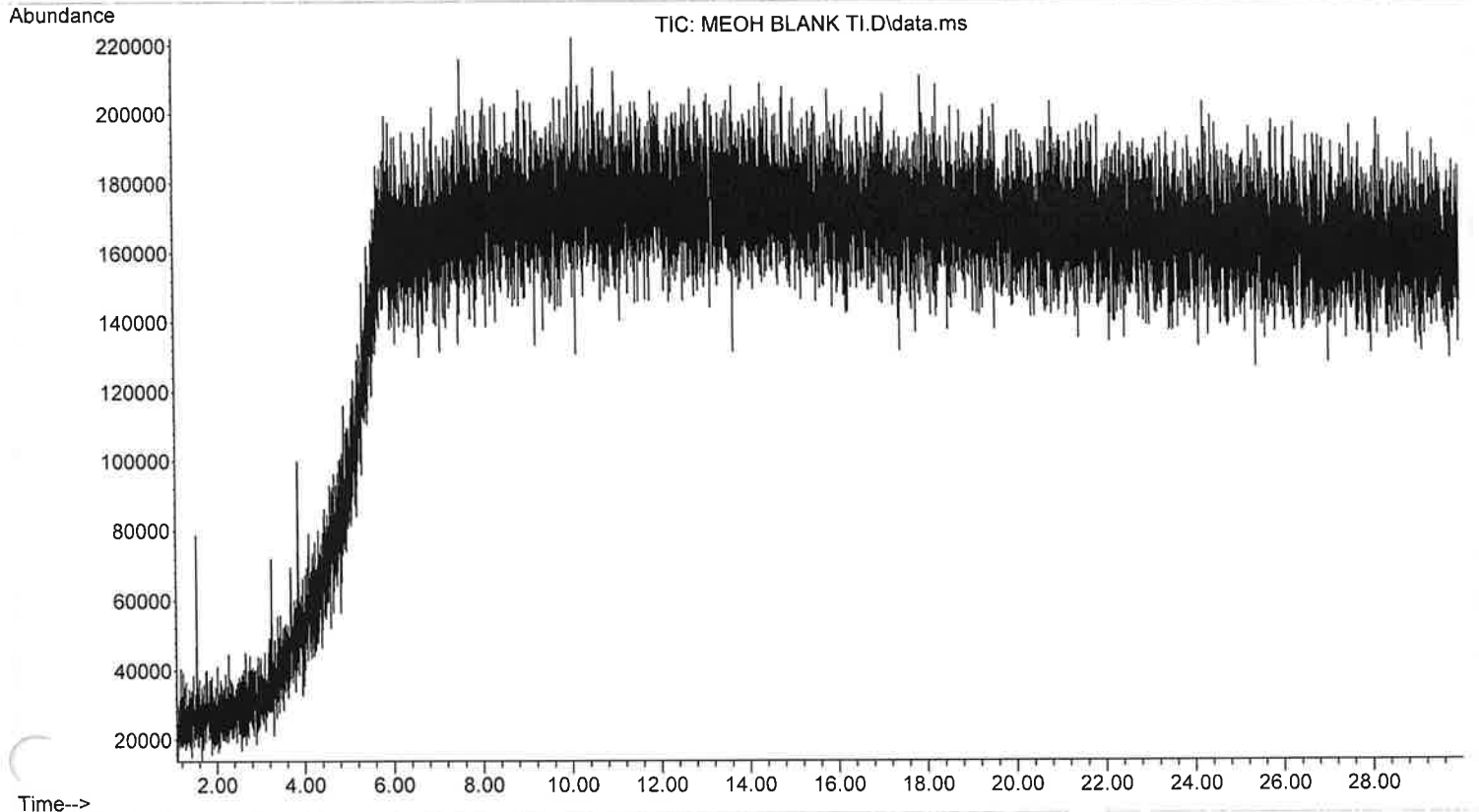
le :D:\MassHunter\GCMS\1\data\Validation\AS042617\MEOH BLANK 60.D
erator : EMC
quired : 26 Apr 2017 17:01 using AcqMethod ASMSDRUGS60.M
strument : Heisenberg
mple Name: MEOH BLANK
s-Tinfo : MEOH
umber: 1



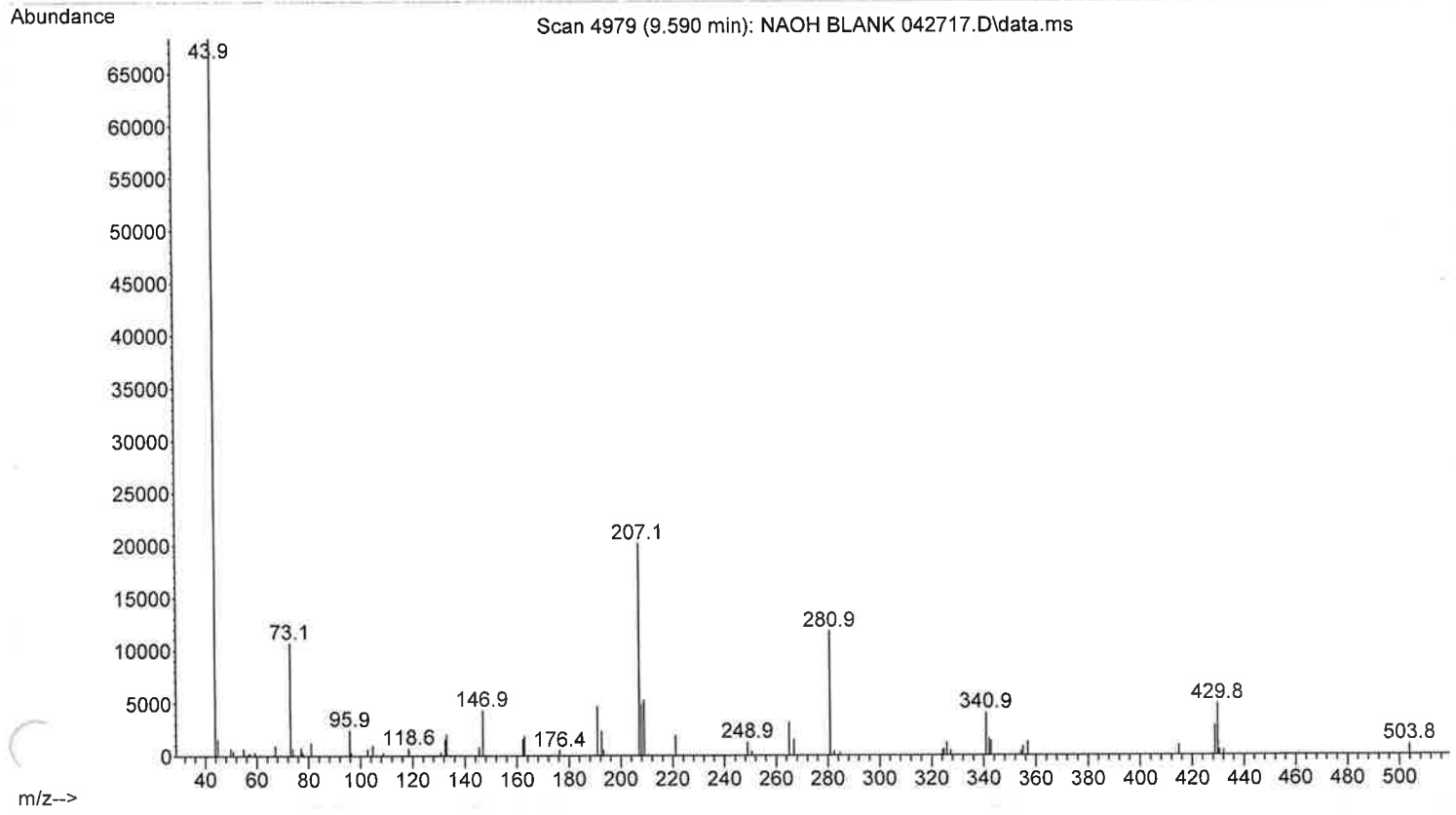
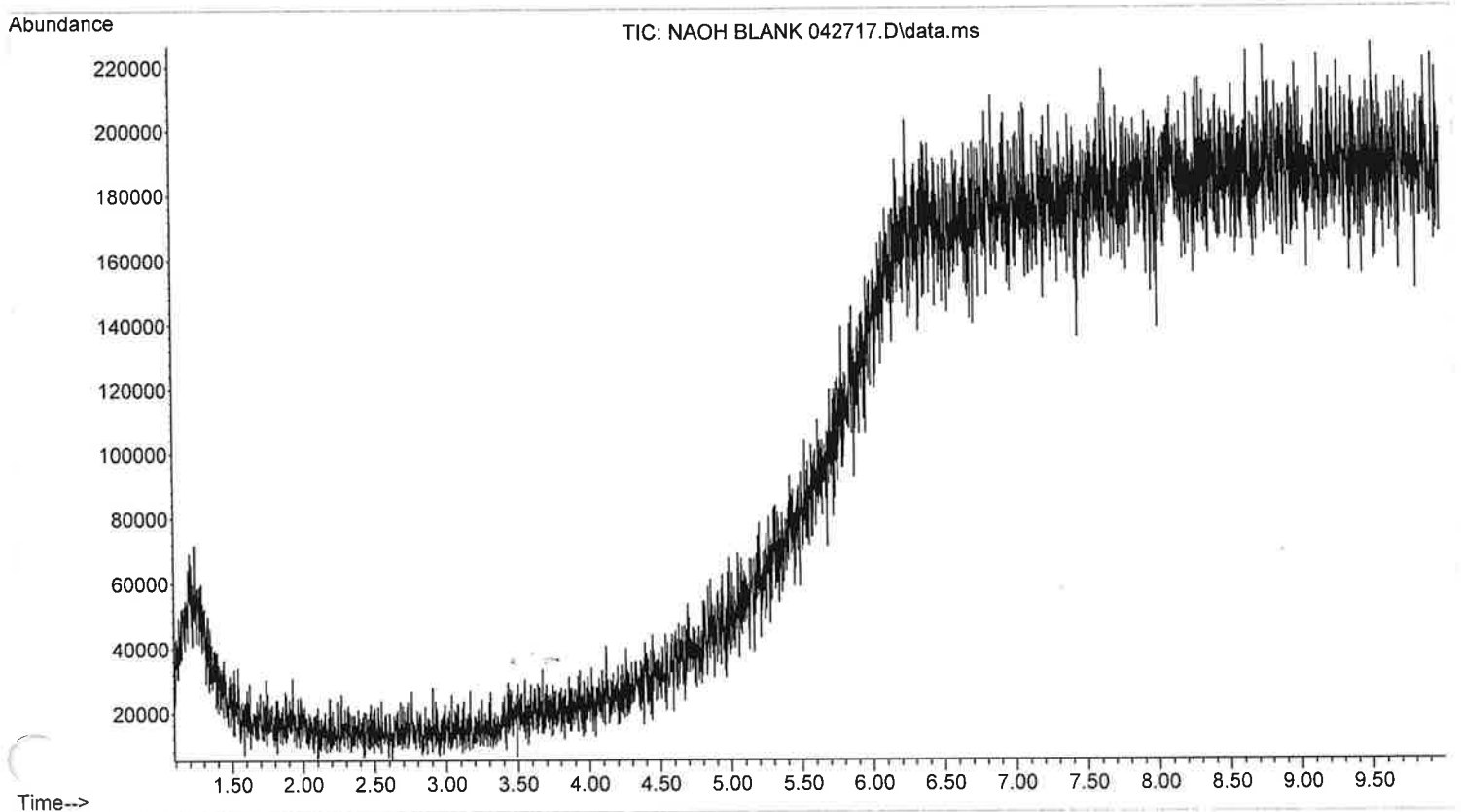
le :D:\MassHunter\GCMS\1\data\Validation\AS042617\MEOH BLANK 280
ISO.D
erator : EMC
strument : Heisenberg
quired : 26 Apr 2017 20:43 using AcqMethod ASMS280ISO.M
m Name: MEOH BLANK
nfo : MEOH



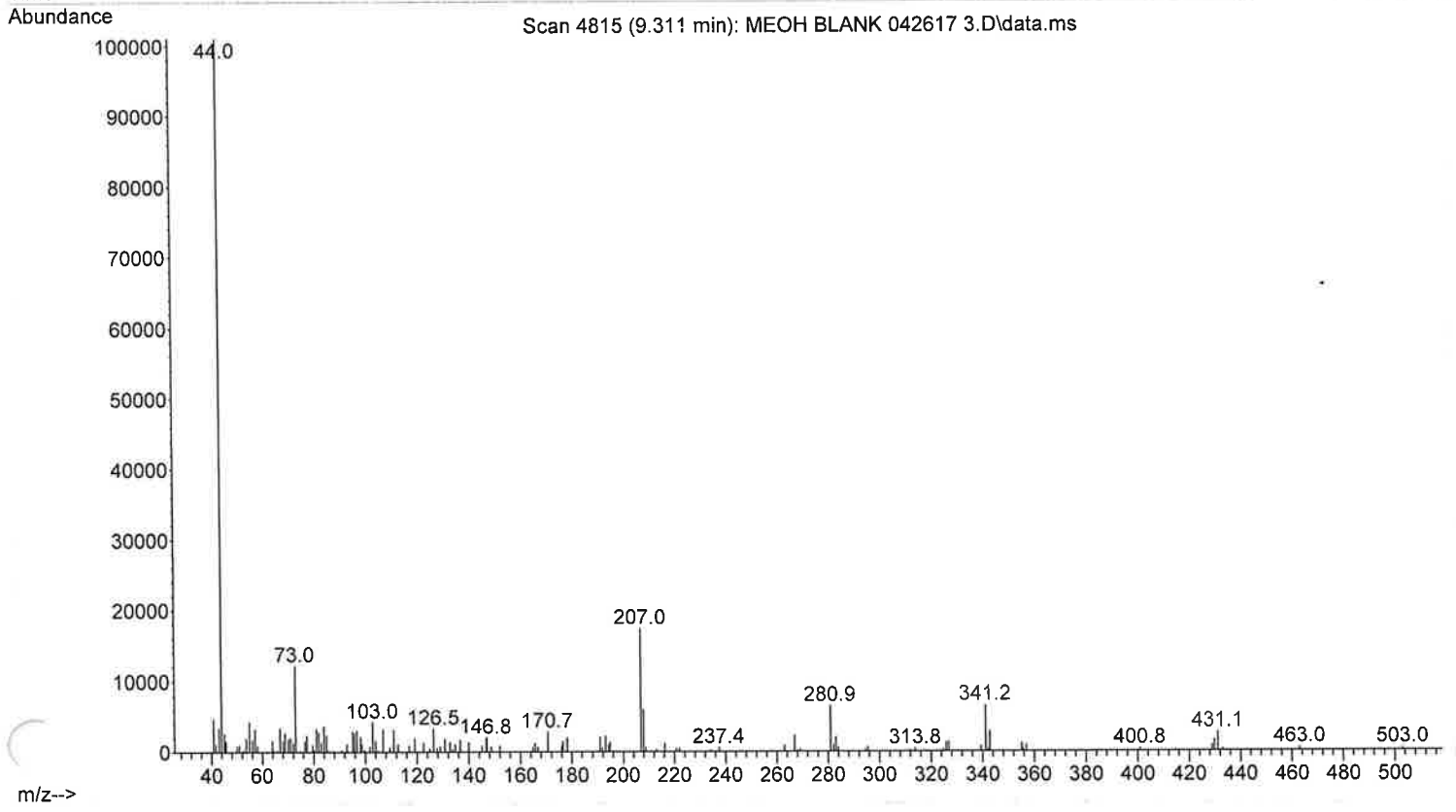
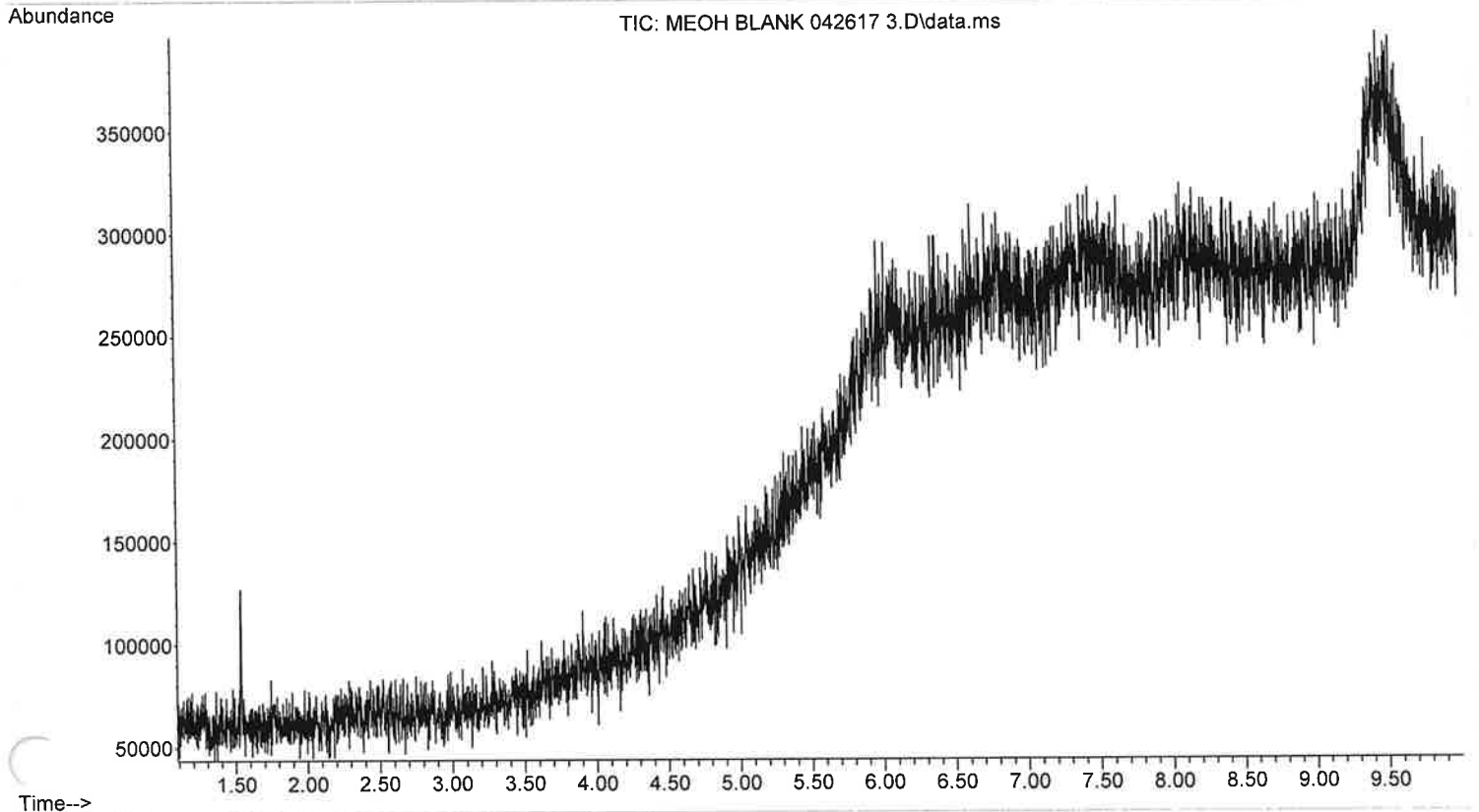
le :D:\MassHunter\GCMS\1\data\Validation\AS042617\MEOH BLANK TI.D
erator : EMC
quired : 26 Apr 2017 22:13 using AcqMethod ASMSDRUGSTI.M
strument : Heisenberg
mple Name: MEOH BLANK
s Info : MEOH
umber: 1



