

TBI-FORENSIC SERVICES DIVISION PERFORMANCE VERIFICATION FORM

Instrument/Method to Verify:

Aslan-Agilent Technologies 7890B GC System with ASAP IRD3

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

Laboratory: NCL ☒ KCL ☐ MCL ☐ Unit: Forensic Chemistry

Based on training and competency, the following analyst(s) are authorized by the Technical Leader to participate in this study:

Name Rebecca Hernandez Title SAFS-II Initials RH

Completed: Signature/Date Rebecca Hernandez
Digitally signed by Rebecca Hernandez
DN: cn=Rebecca Hernandez, o=TBI, ou=Forensic Chemistry,
email=rebecca.hernandez@tn.gov, c=US
Date: 2021.10.07 09:22:29 -05'00'

Name _____ Title _____ Initials _____

Completed: Signature/Date _____

Name _____ Title _____ Initials _____

Completed: Signature/Date _____

Verification of final review:

Unit Supervisor/Date Glenn Everett
Digitally signed by Glenn Everett
DN: cn=Glenn Everett, o=TBI, ou, email=glenn.everett@tn.gov, c=US
Date: 2021.10.19 10:53:34 -05'00'

Unit Supervisor/Date _____

Unit Supervisor/Date _____

Crime Laboratory Regional Supervisor/Date 
Digitally signed by Chad D Johnson
DN: cn=Chad D Johnson, o=TBI, ou, email=chad.d.johnson@tn.gov, c=US
Date: 2021.10.19 11:11:25 -05'00'

Crime Laboratory Regional Supervisor/Date _____

Crime Laboratory Regional Supervisor/Date _____

Quality Assurance Manager/Date CDJ
Digitally signed by Chad D Johnson
Date: 2021.10.19 11:11:25 -05'00'

By signing below, I have verified this study meets all requirements and I deem this procedure/instrument fit for the intended use:

Technical Leader/Date Glenn Everett
Digitally signed by Glenn Everett
DN: cn=Glenn Everett, o=TBI, ou, email=glenn.everett@tn.gov,
c=US
Date: 2021.10.19 10:53:53 -05'00'

All information must be submitted to the Quality Assurance Manager prior to the implementation of the procedure/instrument. If applicable, include training plan and competency testing schedule.

Performance Check of Extended Spectral Range Method on Aslan ASAP Analytical IRD3

A new ASAP Analytical IRD3 method was created on Aslan to extend the IR spectral range from 800-4000 cm⁻¹ to 550-4000 cm⁻¹. The IRD3 method was named “IRD3 EXT” and all of the parameters are the same except for the extended spectral range from 550-800 cm⁻¹. A performance check of the new “IRD3 EXT” method on Aslan was achieved by running a series of standards using existing validated Agilent GC methods along with the new “IRD3 EXT” method. A validation of this extended method had previously been performed and approved on another existing ASAP Analytical IRD3 named Hedwig (See instrument for validation manual) and has been deemed fit for its intended use in extending the spectral range from 800-4000 cm⁻¹ to 550-4000 cm⁻¹. This extended spectral range allows for additional spectral information to be obtained that can further distinguish compounds containing primary and secondary amines such as amphetamines, as well as aromatics (rings), alkenes (C=C), and halogen (ex. Cl and Br) containing compounds. Due to this spectral range extension, a new IRD3 library was created with the name “TBI GCIR EXT” and each standard that was run was compared to the ASAP Analytical “Project EUCLiD” spectral database. Based on data that was obtained from the validation on Hedwig, it is not recommended that Clonazepam be analyzed using the “IRD3 EXT” method due insufficient spectra produced for comparison even at 5 mg/mL. Additionally, Mitragynine came out past 30 minutes on the ISO270(30MIN) method and larger compounds such as Nitazene compounds were not studied as part of the validation or performance check due to prior knowledge of such compounds coming out past 30 minutes with the ISO270(30MIN) method using a HP-1 30 meter column with a 0.32 ID and 1.00 µm film. Any new standards that are run on the ASAP Analytical IRD3 instruments will be run on the “IRD3” and “IRD3 EXT” methods to build each respective library. All TBI Forensic Chemistry laboratories will be informed about the “IRD3 EXT” method validation and the new library that was created. Any spectra obtained from running additional standards by the “IRD3 EXT” method will be shared and used by all regional laboratories. No competency testing will be required due to it being a modification of an existing IRD3 method to create an extended IRD3 method. All scientists will be trained on the use of the “IRD3 EXT” method along with the new library that has been created. In addition, a spreadsheet of standards that have been run and verified by the “IRD3 EXT” method will be maintained and available for review next to the instrumentation. This spreadsheet of standards also contains GC methods used and their approximate retention times. The “IRD3 EXT” method on Aslan is now fit for its intended use in extending the spectral range from 800-4000 cm⁻¹ to 550-4000 cm⁻¹. As each ASAP Analytical IRD3 instrument in all regional laboratories have been performance checked for the “IRD3 EXT” method, the “IRD3 EXT” method will be used for running the monthly GC-IR Test Solution to cover the extended spectral range (550-4000 cm⁻¹) and the new wavenumber evaluation worksheet will be used that includes an additional wavenumber within the extended range to be evaluated.