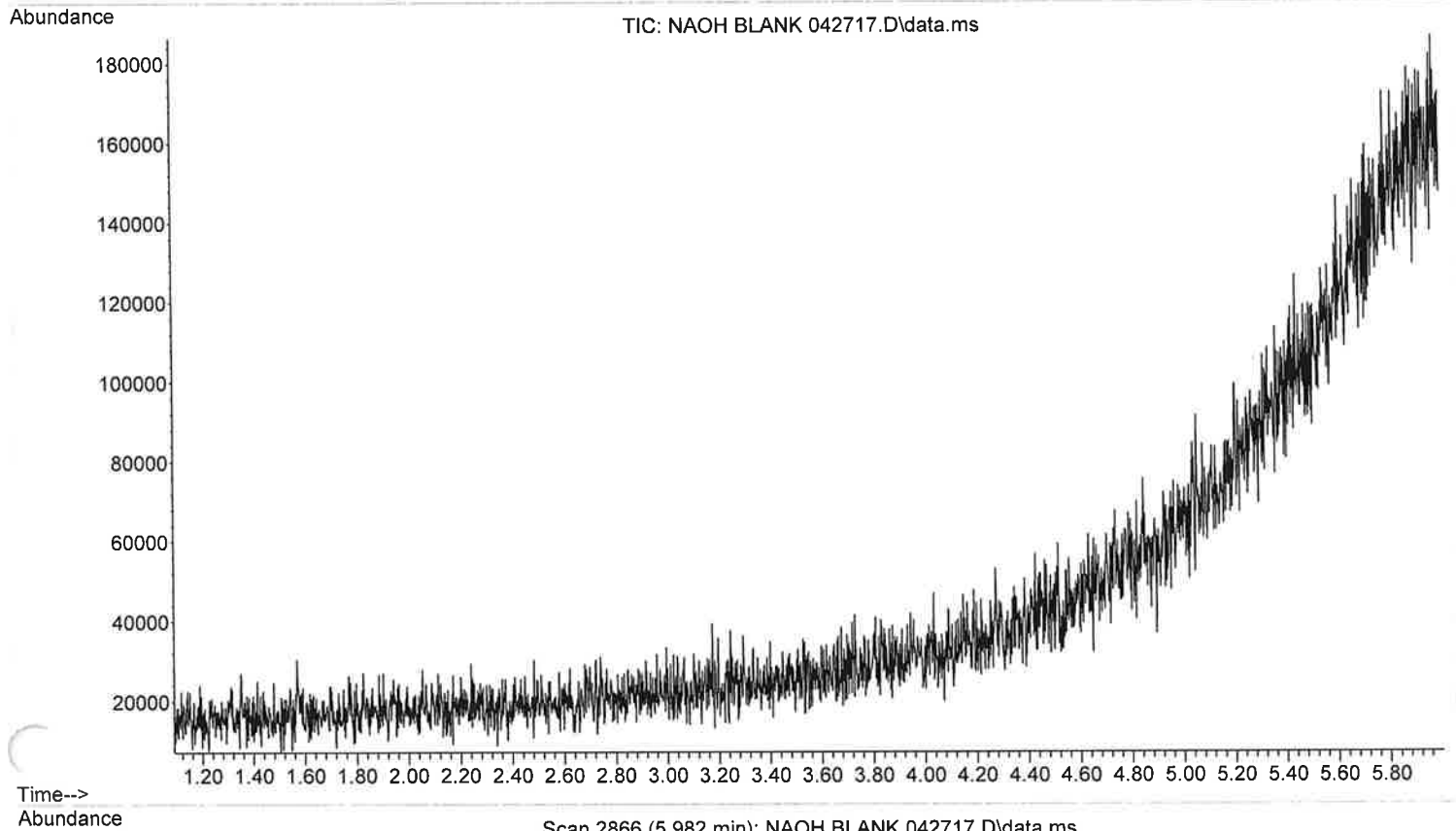
le :D:\MassHunter\GCMS\1\data\Validation\MSDRUGS100\NAOH BLANK 0
. 42717.D
erator :
strument : Heisenberg
quired : 27 Apr 2017 12:02 using AcqMethod MSDRUGS100.M
Name: 0.5N NAOH/CHCL3 BLANK 4/27/17
nfo : 0.5N NAOH/CHCL3



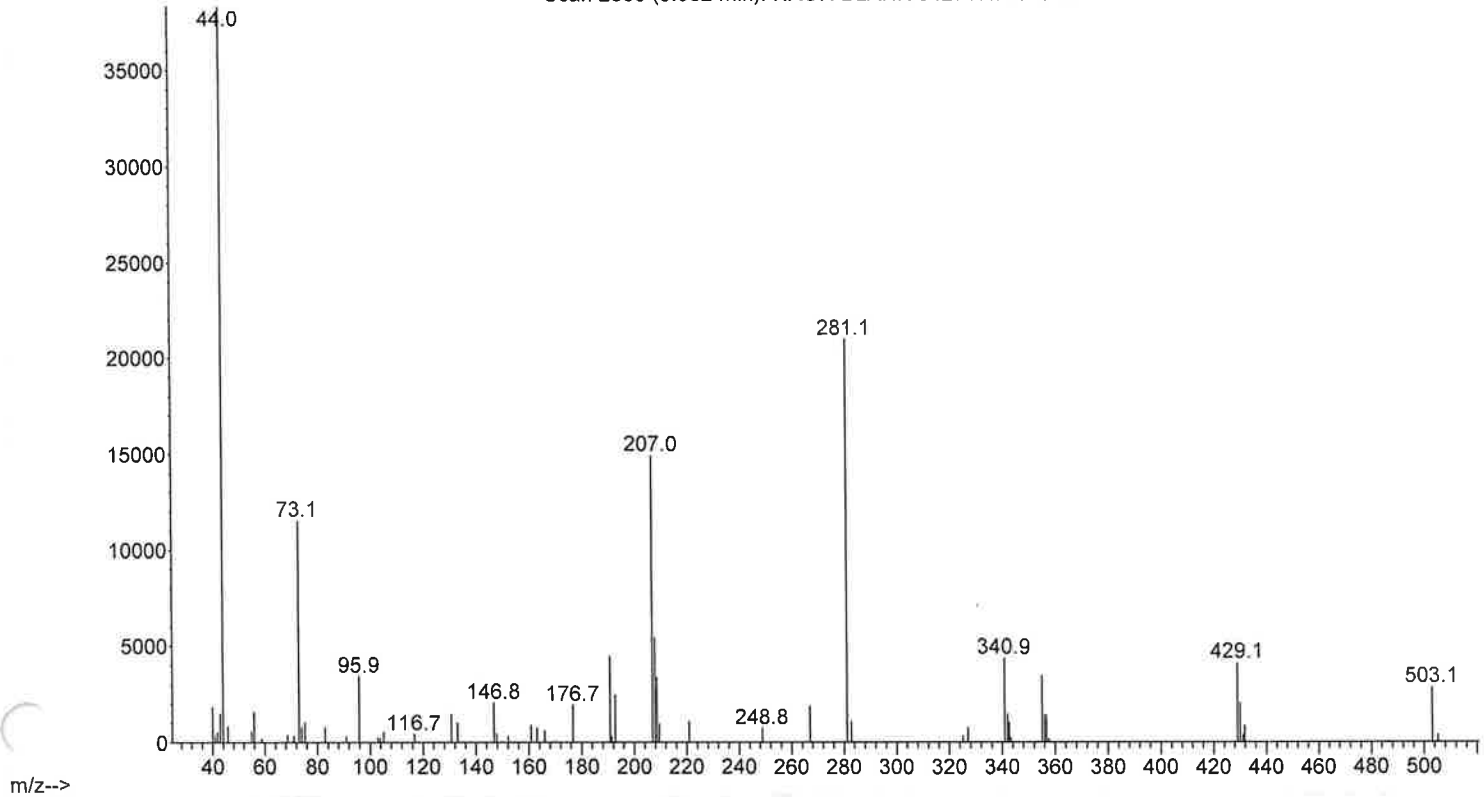
le :D:\MassHunter\GCMS\1\data\Validation\Response Tests\MEOH BLA
NK 042617 3.D
erator : EMC
strument : Heisenberg
quired : 26 Apr 2017 10:25 using AcqMethod MSDRUGS100.M
File Name: MEOH BLANK 4/26/17
nfo : MEOH



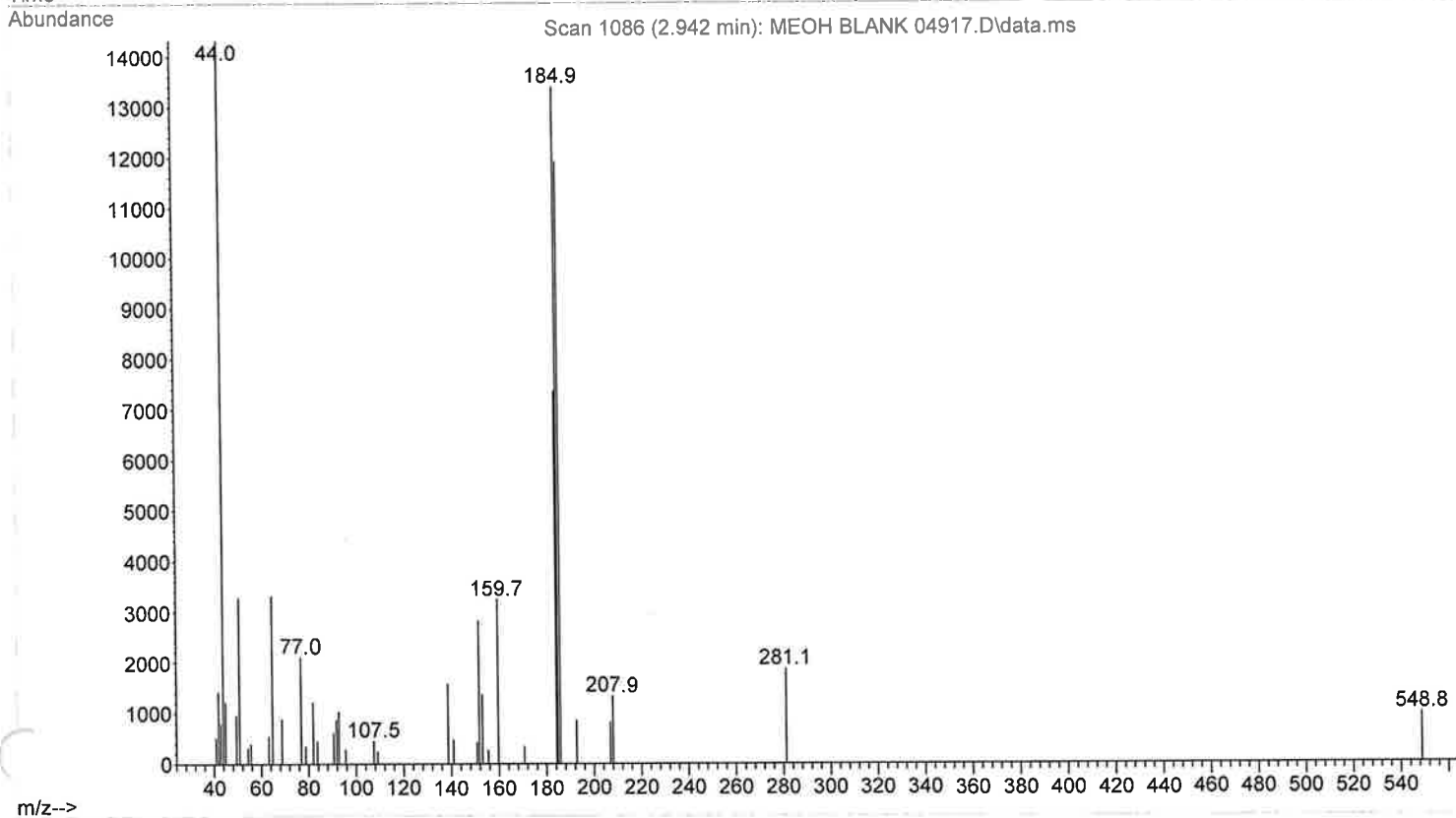
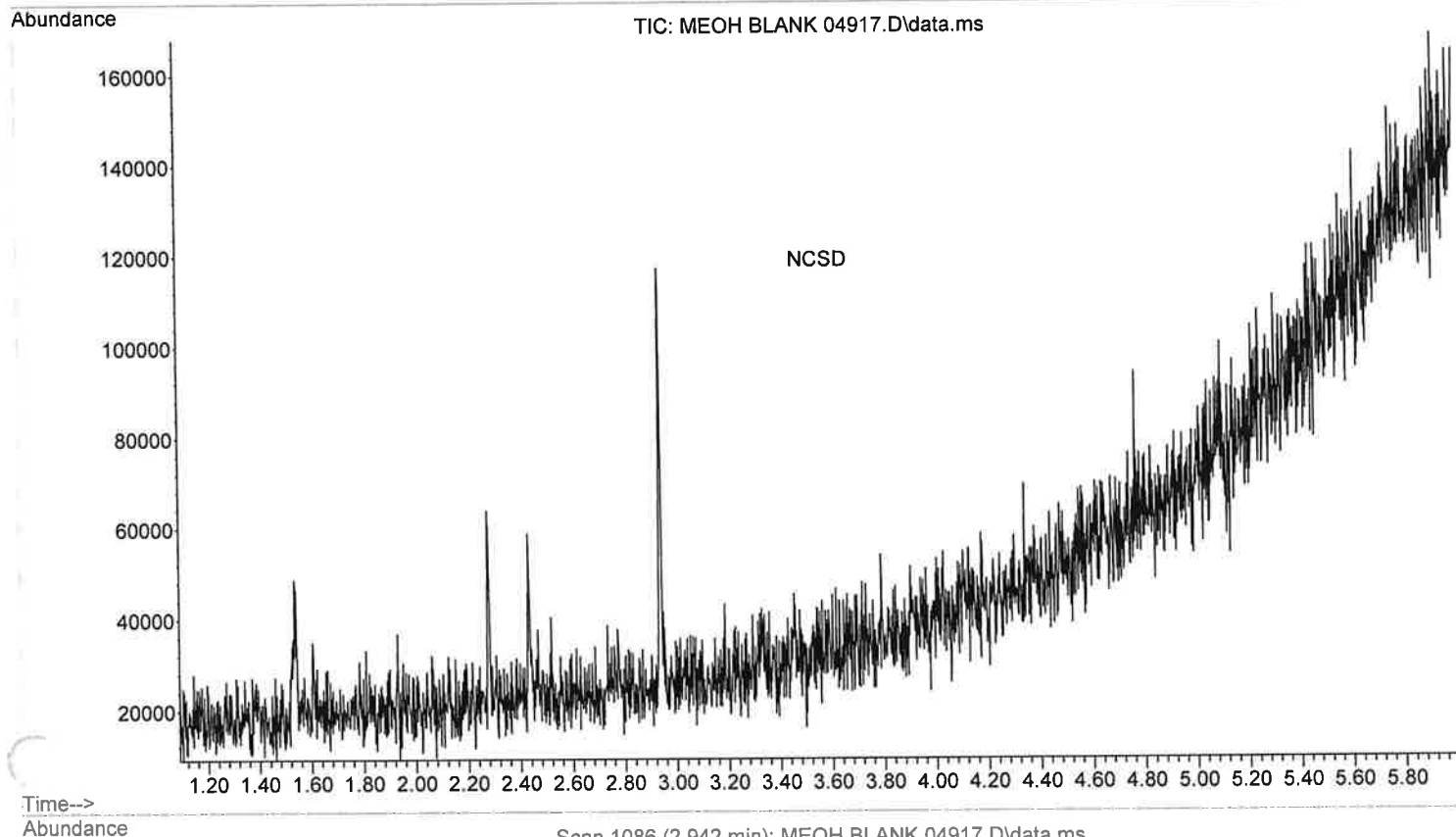
File : D:\MassHunter\GCMS\1\data\Validation\MS100TR\NAOH BLANK 0427
Sample : 17.D
Operator : EMC
Instrument : Heisenberg
Acquired : 27 Apr 2017 12:56 using AcqMethod MS100TR.M
Sample Name: NAOH BLANK 4/27/17
Info : 0.5N NAOH/CHCL3



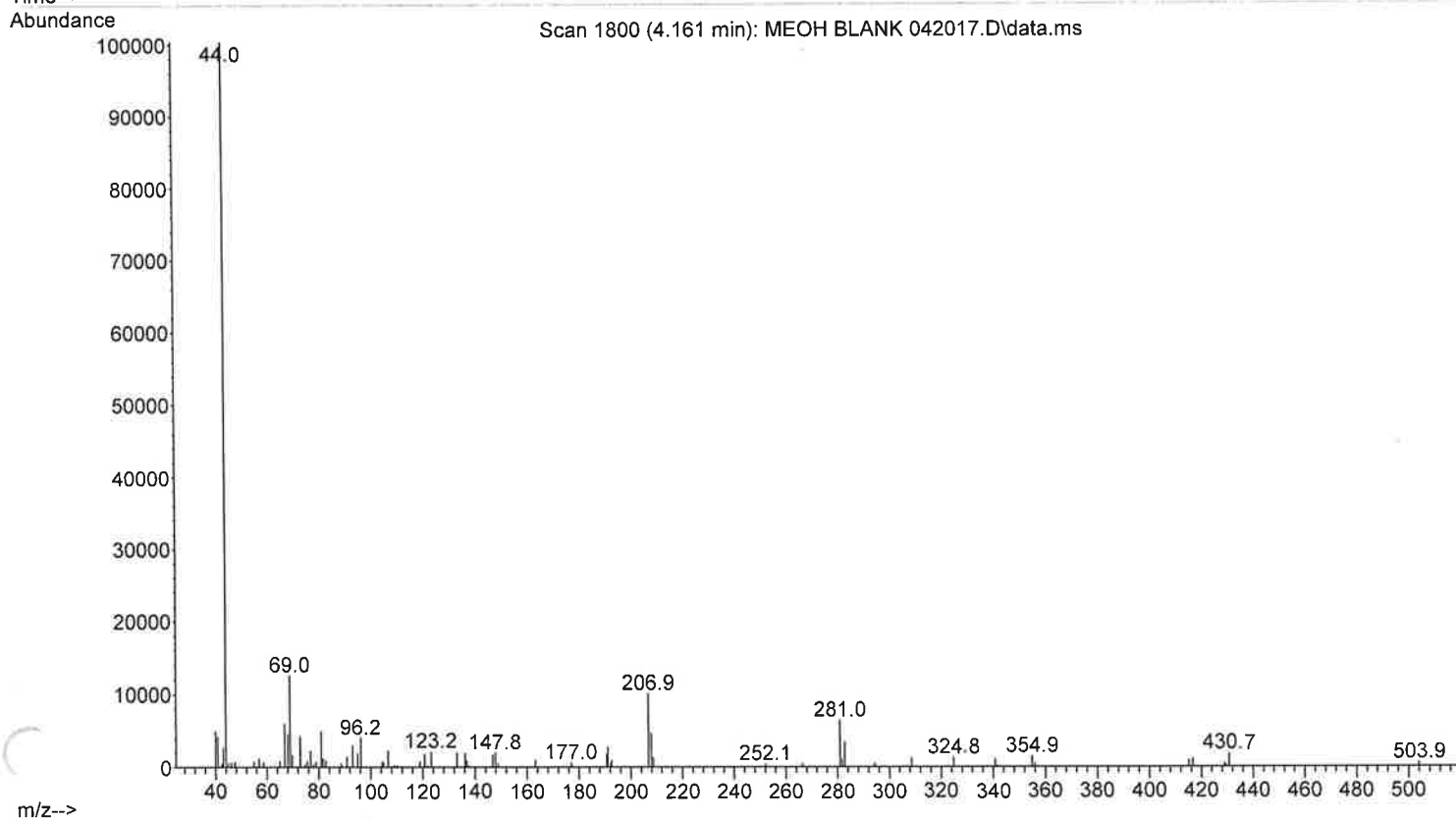
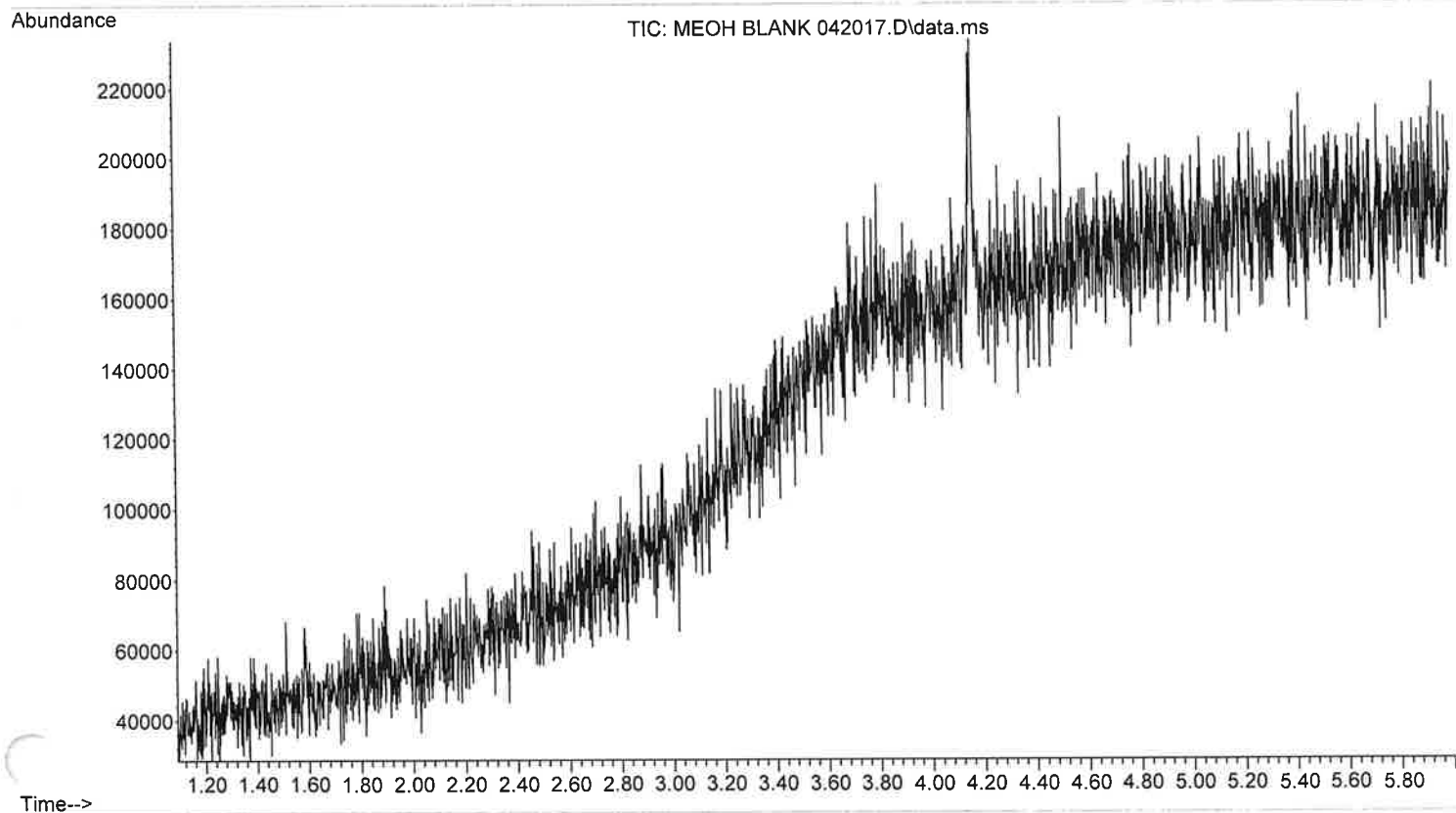
Scan 2866 (5.982 min): NAOH BLANK 042717.D\data.ms



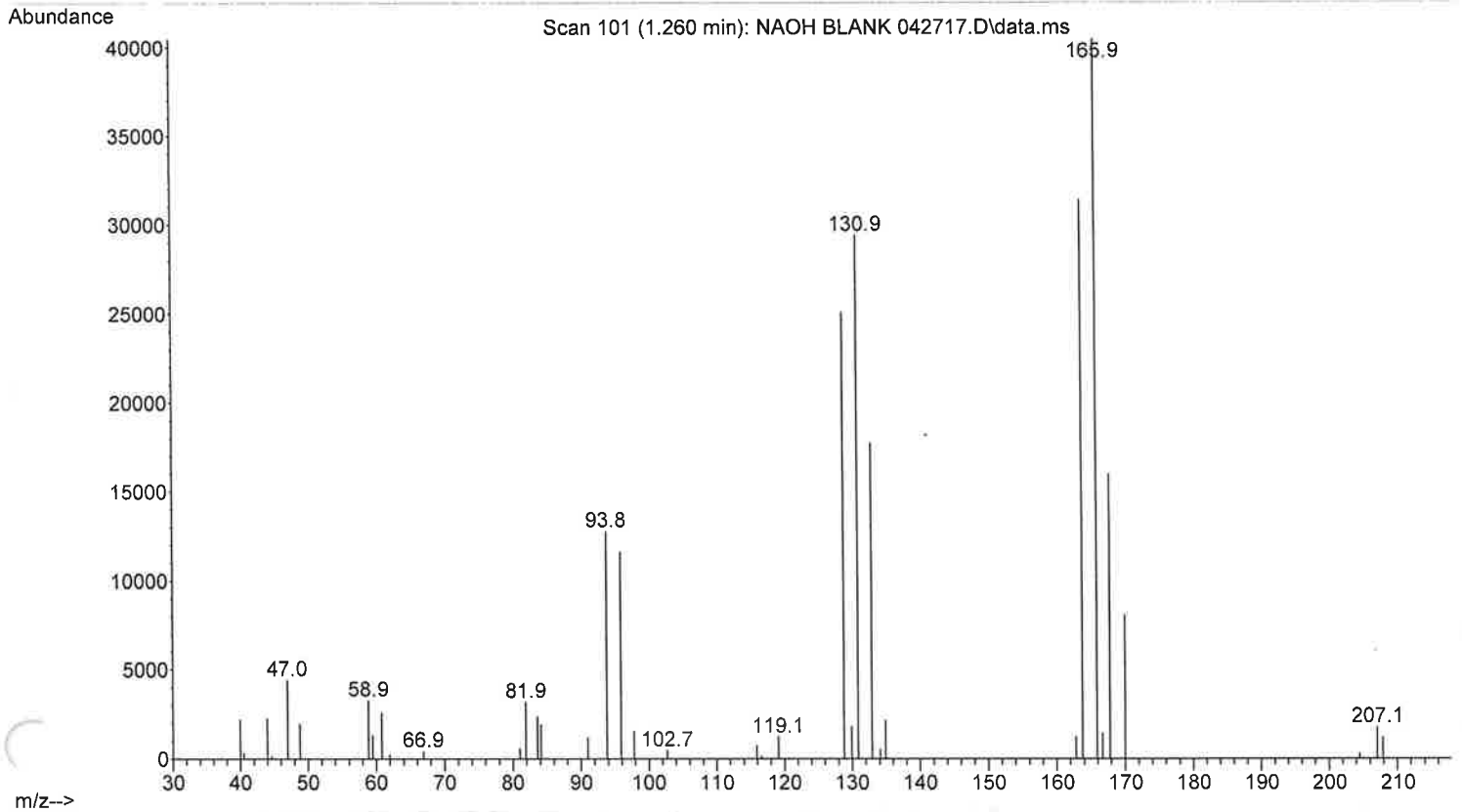
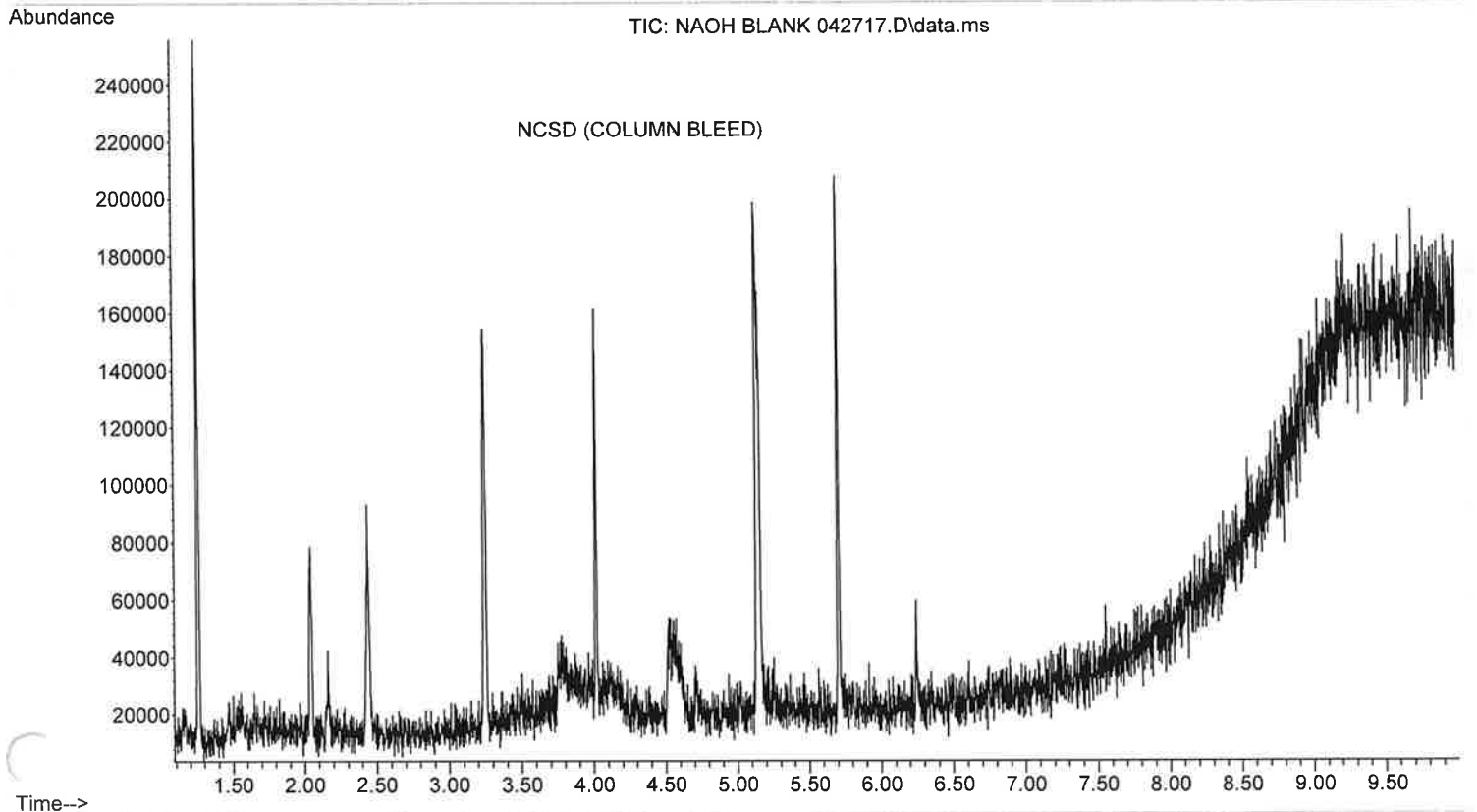
le :D:\MassHunter\GCMS\1\data\Validation\MS100TR\MEOH BLANK 0491
7.D
erator : EMC
strument : Heisenberg
quired : 19 Apr 2017 13:28 using AcqMethod MS100TR.M
Name: MEOH BLANK 4/19/17
nfo : MEOH