References:

Introduction to Infrared and Raman Spectroscopy, Colthup, Daly, Wiberley, Academic Press, 2nd Edition, 1975.

Project EUCLiD, ASAP Analytical, v1-0-2-1, 2021.

IRD3 ASIC Manual Rev. 1-4.doc4 pages 1-33.

Essential FTIR Operations Manual for GC IRD User Rev. 0-44 pages 1-36

Verified Standards by “IRD3 EXT” on ASAP Analytical GC-FTIR

(HP-1 30 Meter Column, 0.32 ID, 1.00 μ m Film)

	Approximate RT (Instrument RT's may vary)	Method (Other validated methods can be used)
4-ANPP	8.69	120TO270(20MIN)
Acetyl Fentanyl	11.63	120TO270(20MIN)
Alprazolam	16.54	200TO270(20MIN)
Amphetamine	4.72	60TO270
Cannabidiol	6.20	200TO270
Clonazepam	Use UV, RT, or LCMS. Standard was too weak even at 5 mg/mL	
Cocaine	4.77	200TO270
Delta 8 THC	8.66	120TO270
Delta 9 THC	8.92	120TO270
Delta 10 THC	7.99	200TO270(20MIN)
Despropionyl Para- fluorofentanyl	5.89	ISO270(20MIN)
Diazepam	7.25	200TO270(20MIN)
Etizolam	18.47	ISO270(20MIN)
Eutylone	7.01	60TO270
Fentanyl	12.52	120TO270(20MIN)
Flualprazolam	14.84	200TO270(20MIN)
Flubromazolam	17.97	200TO270(20MIN)
Meta-Fluorofentanyl	11.59	120TO270(20MIN)
Ortho-Fluorofentanyl	12.08	
Para-Fluorofentanyl	11.85	
Gabapentin	3.91	120TO270
Heroin	11.02	120TO270(20MIN)
Hydrocodone	6.99	200TO270
Hydromorphone	5.68	ISO270(20MIN)
Ketamine	3.22	200TO270
3,4-MDMA	6.03	60TO270
Methadone	6.20	120TO270
Methamphetamine	4.93	60TO270
Mitragynine	Came out past 30 minutes on ISO270(30MIN) method, use RT or LCMS	
Oxycodone	9.70	120TO270(20MIN)
Oxymorphone	6.72	ISO270(20MIN)
Pethidine	2.82	200TO270
Phentermine	4.87	60TO270
Pseudoephedrine	5.54	60TO270
Testosterone Acetate	10.03	ISO270(20MIN)
Testosterone Propionate	12.41	ISO270(20MIN)
Tramadol	5.16	120TO270(20MIN)