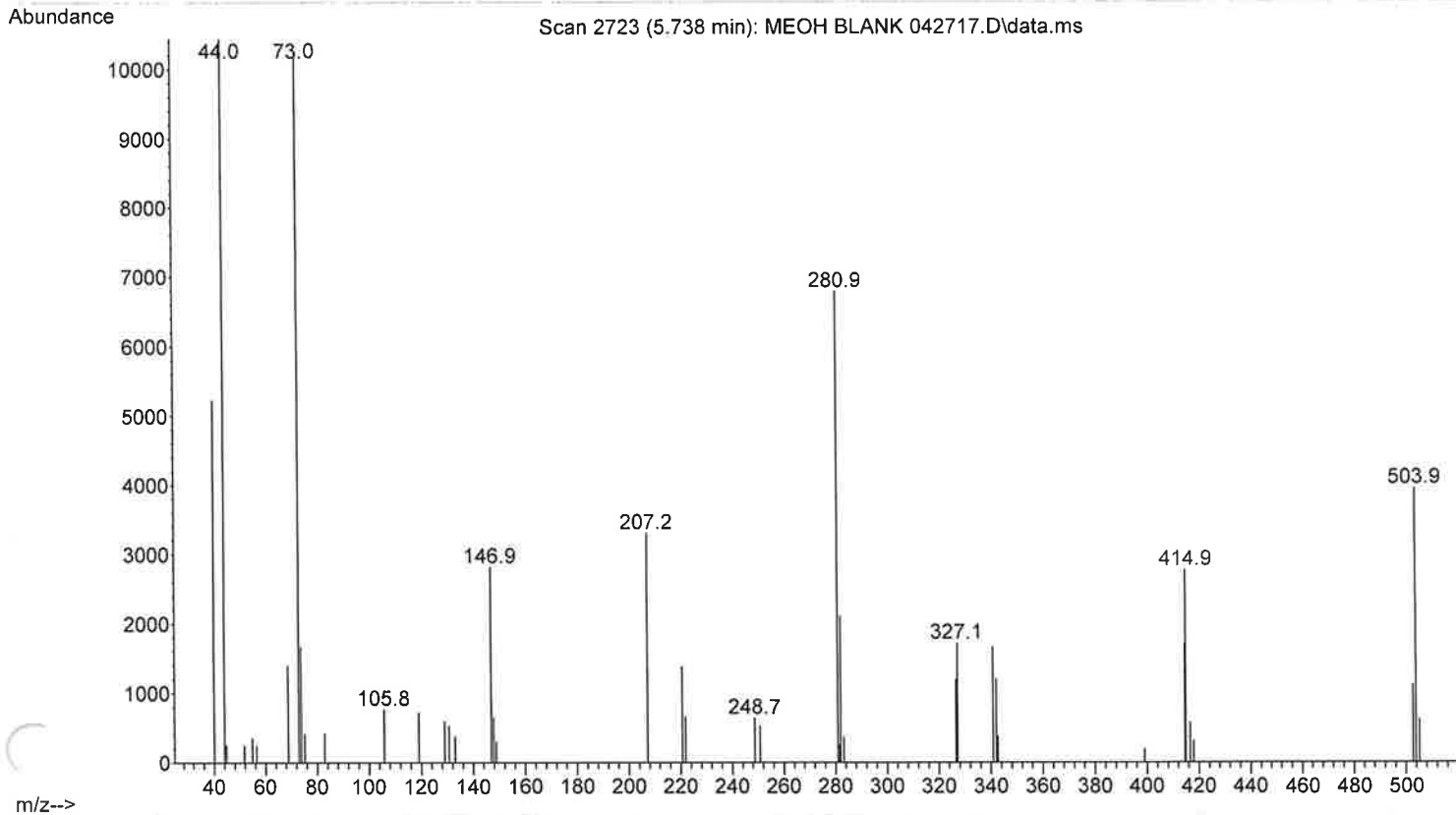
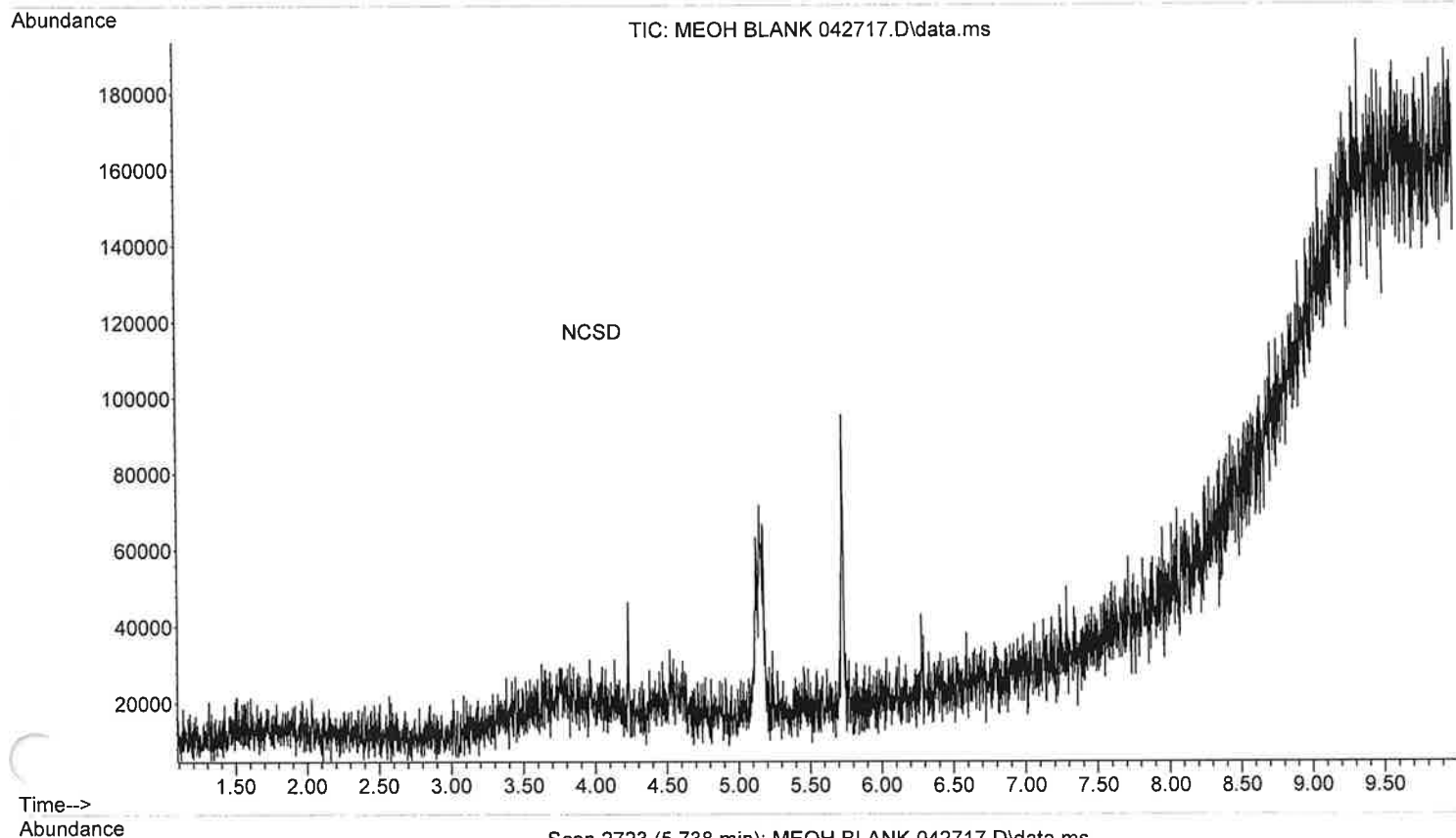
File : D:\MassHunter\GCMS\1\data\Validation\MS200TR\MEOH BLANK 0420
17.D
Operator : EMC
Instrument : Heisenberg
Acquired : 20 Apr 2017 09:40 using AcqMethod MS200TR.M
Sample Name: MEOH BLANK 4/20/17
Info : MEOH



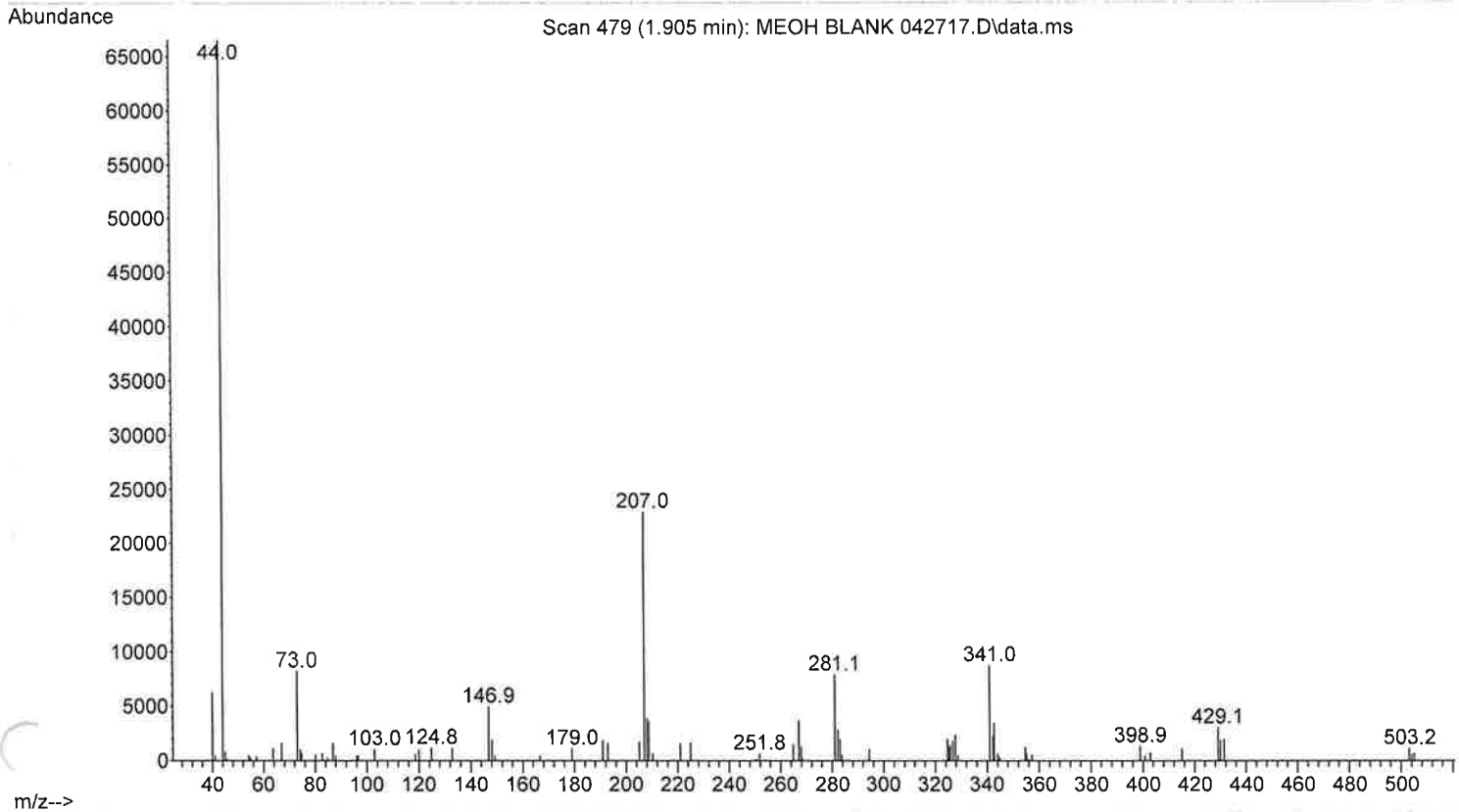
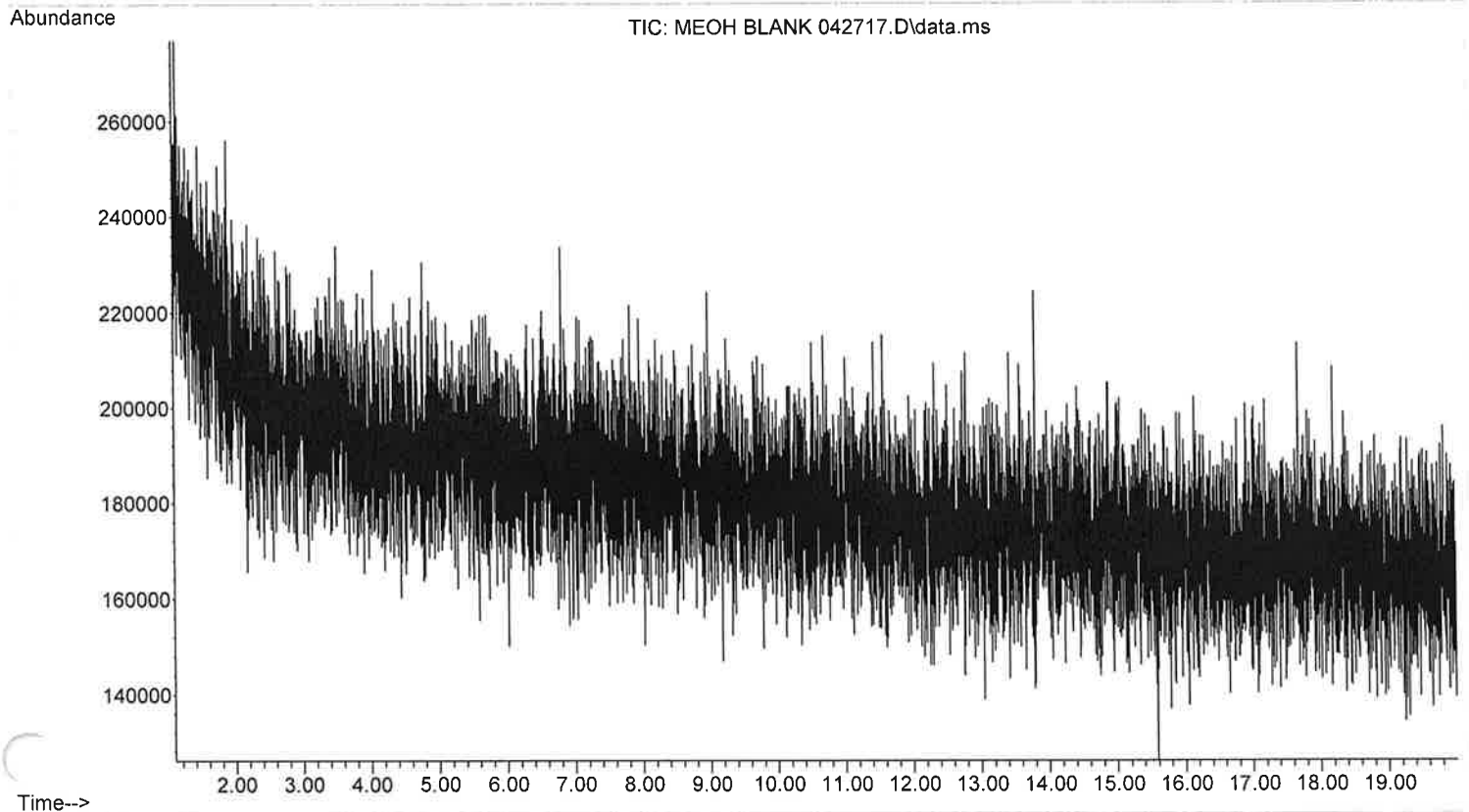
File : D:\MassHunter\GCMS\1\data\Validation\MSDRUGS60\NAOH BLANK 04
2717.D
Operator : EMC
Instrument : Heisenberg
Acquired : 27 Apr 2017 13:18 using AcqMethod MSDRUGS60.M
Sample Name:
Info : 0.5N NAOH/CHCL3