Standards for ASAP Analytical IRD3 Extended Method Performance Check on Aslan

Cocaine

Cerilliant Lot# FE09091901

Acetonitrile 1 mg/mL Exp. Sept. 2024

Delta 8 THC

Cerilliant Lot# FE12271903

Delta 9 THC

Cerilliant Lot# FE02072001

MeOH 1 mg/mL Exp. 1-2025

Delta 10 THC

Cayman Chemical Co. Batch# 0606028

Acetonitrile 1 mg/mL Exp. 1/29/22

Despropionyl Para-fluorofentanyl

Cayman Chemical Co. Batch# 0541953-15

MeOH 1 mg/mL Exp. 8-31-22

Diazepam

Sigma Lot# 105F0451

MeOH 1 mg/mL Exp. 5-5-22

GC-IR Test Solution

Amphetamine K+K Lot# 83567

Methamphetamine K+K Labs Lot# 732A

Phentermine Sigma Lot# 47H0208

0.5N NaOH→CHCl₃ 1 mg/mL Exp. Mar. 2022

Hydrocodone

Cerilliant Lot# FE04241902

MeOH 1 mg/mL Exp. Sept. 2024

3,4-MDMA

Cayman Chemical Co Batch# 0460656-7

0.5N NaOH→CHCl₃ 1 mg/mL Exp. 5-3-22

Testosterone Acetate

Sigma Lot# 19F0299

MeOH 1 mg/mL Exp. 2-3-22

THF4A Mix

Tramadol Sigma Aldrich Lot# BCBB9210

Heroin Cayman Chemical Co Batch# 0559235-2

Fentanyl Citrate USP Lot# 1275F

4-ANPP Cayman Chemical Co Batch# 0532667-4

Acetyl Fentanyl Cayman Chemical Co Batch #0497037-3

MeOH Exp. 7-1-22 *See book for concentrations

MeOH Used:

Lot# 206404 Bottle #4 u/c

CHCl₃ Used:

Lot# 59193 Bottle #2 u/c

Addendum (Methods for Agilent/ASAP Analytical IRD3 GC-FTIR)

Agilent GC:

Front Column: S/SL Injection Port with recommended HP-1 30 meter column, 0.32 column ID, and 1.0 um film thickness:

Stored Methods for AUTOSAMPLE SPLIT INJECTION

- 60TO270** Initial 60C degrees hold for 2 minutes ramped to 270C degrees at 70C/min. Constant carrier flow rate of 3.0 mL/min, Split ratio of 2.0, Split flow 6.0 mL/min, Pressure 13.827 psi, Septum purge flow 3 mL/min, Inlet temperature of 250C degrees. Total run time 10.00 minutes.
- 120TO270** Initial 120C degrees hold for 1 minute ramped to 270C degrees at 70C/min. Constant carrier flow rate of 3.0 mL/min, Split ratio of 2.0, Split flow 6.0 mL/min, Pressure 17.01 psi, Septum purge flow 3 mL/min, Inlet temperature of 250C degrees. Total run time 10.00 minutes.
- 120TO270(20MIN)** Initial 120C degrees hold for 1 minute ramped to 270C degrees at 70C/min. Constant carrier flow rate of 3.0 mL/min, Split ratio of 2.0, Split flow 6.0 mL/min, Pressure 17.01 psi, Septum purge flow 3 mL/min, Inlet temperature of 250C degrees. Total run time 20.00 minutes.
- 200TO270** Initial 200C degrees hold for 1 minutes ramped to 270C degrees at 70C/min. Constant carrier flow rate of 3.0 mL/min, Split ratio of 2.0, Split flow 6.0 mL/min, Pressure 21.268 psi, Septum purge flow 3 mL/min, Inlet temperature of 250C degrees. Total run time 10.00 minutes.
- 200TO270(20MIN)** Initial 200C degrees hold for 1 minute ramped to 270C degrees at 70C/min. Constant carrier flow rate of 3.0 mL/min, Split ratio of 2.0, Split flow of 6.0 mL/min, Pressure 21.268, Septum purge flow 3mL/min, Inlet temperature of 250C degrees. Total run time 20.00 minutes.
- ISO270(15MIN)** 270C degrees isothermal. Constant carrier flow rate of 3.0 mL/min, Split ratio of 2.0, Split flow 6.0 mL/min, Pressure 24.983 psi, Septum purge flow 3 mL/min, Inlet temperature of 250C degrees. Total run time 15.00 minutes.
- ISO270(20MIN)** 270C degrees isothermal. Constant carrier flow rate of 3.0 mL/min, Split ratio of 2.0, Split flow 6.0 mL/min, Pressure 24.983 psi, Septum

purge flow 3 mL/min, Inlet temperature of 250C degrees. Total run time 20.00 minutes.

ISO270(30MIN) 270C degrees isothermal. Constant carrier flow rate of 3.0 mL/min, Split ratio of 2.0, Split flow 6.0 mL/min, Pressure 24.983 psi, Septum purge flow 3 mL/min, Inlet temperature of 250C degrees. Total run time 30.00 minutes.

*Stored Methods for **MANUAL SPLIT INJECTION***

MAN60TO270 Initial 60C degrees hold for 2 minutes ramped to 270C degrees at 70C/min. Constant carrier flow rate of 3.0 mL/min, Split ratio of 2.0, Split flow 6.0 mL/min, Pressure 13.827 psi, Septum purge flow 3 mL/min, Inlet temperature of 250C degrees. Total run time 10.00 minutes.