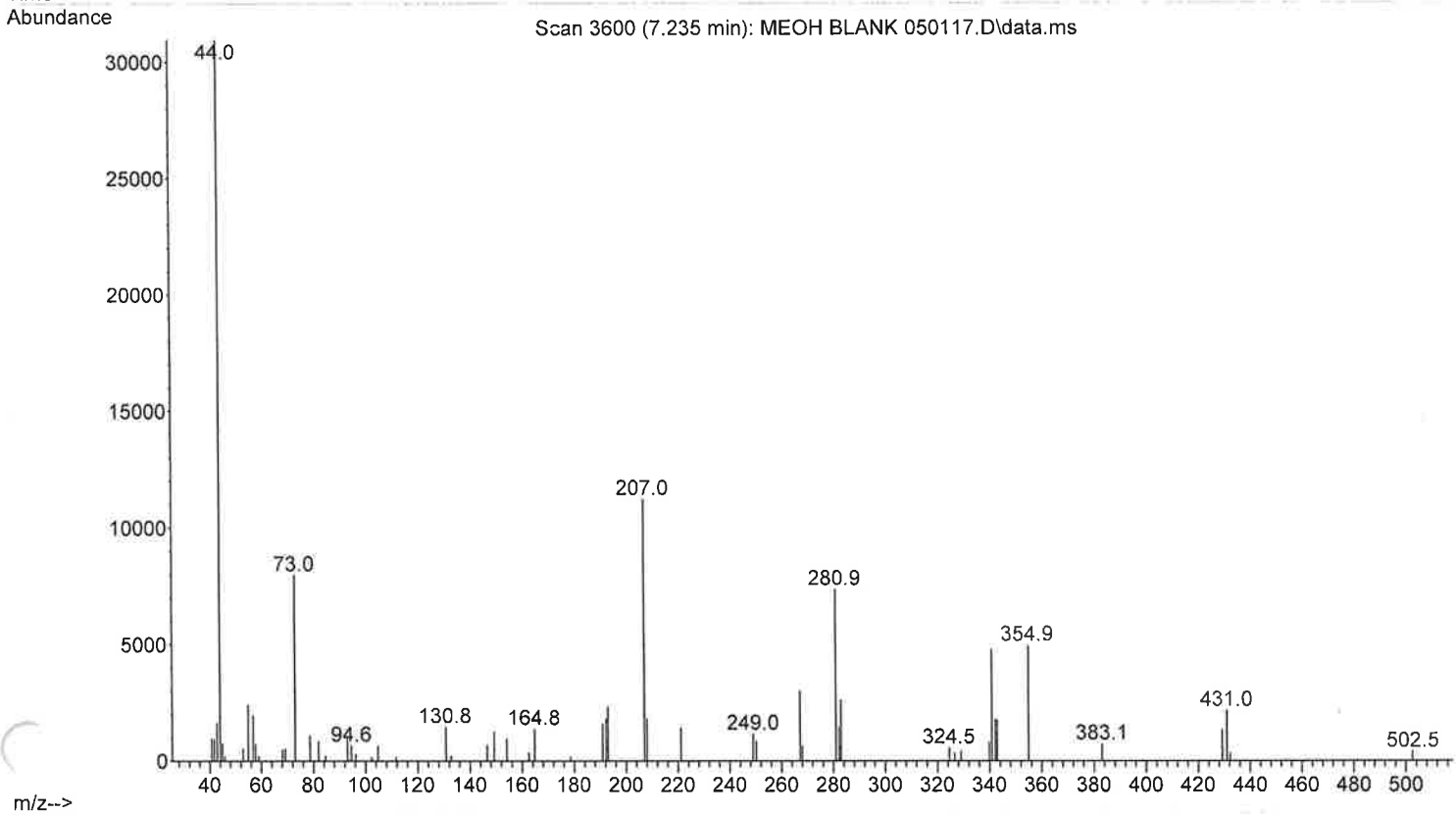
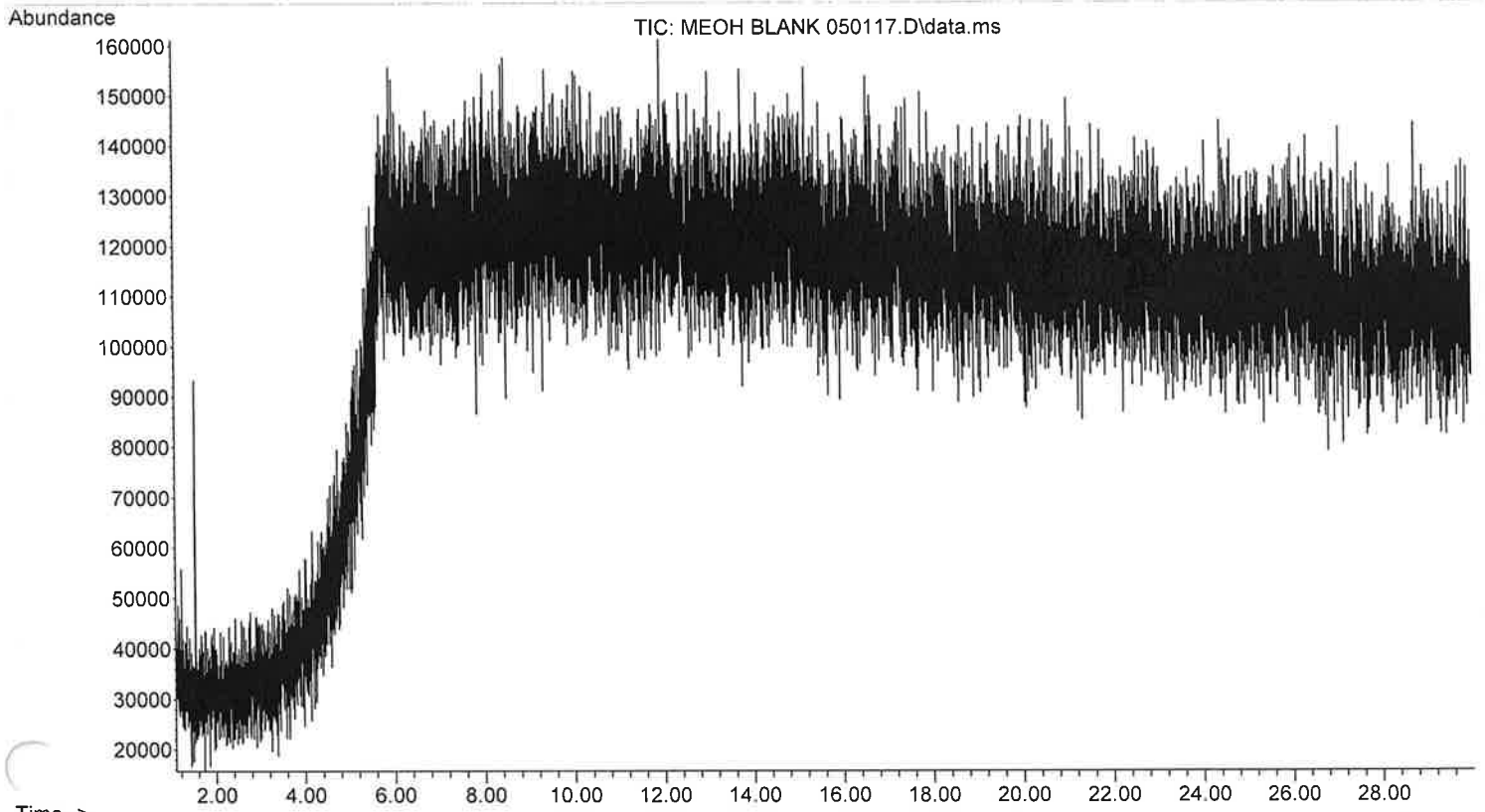
File : D:\MassHunter\GCMS\1\data\Validation\MSDRUGS60\MEOH BLANK 04
2717.D
Operator : EMC
Instrument : Heisenberg
Acquired : 27 Apr 2017 13:59 using AcqMethod MSDRUGS60.M
Sample Name:
Info : MEOH



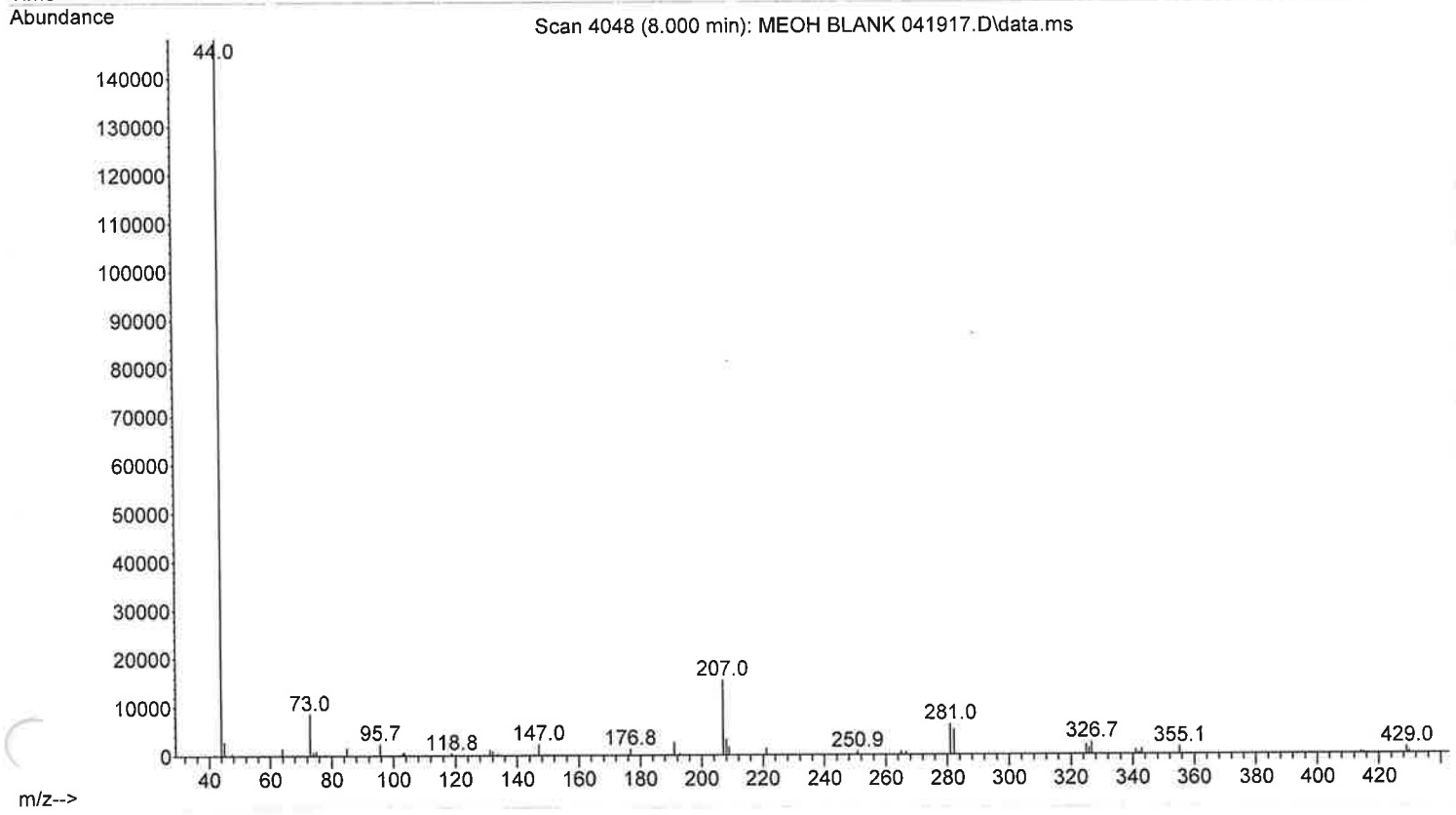
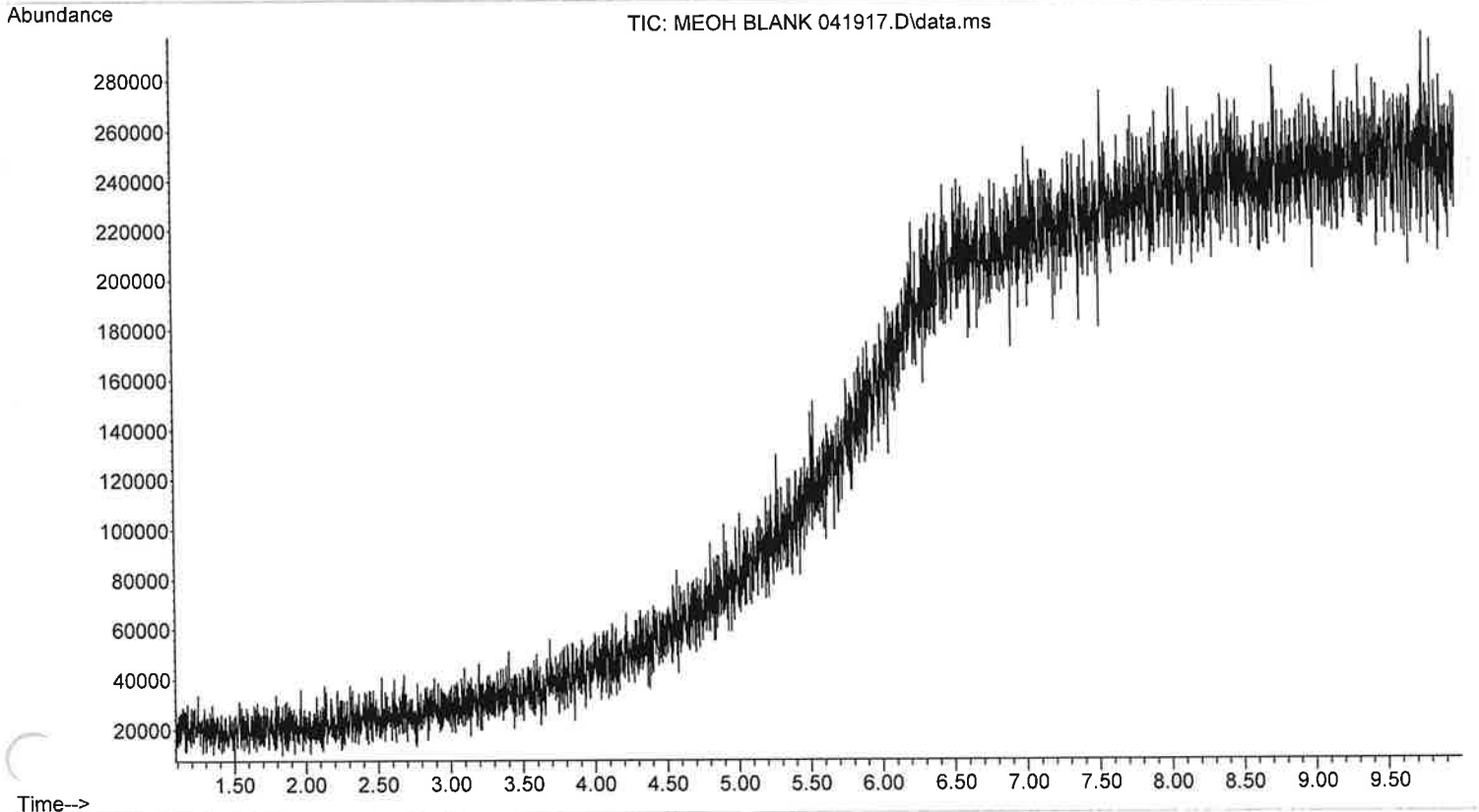
File :D:\MassHunter\GCMS\1\data\Validation\MS280ISO\MEOH BLANK 042
717.D
Operator : EMC
Instrument : Heisenberg
Acquired : 27 Apr 2017 14:43 using AcqMethod MS280ISO.M
Sample Name: MEOH BLANK 4/27/17
Info : MEOH



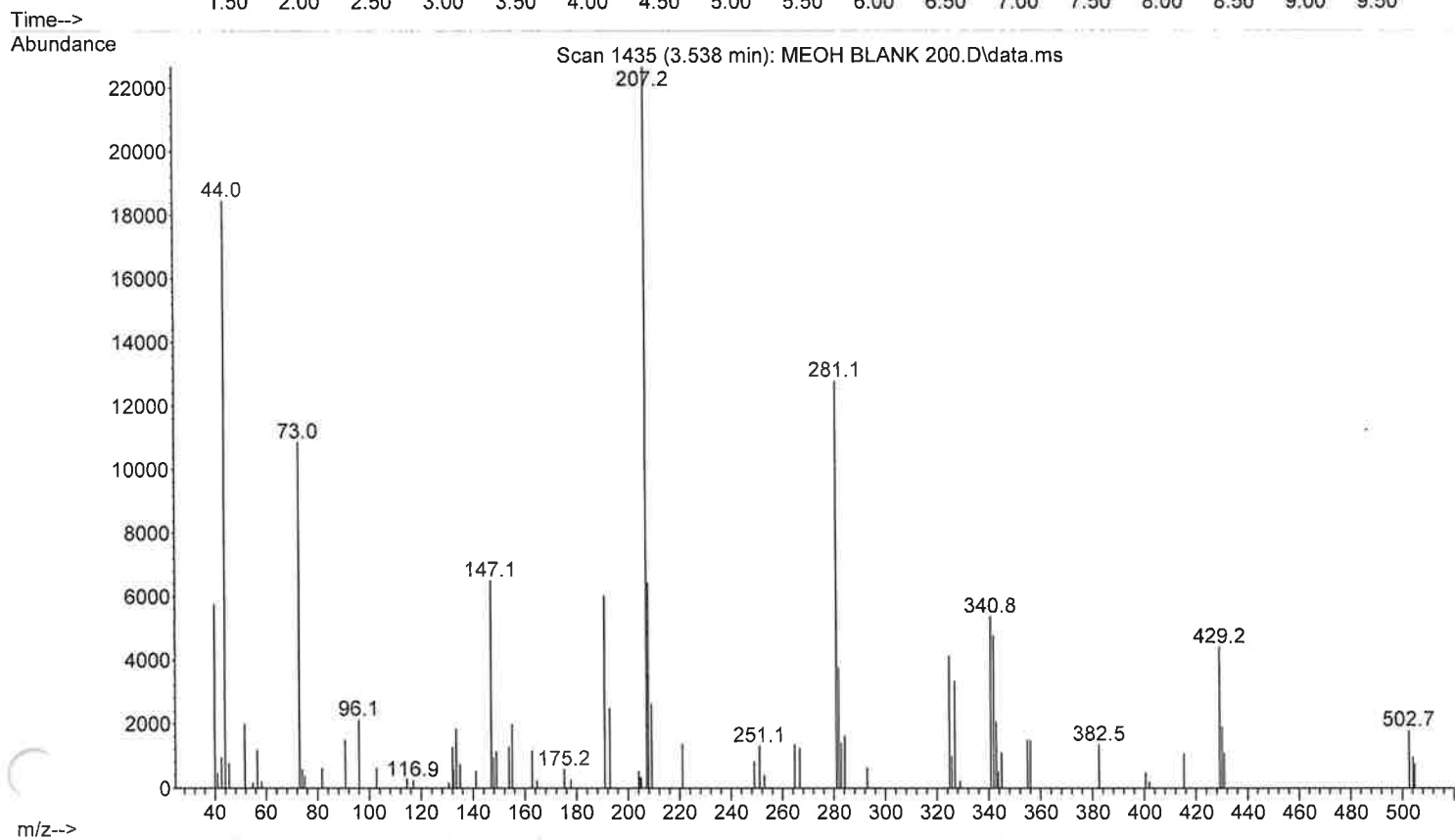
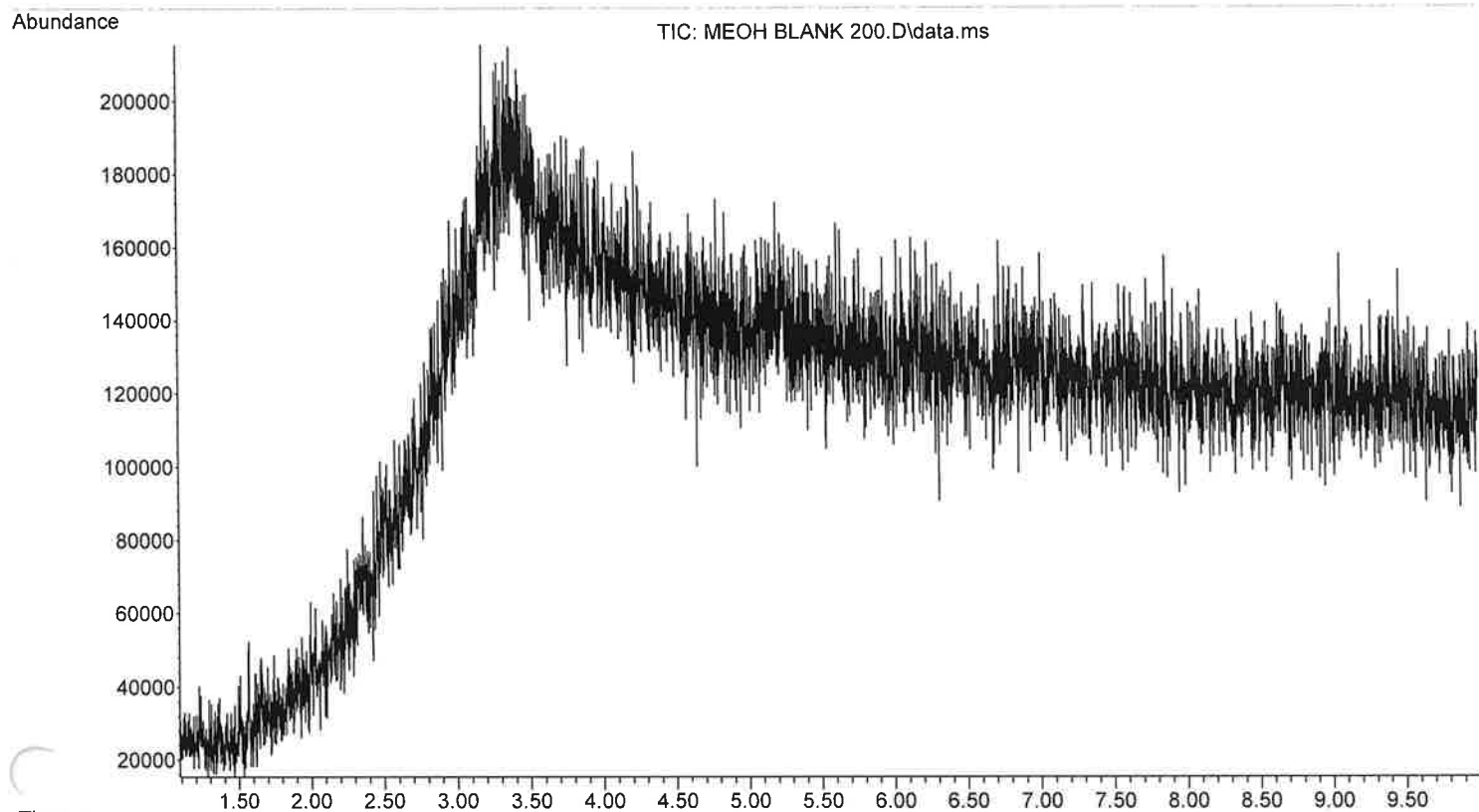
File : D:\MassHunter\GCMS\1\data\Validation\MSDRUGSTI\MEOH BLANK 05
0117.D
Operator : EMC
Instrument : Heisenberg
Acquired : 01 May 2017 09:48 using AcqMethod MSDRUGSTI.M
Sample Name: MEOH BLANK 5/1/17
Info : MEOH



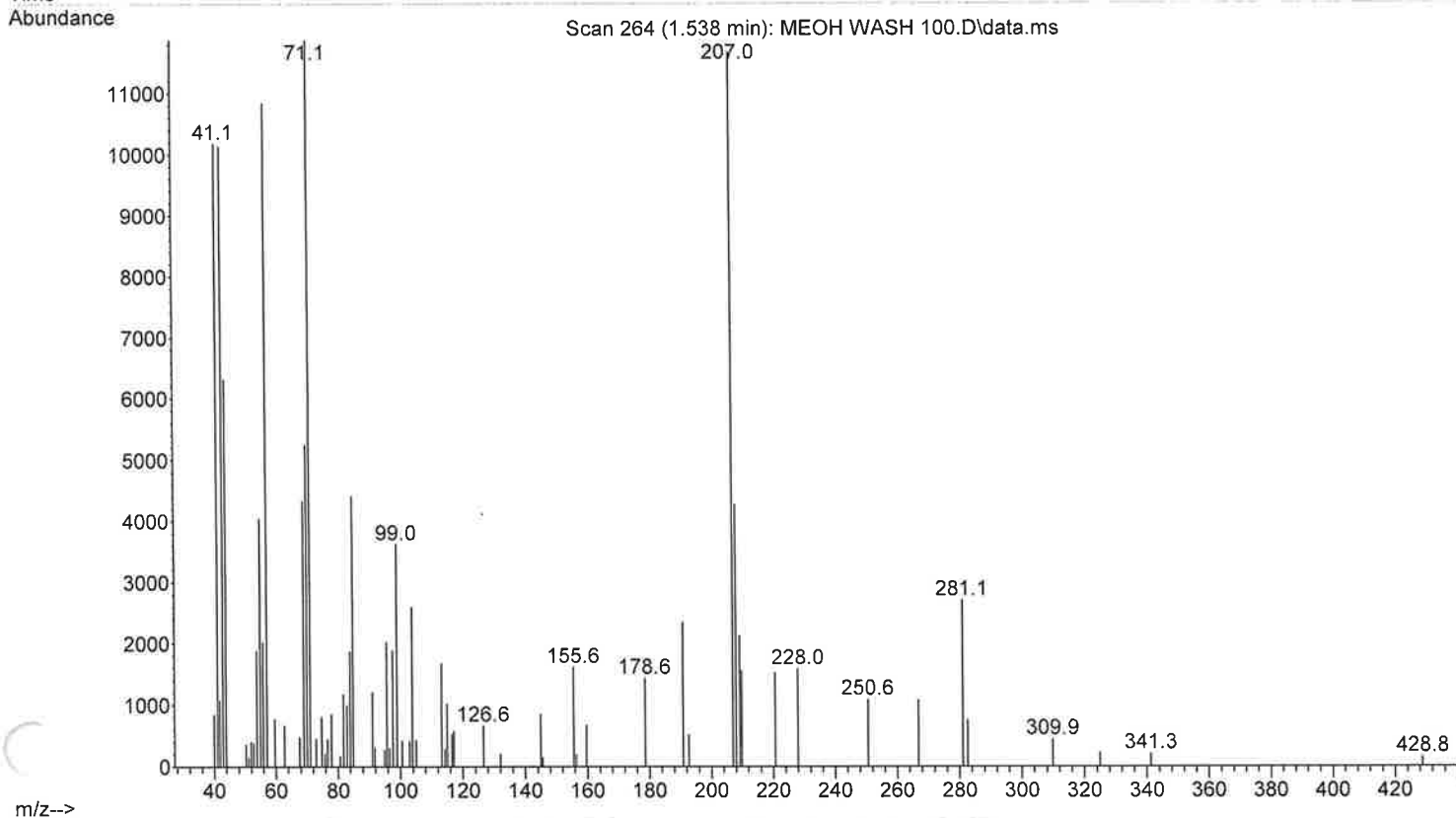
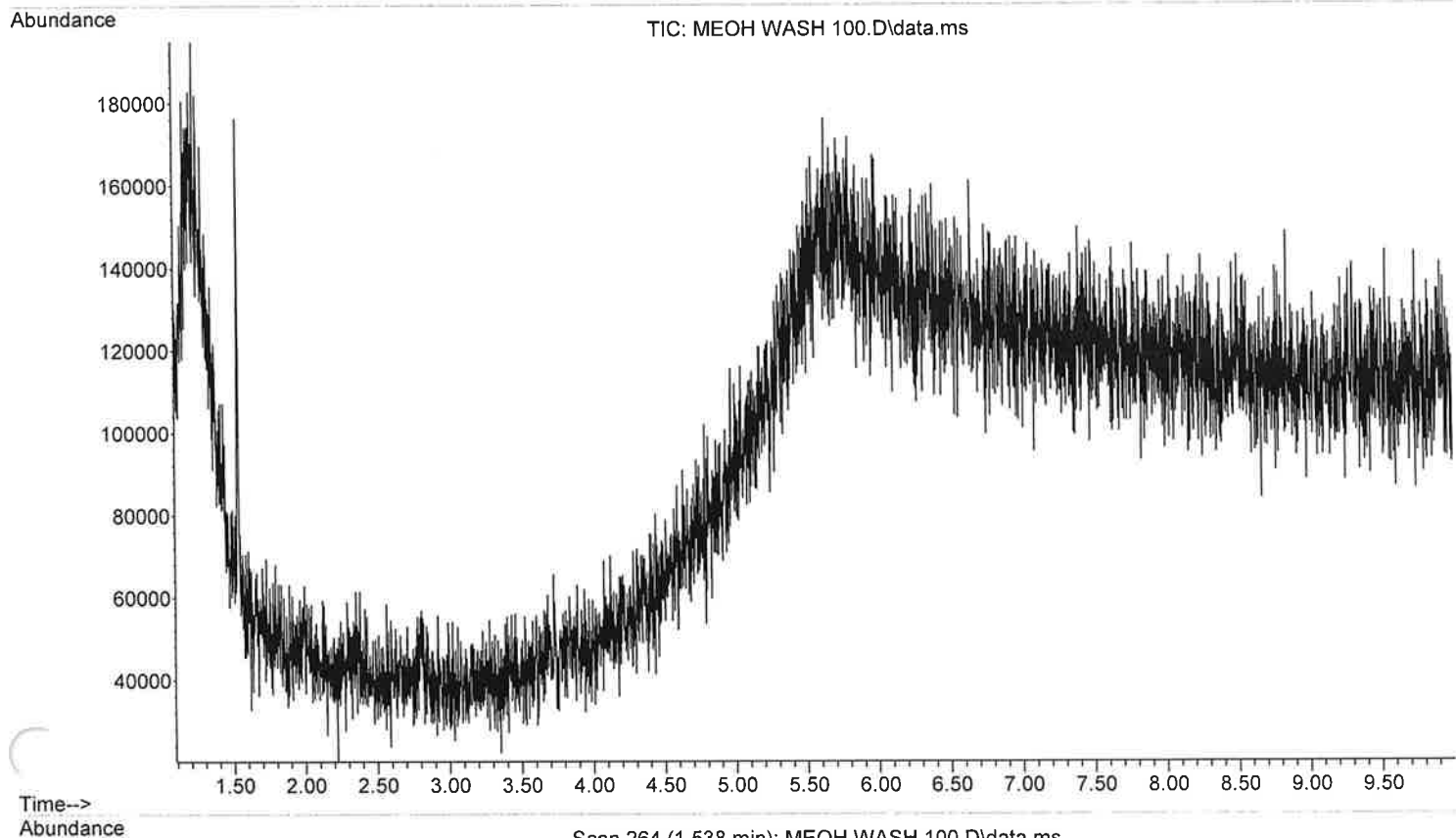
le :D:\MassHunter\GCMS\1\data\Validation\MSDRUGS100\MEOH BLANK 0
. 41917.D
erator : EMC
strument : Heisenberg
quired : 19 Apr 2017 11:10 using AcqMethod MSDRUGS100.M
Name: MEOH BLANK 04/19/17
nfo : MEOH



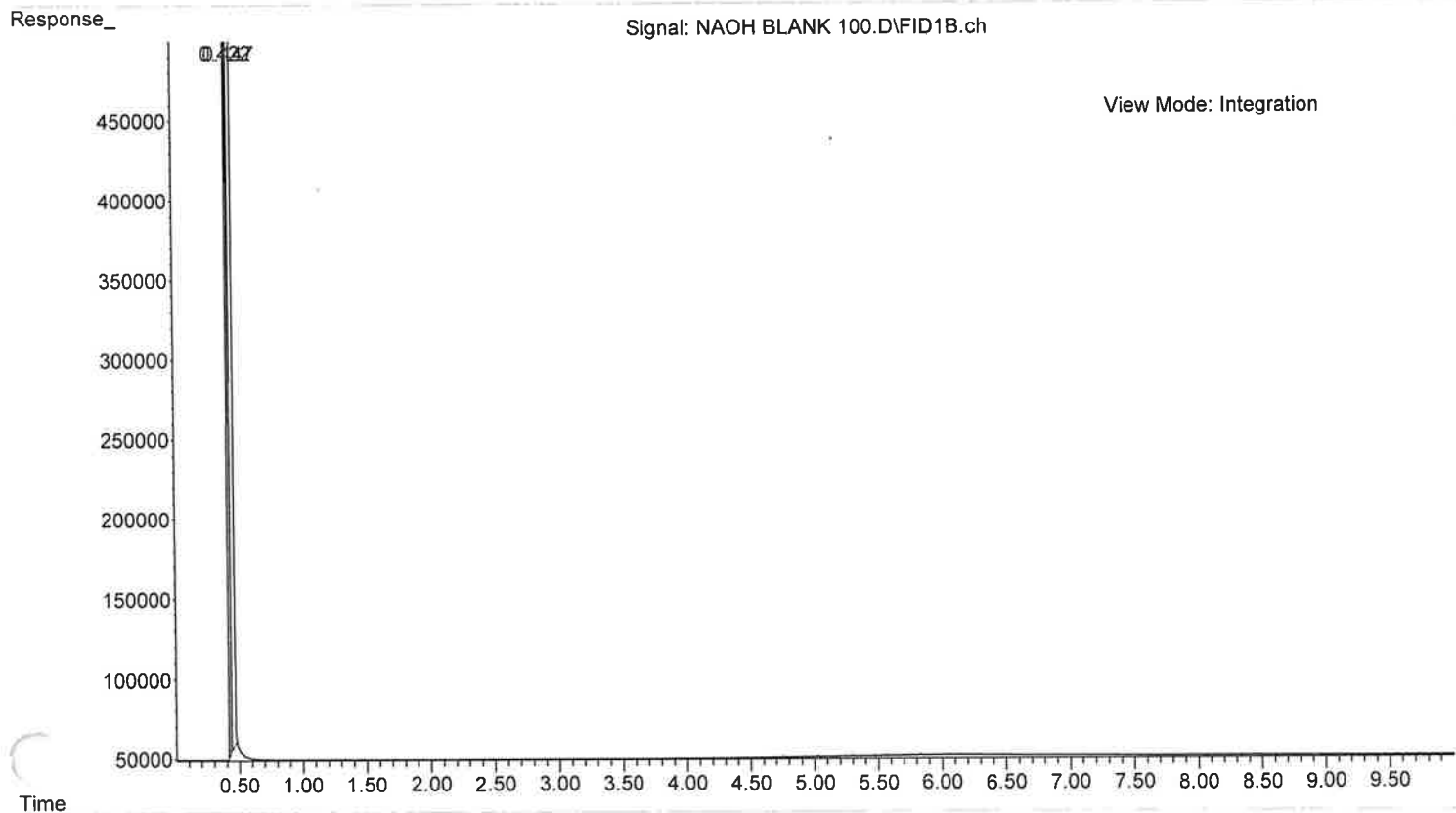
File :D:\MassHunter\GCMS\1\data\Validation\STANDARD CHECK\MEOH BLA
.. NK 200.D
Operator : EMC
Instrument : Heisenberg
Acquired : 04 May 2017 08:24 using AcqMethod MSDRUGS200.M
Sample Name:
Info : MEOH



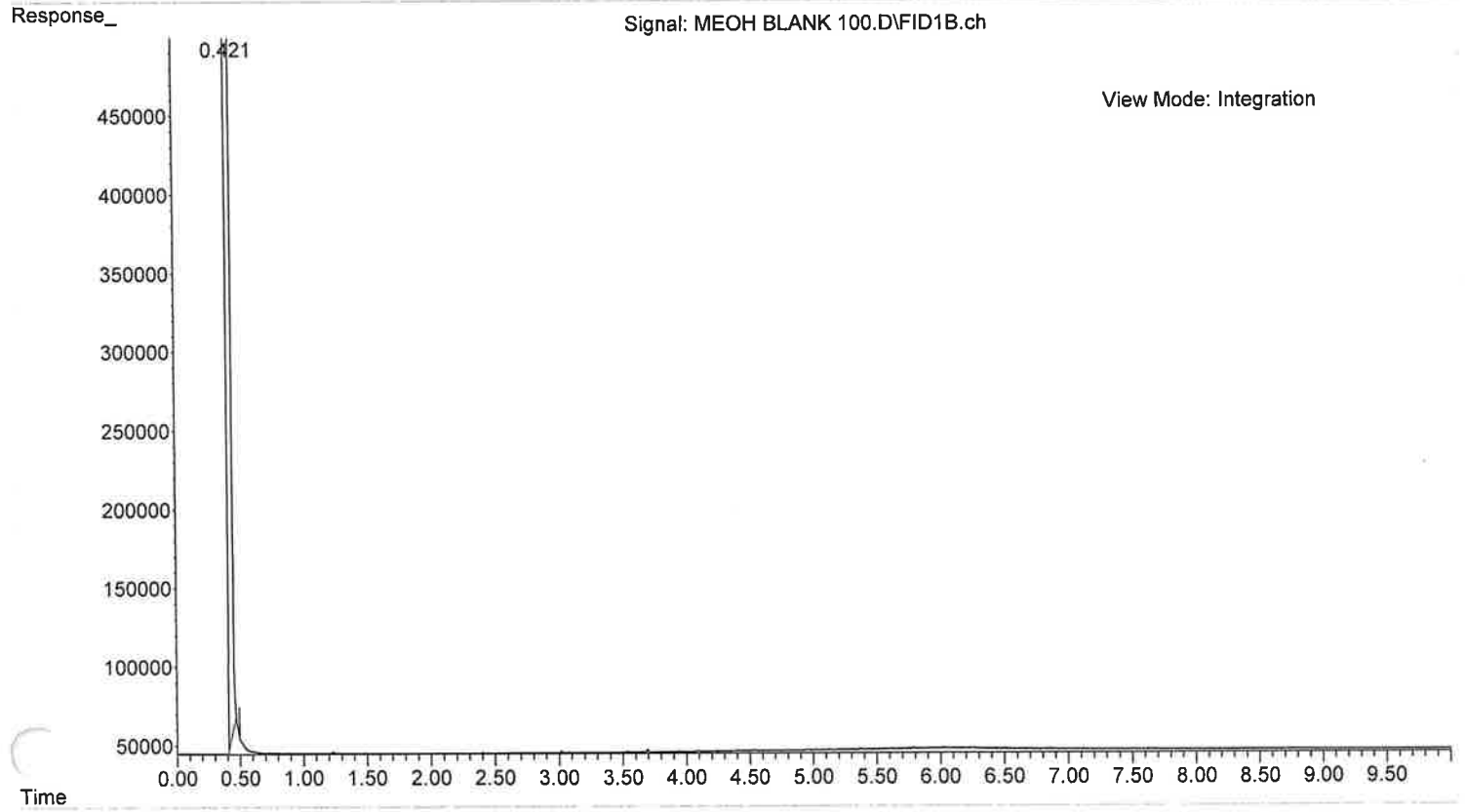
File : D:\MassHunter\GCMS\1\data\Validation\STANDARD CHECK\MEOH WAS
H 100.D
Operator : EMC
Instrument : Heisenberg
Acquired : 04 May 2017 06:28 using AcqMethod MSDRUGS100.M
Sample Name :
Sample Info : MEOH