MAN120TO270 Initial 120C degrees hold for 1 minute ramped to 270C degrees at 70C/min. Constant carrier flow rate of 3.0 mL/min, Split ratio of 2.0, Split flow 6.0 mL/min, Pressure 17.01 psi, Septum purge flow 3 mL/min, Inlet temperature of 250C degrees. Total run time 10.00 minutes.

MAN120TO270(20MIN) Initial 120C degrees hold for 1 minute ramped to 270C degrees at 70C/min. Constant carrier flow rate of 3.0 mL/min, Split ratio of 2.0, Split flow 6.0 mL/min, Pressure 17.01 psi, Septum purge flow 3 mL/min, Inlet temperature of 250C degrees. Total run time 20.00 minutes.

MAN200TO270 Initial 200C degrees hold for 1 minutes ramped to 270C degrees at 70C/min. Constant carrier flow rate of 3.0 mL/min, Split ratio of 2.0, Split flow 6.0 mL/min, Pressure 21.268 psi, Septum purge flow 3 mL/min, Inlet temperature of 250C degrees. Total run time 10.00 minutes.

MAN200TO270(20MIN) Initial 200C degrees hold for 1 minute ramped to 270C degrees at 70C/min. Constant carrier flow rate of 3.0mL/min, Split ratio of 2.0, Split flow of 6.0 mL/min, Pressure 21.268 psi, Septum purge flow 3 mL/min, Inlet temperature of 250C degrees. Total run time 20.00 minutes.

MANISO270(15MIN) 270C degrees isothermal. Constant carrier flow rate of 3.0 mL/min, Split ratio of 2.0, Split flow 6.0 mL/min, Pressure 24.983 psi, Septum purge flow 3 mL/min, Inlet temperature of 250C degrees. Total run time 15.00 minutes.

MANISO270(20MIN) 270C degrees isothermal. Constant carrier flow rate of 3.0 mL/min, Split ratio of 2.0, Split flow 6.0 mL/min, Pressure 24.983 psi, Septum purge flow 3 mL/min, Inlet temperature of 250C degrees. Total run time 20.00 minutes.

MANISO270(30MIN) 270C degrees isothermal. Constant carrier flow rate of 3.0 mL/min, Split ratio of 2.0, Split flow 6.0 mL/min, Pressure 24.983 psi, Septum purge flow 3 mL/min, Inlet temperature of 250C degrees. Total run time 30.00 minutes.

Stored Methods for AUTOSAMPLE SPLITLESS INJECTION

SL60TO270 Initial 60C degrees hold for 2 minutes ramped to 270C degrees at 70C/min. Constant carrier flow rate of 3.0 mL/min, Splitless, Purge flow to Split Vent 15 mL/min, Septum purge flow 3 mL/min, Inlet temperature of 250C degrees. Total run time 10.00 minutes.

SL120TO270 Initial 120C degrees hold for 1 minute ramped to 270C degrees at 70C/min. Constant carrier flow rate of 3.0 mL/min, Splitless, Purge flow to Split Vent 15 mL/min at 0.75 min, Septum purge flow 3 mL/min, Inlet temperature of 250C degrees. Total run time 10.00 minutes.

SL120TO270(20MIN) Initial 120C degrees hold for 1 minute ramped to 270C degrees at 70C/min. Constant carrier flow rate of 3.0 mL/min, Splitless, Purge flow to Split Vent 15 mL/min at 0.75 min, Septum purge flow 3 mL/min, Inlet temperature of 250C degrees. Total run time 20.00 minutes.

SL200TO270 Initial 200C degrees hold for 1 minutes ramped to 270C degrees at 70C/min. Constant carrier flow rate of 3.0 mL/min, Splitless, Purge flow to Split Vent 15 mL/min at 0.75 min, Septum purge flow 3 mL/min, Inlet temperature of 250C degrees. Total run time 10.00 minutes.

SL200TO270(20MIN) Initial 200C degrees hold for 1 minute ramped to 270C degrees at 70C/min. Constant carrier flow rate of 3.0 mL/min, Splitless, Purge flow to Split Vent 15 mL/min at 0.75 min, Septum purge flow 3 mL/min, Inlet temperature of 250C degrees. Total run time 20.00 minutes.

SLISO270(15MIN) 270C degrees isothermal. Constant carrier flow rate of 3.0 mL/min, Splitless, Purge flow to Split Vent 15 mL/min at 0.75 min, Septum

purge flow 3 mL/min, Inlet temperature of 250C degrees. Total run time 15.00 minutes.