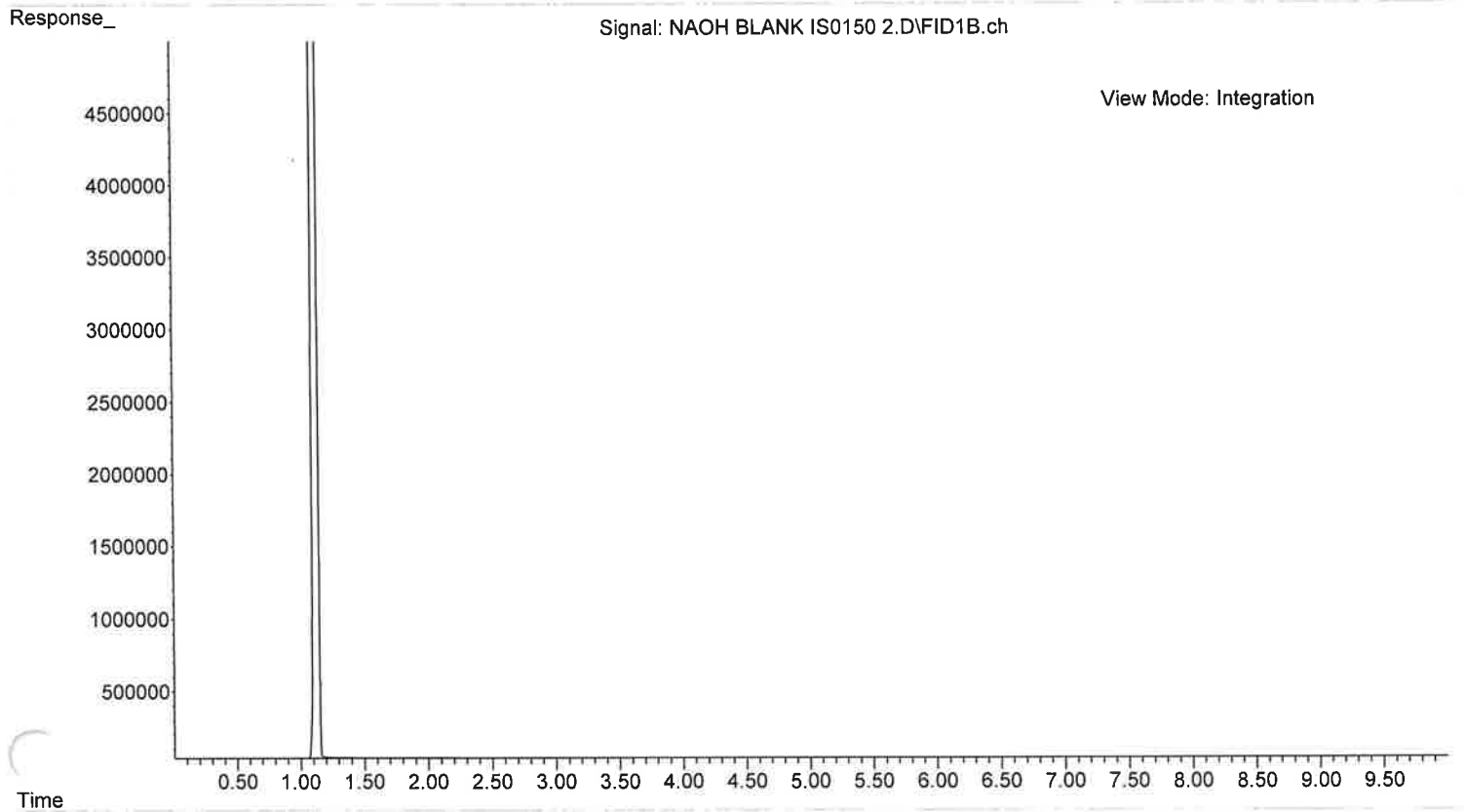
le :D:\MassHunter\GCMS\1\data\Validation\ASGCVALIDATION\NAOH BLA
. NK 100.D
erator : EMC
strument : Heisenberg
quired : 01 May 2017 11:44 using AcqMethod ASGC100.M
Name: 0.5N NAOH/CHCL3 BLANK
nfo : 0.5N NAOH/CHCL3



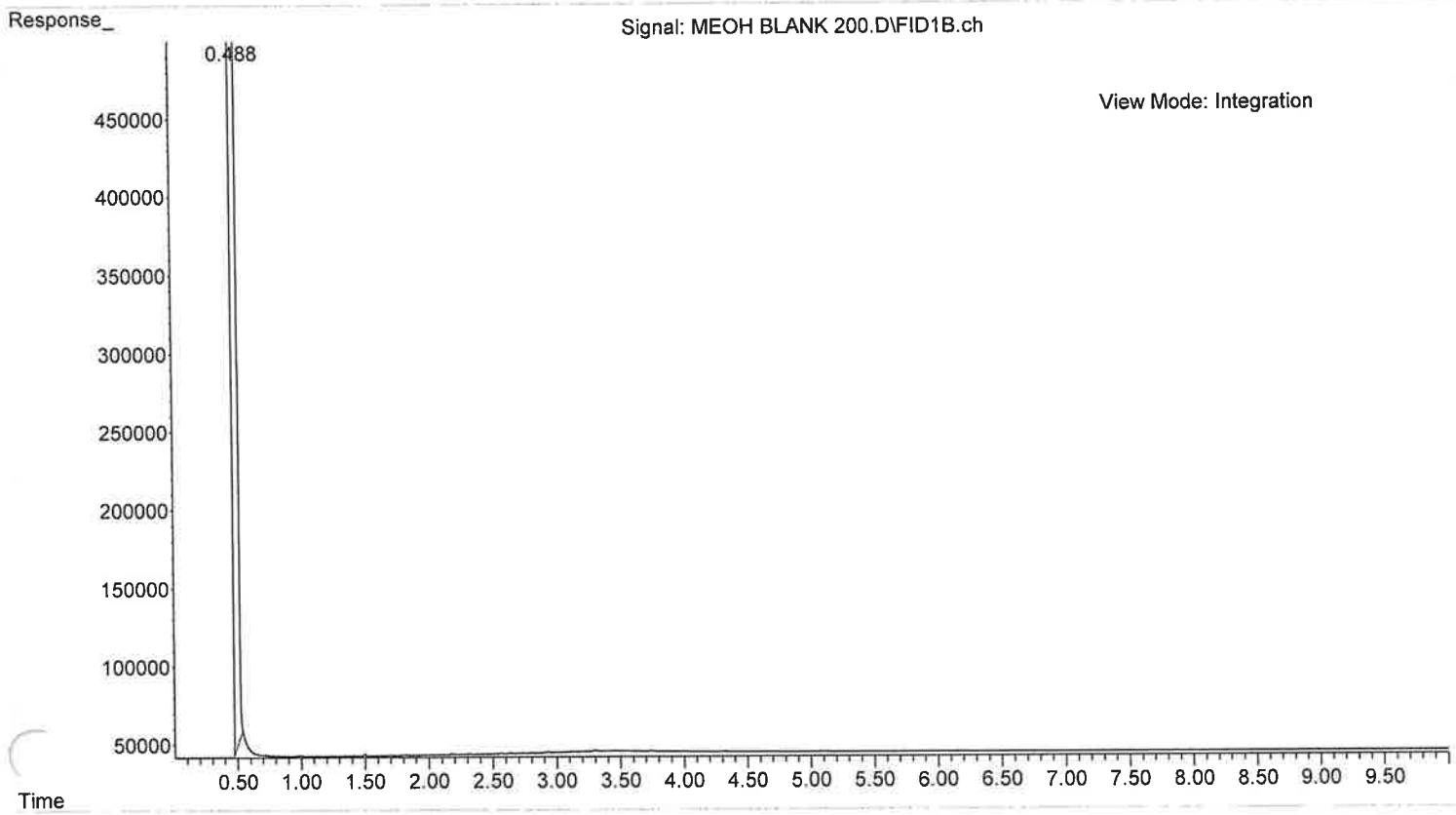
le :D:\MassHunter\GCMS\1\data\Validation\ASGCVALIDATION\MEOH BLA
NK 100.D
erator : EMC
strument : Heisenberg
quired : 01 May 2017 12:36 using AcqMethod ASGC100.M
mple Name: MEOH BLANK
fo : MEOH



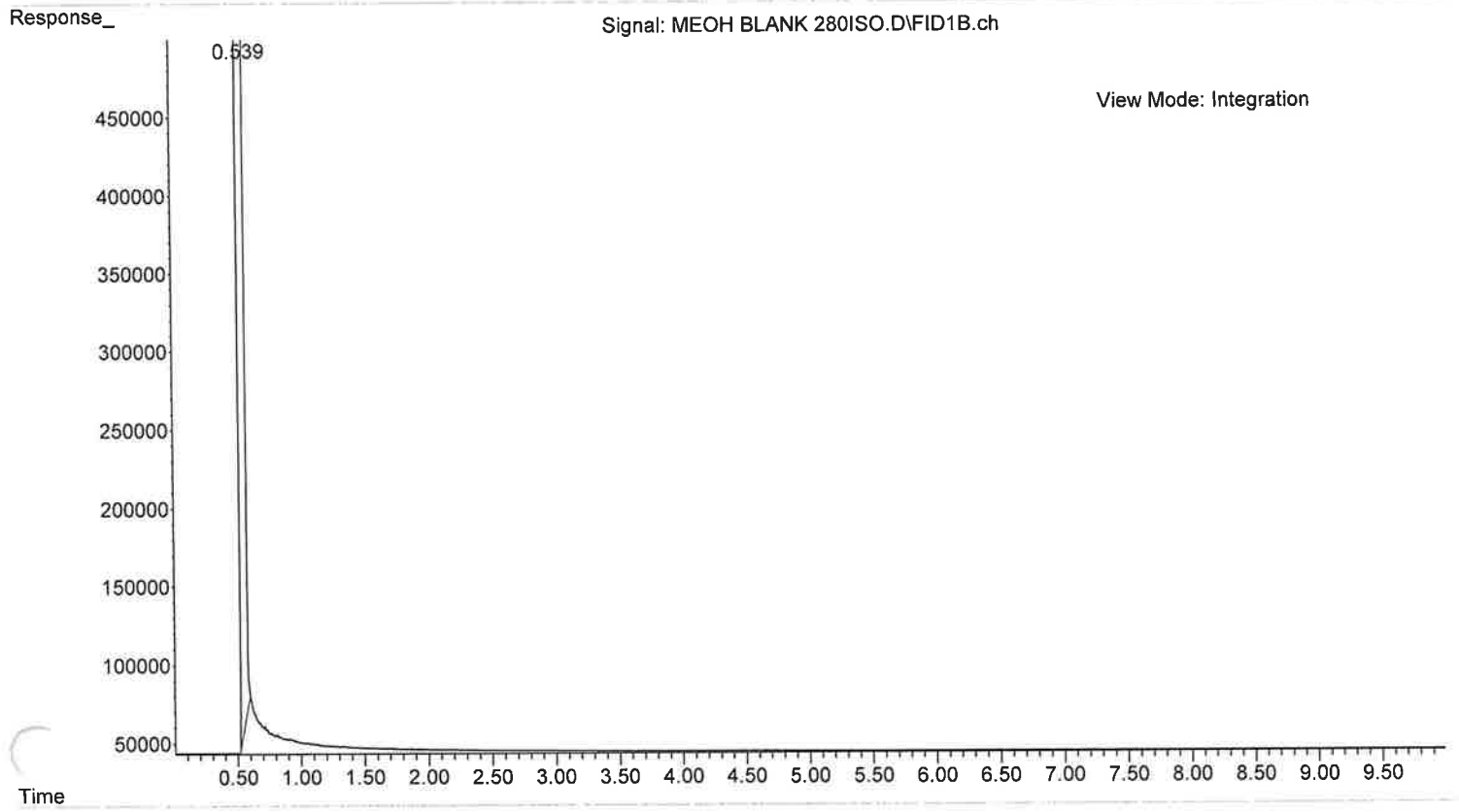
File : D:\MassHunter\GCMS\1\data\Validation\ASGCVALIDATION\NAOH BLA
.. NK IS0150 2.D
Operator : EMC
Instrument : Heisenberg
Acquired : 04 May 2017 10:51 using AcqMethod ASGC150ISO.M
Sample Name: 0.5N NAOH/CHCL3 BLANK
Info : 0.5N NAOH/CHCL3



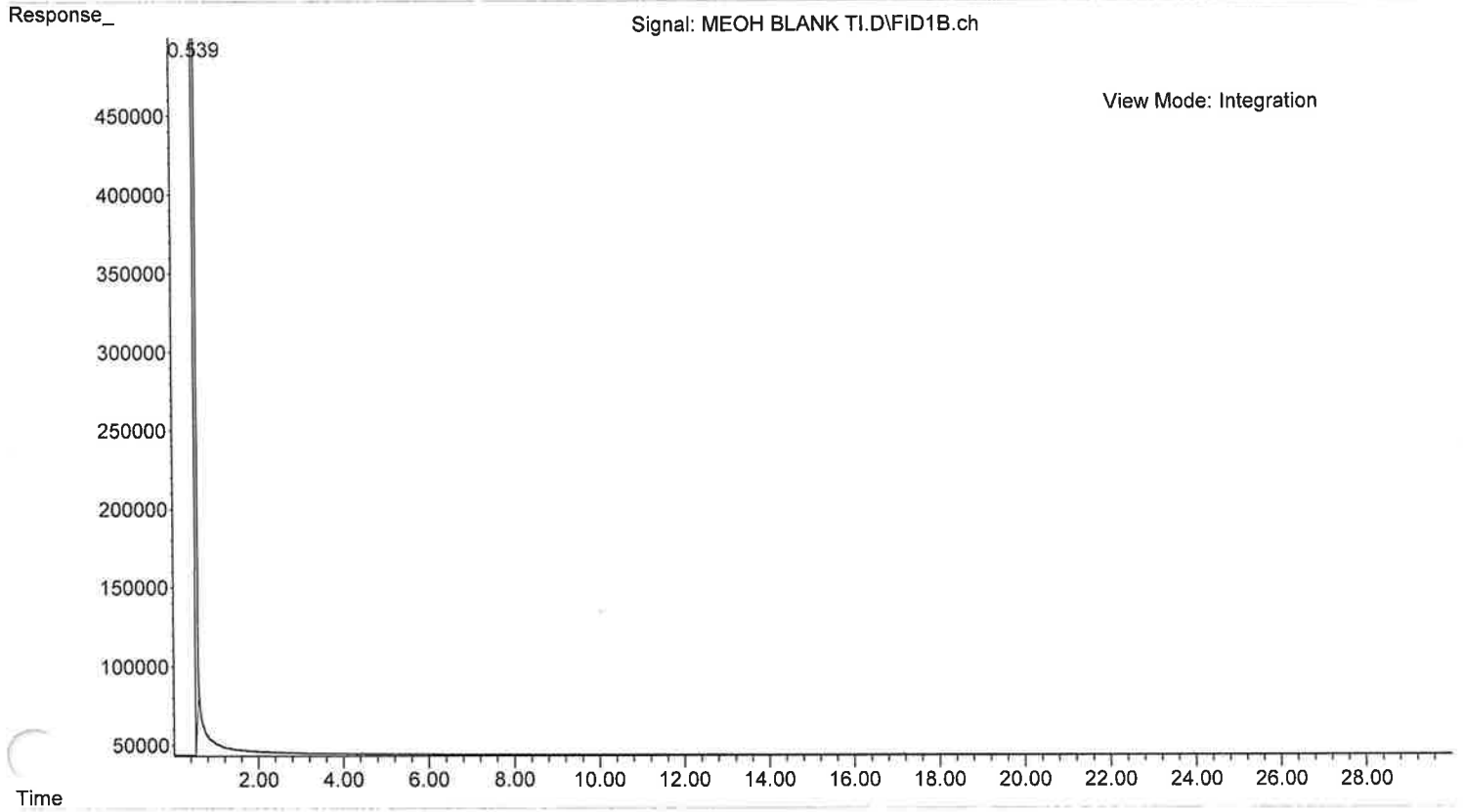
le :D:\MassHunter\GCMS\1\data\Validation\ASGCVALIDATION\MEOH BLA
. NK 200.D
erator : EMC
strument : Heisenberg
quired : 01 May 2017 15:15 using AcqMethod ASGC200.M
Name: MEOH BLANK
nfo : MEOH



le :D:\MassHunter\GCMS\1\data\Validation\ASGCVALIDATION\MEOH BLA
NK 280ISO.D
erator : EMC
strument : Heisenberg
quired : 01 May 2017 16:11 using AcqMethod ASGC280ISO.M
Name: MEOH BLANK
nfo : MEOH



File : D:\MassHunter\GCMS\1\data\Validation\ASGCVALIDATION\MEOH BLA
Operator : EMC
Instrument : Heisenberg
Acquired : 01 May 2017 16:58 using AcqMethod ASGC280ISOTI.M
Sample Name: MEOH BLANK
Info : MEOH



le :D:\MassHunter\GCMS\1\data\Validation\GC100\NAOH BLANK 050217

.D

erator :

strument : Heisenberg

quired : 02 May 2017 12:28 using AcqMethod GC100.M

Name: 0.5N NAOH BLANK 5/2/17

nfo : 0.5 NAOH/CHCL3

Response_

Signal: NAOH BLANK 050217.D\FID1B.ch

View Mode: Integration

9000000

8000000

7000000

6000000

5000000

4000000

3000000

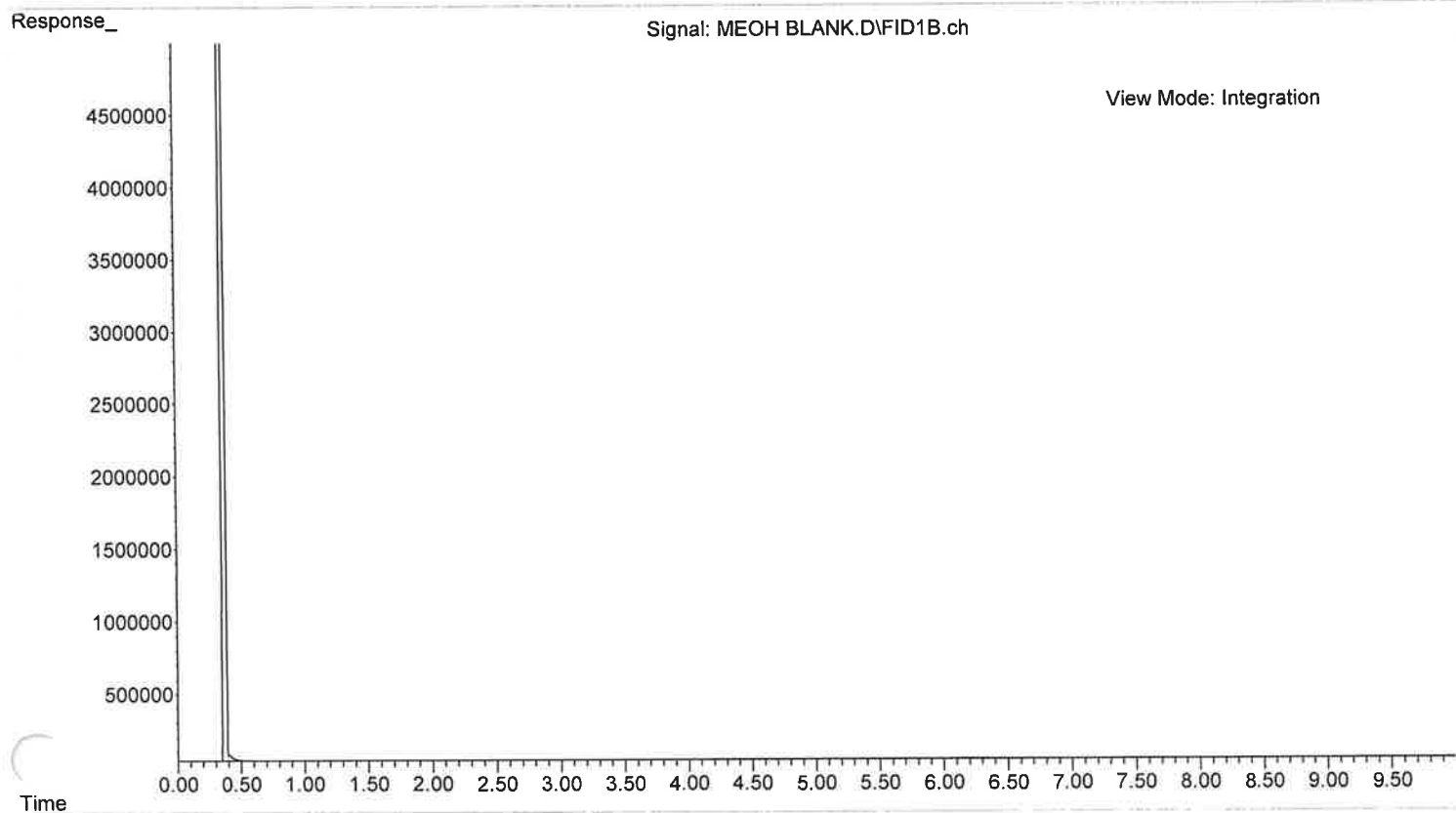
2000000

1000000

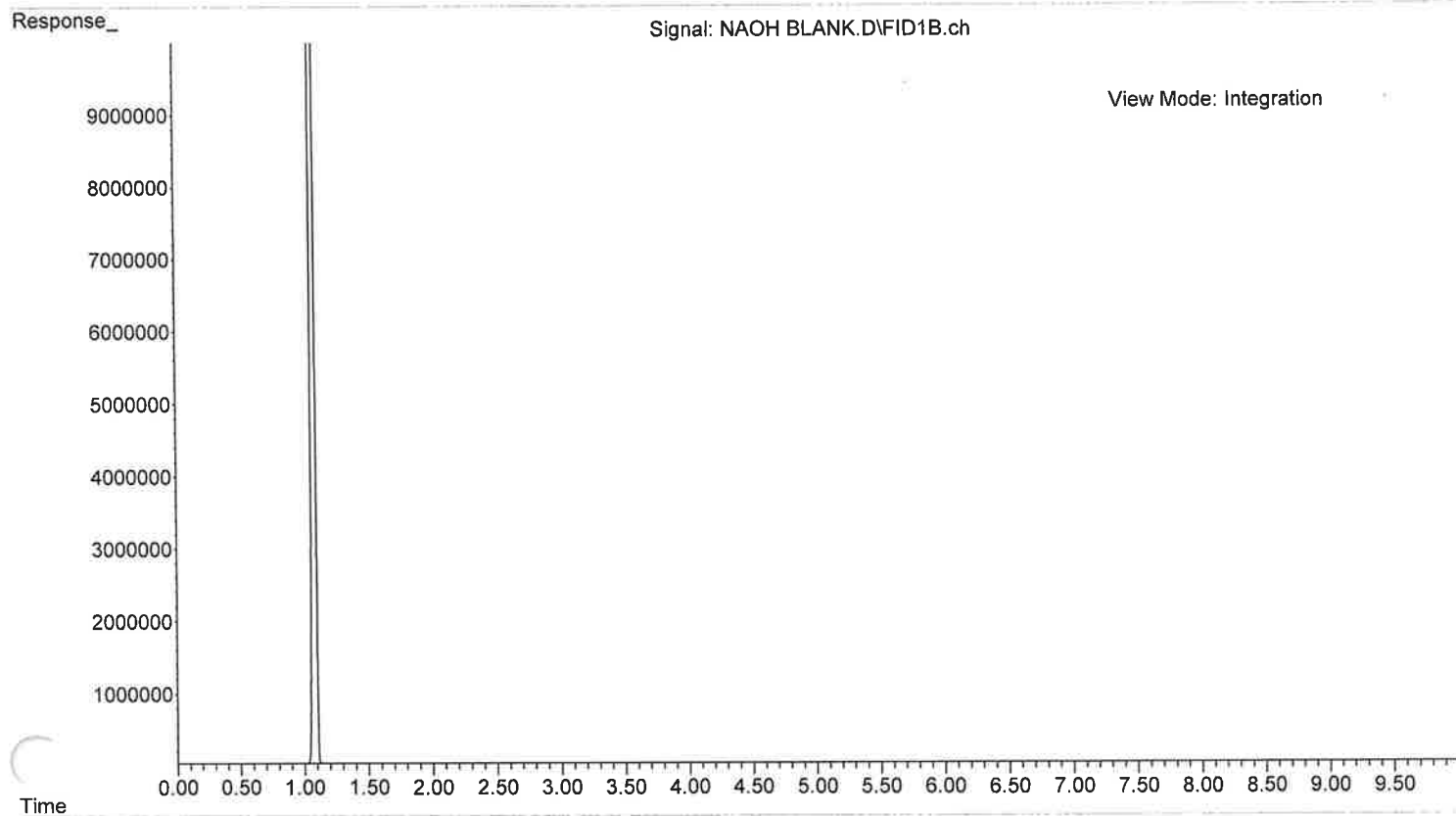
Time

0.00 0.50 1.00 1.50 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 6.00 6.50 7.00 7.50 8.00 8.50 9.00 9.50

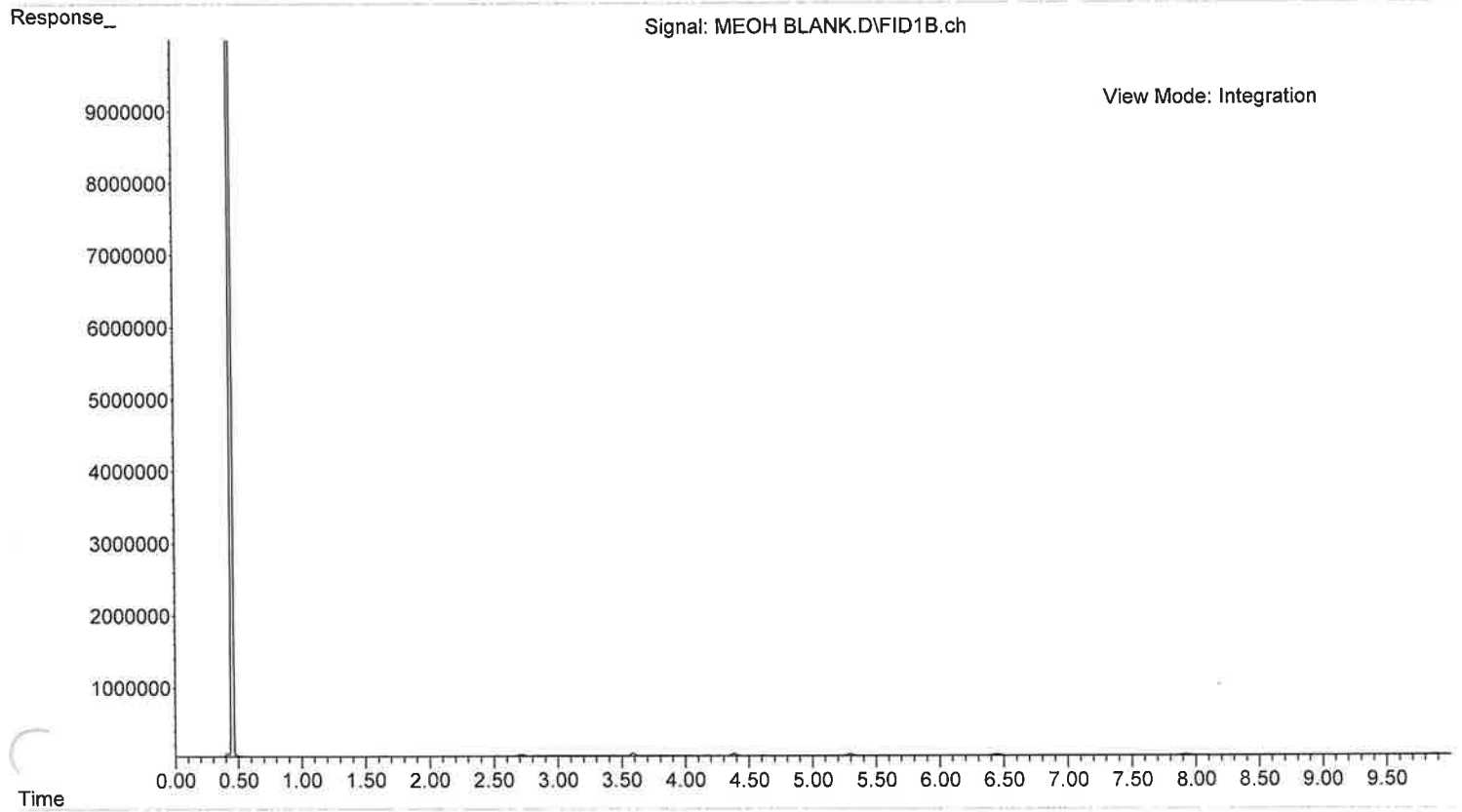
le :D:\MassHunter\GCMS\1\data\Validation\GC100\MEOH BLANK.D
erator : EMC
quired : 02 May 2017 13:06 using AcqMethod GC100.M
strument : Heisenberg
mple Name: MEOH BLANK 5/2/17
s Info : MEOH
umber: 1



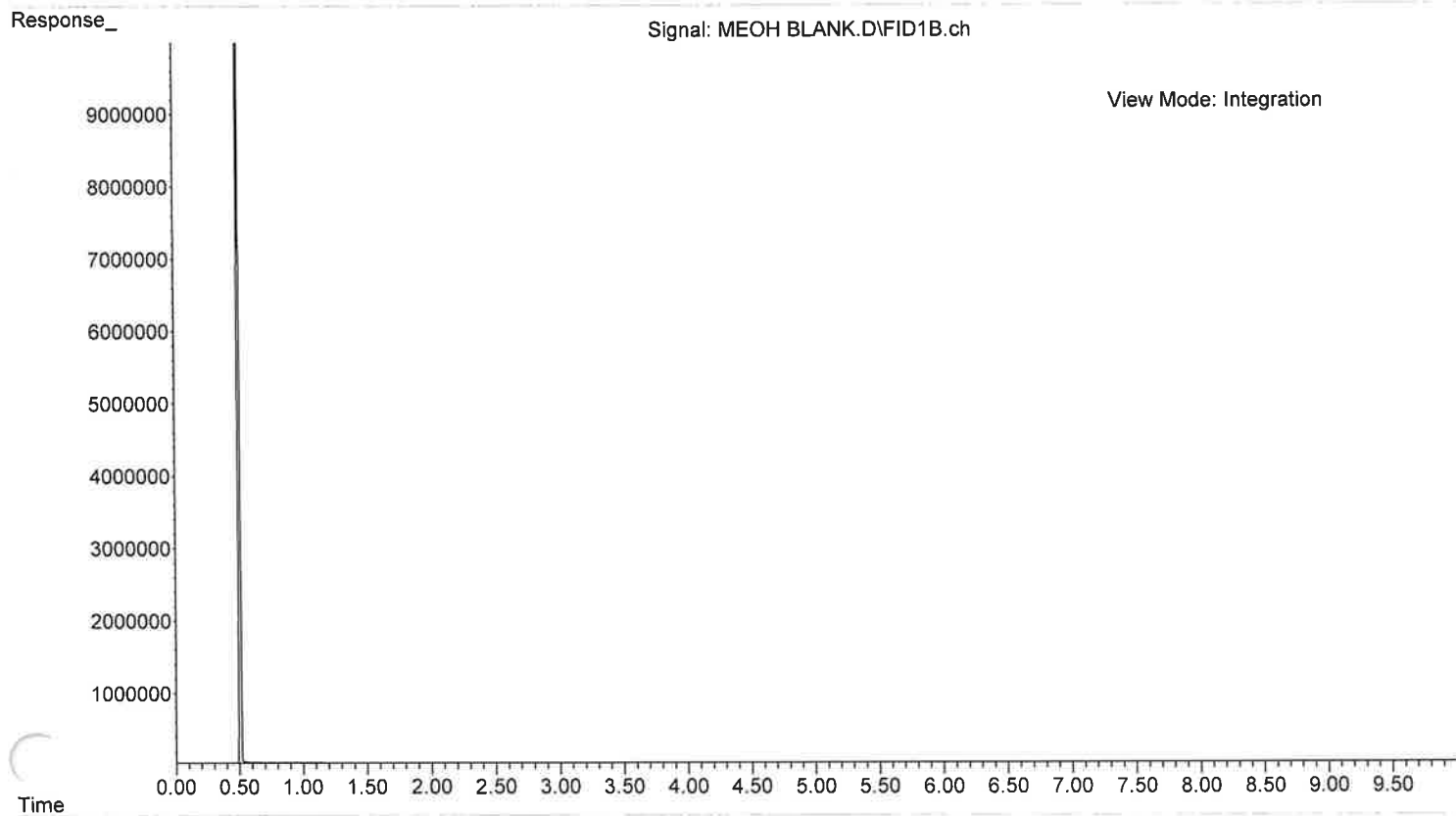
File : D:\MassHunter\GCMS\1\data\Validation\GC150ISO\NAOH BLANK.D
Operator : EMC
Acquired : 03 May 2017 09:57 using AcqMethod GC150ISO.M
Instrument : Heisenberg
Sample Name: NAOH BLANK 5/3/17
Injection Info : 0.5N NAOH/CHCL3
Injection Number: 1



File : D:\MassHunter\GCMS\1\data\Validation\GC200\MEOH BLANK.D
Operator : EMC
Acquired : 03 May 2017 12:55 using AcqMethod GC200.M
Instrument : Heisenberg
Sample Name: MEOH BLANK 5/3/17
Sample Info : MEOH
Sample Number: 1



File : D:\MassHunter\GCMS\1\data\Validation\GC280ISO\MEOH BLANK.D
Operator : EMC
Acquired : 03 May 2017 13:35 using AcqMethod GC280ISO.M
Instrument : Heisenberg
Sample Name: MEOH BLANK 5/3/17
Sample Info : MEOH
Sample Number: 1



File :D:\MassHunter\GCMS\1\data\Validation\GC280ISOTI\MEOH BLANK.D
Operator : EMC
Acquired : 03 May 2017 14:16 using AcqMethod GC280ISOTI.M
Instrument : Heisenberg
Sample Name: MEOH BLANK 5/3/17
Is info : MEOH
Injection Number: 1