SLISO270(20MIN)

270C degrees isothermal. Constant carrier flow rate of 3.0 mL/min, Splitless, Purge flow to Split Vent 15 mL/min at 0.75 min, Septum purge flow 3 mL/min, Inlet temperature of 250C degrees. Total run time 20.00 minutes.

SLISO270(30MIN)

270C degrees isothermal. Constant carrier flow rate of 3.0 mL/min, Splitless, Purge flow to Split Vent 15 mL/min at 0.75 min, Septum purge flow 3 mL/min, Inlet temperature of 250C degrees. Total run time 30.00 minutes.

ASAP Analytical IRD3 (FTIR):

IRD3

Resolution of 8 cm⁻¹ with a Co-Add (Scans) of 2, Background Scans (Collecting Basis Set→Basis Set File 10 times with 6 scans each = 60 Scans) prior to each sample, set at Auto Calculate Gain (typically 1-2), Frequency range 800-4000 cm⁻¹, Apodization: Triangle, Phase Correction: Mertz, Zero Fill: 1, Flow Cell, Transfer Lines A & B at 280C, Smoothing Factor: OFF, Length 100, Symmetry: 2, Offset 60, Source Power at 22, and Laser Wavelength of 0.63299.

IRD3 EXT

Resolution of 8 cm⁻¹ with a Co-Add (Scans) of 2, Background Scans (Collecting Basis Set→Basis Set File 10 times with 6 scans each = 60 Scans) prior to each sample, set at Auto Calculate Gain (typically 1-2), Frequency range 550-4000 cm⁻¹, Apodization: Triangle, Phase Correction: Mertz, Zero Fill: 1, Flow Cell, Transfer Lines A & B at 280C, Smoothing Factor: OFF, Length 100, Symmetry: 2, Offset 60, Source Power at 22, and Laser Wavelength of 0.63299.

SHUTDOWN

Resolution of 8 cm⁻¹ with a Co-Add (Scans) of 2, Background Scans (Collecting Basis Set→Basis Set File 10 times with 6 scans each = 60 Scans) prior to each sample, set at Auto Calculate Gain (typically 1-2), Frequency range 800-4000 cm⁻¹, Apodization: Triangle, Phase Correction: Mertz, Zero Fill: 1, Flow Cell at 280C, Transfer Lines A & B at 230C, Smoothing Factor: OFF, Length 100, Symmetry: 2, Offset 60, Source Power Off, and Laser Wavelength of 0.63299.

DO NOT use "Default" method for IRD method in casework.

For Resolution and Co-Add (Scans) Study ONLY:

8 Resolution 4 Scans Resolution of 8 cm^{-1} with a Co-Add (Scans) of 4, Background Scans (Collecting Basis Set $\rightarrow$ Basis Set File 10 times with 6 scans each = 60 Scans) prior to each sample, set at Auto Calculate Gain (typically 1-2), Frequency range 800-4000 cm^{-1} , Apodization: Triangle, Phase Correction: Mertz, Zero Fill: 1, Flow Cell, Transfer Lines A & B at 280C, Smoothing Factor: OFF, Length 100, Symmetry: 2, Offset 60, Source Power at 22, and Laser Wavelength of 0.63299.

Always verify that the temperature for the GC interface (flow cell) is at least 10 degrees higher than the maximum temperature of the GC oven. The nitrogen purge for the IRD3 should be set at around 20 psi and the nitrogen make-gas for the IRD flow controller's auxiliary lines A & B should be set at around 5 psi.

Agilent Technologies 7890B GC System with ASAP Analytical IRD3 (GC-FTIR) Operating Procedures

Each GC-FTIR system will be identified from all other GC-FTIR systems by use of a unique identifier. This identifier could be a reference to a particular number, model number, serial number, name, etc. This GC-FTIR system employs OpenLab CDS ChemStation Edition with ASAP Analytical IRD3/eFTIR software. See the instrument's maintenance logbook for the specific software versions.

Loading IRD3-ASIC Software and Method:

1. Click on the IRD3 - ASIC shortcut from either the Desktop or the Start Menu. A yellow box will come up asking "Do you want to allow this app from an unknown publisher to make changes to your device? IRD3.exe". Select Yes. Upon powering up the IRD3 software the system will load the settings that were last loaded when the program previously closed.
2. Make sure the "IRD3" or "IRD3 EXT" method is loaded by either selecting from the File Menu→Method...→Edit or Load Method... or by selecting the folder icon below the File Menu and then select the sequence line for "IRD3" or "IRD3 EXT" and click on the folder option "Load". If the source was previously turned off from a "SHUTDOWN" method it will ask you if you'd like to turn the source on. Select "Yes" to turn the source on.
3. Remove the black cap off the MCT dewar on top of the ASAP Analytical IRD3 instrument and use a funnel to fill MCT dewar with liquid nitrogen.

NOTE Make sure you have proper PPE (etc. face shield and gloves) when filling the MCT dewar. It will take about 5 funnels full of liquid nitrogen to fill the MCT dewar. Be careful when filling because as you get closer to completely filling the MCT dewar, it may spit out the top of the funnel. When the MCT dewar is full, let it vent off for a few seconds before placing the black cap back on.

4. Once the MCT dewar is filled click on the "MCT Timer" bar under "Menu" and reset the timer. This will turn the status of the MCT to ready (green). It is manufacturer recommendation to wait at least 20 minutes to let the MCT cool down and equilibrate.
5. Left mouse click the System Status bar under "Menu" to check the status of your source, laser, IR, transfer lines A & B, and light pipe. Once all are ready they should turn from red or yellow to green and state that the system is "READY". Exit out of window when you are finished.

NOTE If the source has been turned off from the previous run, it will need approximately 2 hours to turn on and equilibrate. It is also recommended to run a wash first and check your baseline before running your first sample.

6. Once everything has stabilized and the system is "READY", click on the Optics Align bar under "Menu" and "GLP Status" to check your optics alignment value. The "Current" value should be around +/- 10% of the "Maximum" value. If there is a significant difference in the value, notify the analyst who performs maintenance on the instrument. An optical alignment may be needed prior to analysis. Close out of the window when you are finished.

Loading Control Panel for OpenLab Software:

7. Click on the Control Panel shortcut from the Desktop. Select "Launch" under Instrument Name (Ex. "Hedwig")→Start Instrument.
8. Agilent OpenLab CDS ChemStation Edition will initialize for a few moments. Select either "OK" or exit out of the window when asked about Adobe Reader not being your default PDF reader (We use Microsoft Word).
9. Once OpenLab CDS ChemStation has loaded you are now ready to create a sequence back in the IRD3 software window.

Creating a Sequence:

→New Sequence

10. From the File Menu in the IRD3 software window, select the "Sequence..." option to either create a new sequence or edit an already created sequence.
11. If you are creating a new sequence, type in how you want to label your sequence in the "Sequence Name:" box.
12. In the first line and column of the sequence in the Sequence Setup window, put in the "Type" column the type of sample you are running (ex. Blank, Sample, etc). You do not have put any information in this window, due to the information in this column not being displayed on any of the generated reports in the eFTIR software.
13. In the second column of the sequence under "IRD Method" click on the drop down arrow and select "IRD3" or "IRD3 EXT" for your IRD method.
14. In the third column of the sequence under "GC Method" select the box and then click on the blue icon "Browse GC Methods" a bottom of the Sequence Setup window.
15. Select the following data path to obtain all Agilent OpenLab Chemstation GC methods:

This PC→Windows (C:)→Users→Public→Public Documents→Chemstation→1→Methods

16. Select the method you'd like to use for your sample and click "Okay"
17. In the fourth column of the sequence under "Vial" type in the vial location of your sample in the auto sample tray. (For smaller auto sample trays, you will have to add 100 to every numbered position on the auto sample tray. Example, if you are starting at the "1" position in the auto sample tray, you would put vial location "101").
18. In the fifth column of the sequence under "SampleID" name your sample.
19. In the sixth column of the sequence under "Data File Name" name your sample. How you name your sample here will determine how it will appear in the data file. In addition to naming your sample you will need to put a time stamp after. To put a time stamp with the data file name you will add "\$ (date) (example: "Sample2 \$(date)"). NOTE: There is a limit

of 38 characters when you add the time stamp to the data file name and it doesn't like symbols such as "/".

20. In the seventh column of the sequence under "Solvent/Extract" you will enter in your solvent or extraction information.
21. In the eighth column of the sequence under "Instrument ID" you will enter in your instrument name (Ex. "Hedwig") as the Instrument ID. Any information put in the seventh and eighth columns will appear in the "Misc. Info" box with a colon dividing the information in any generated report.
22. Once the first line of the sequence setup is completed you can copy and paste information in any sequential lines that need filled out. It will let you copy one line at a time or select several lines to fill down. When pasting after highlighting a line or several lines to copy, just select one line and paste what you have copied.
23. To insert a line, copy a single line right below where you want to insert your sample and select paste in the same line. It will insert a copy of the line right below it. Change any necessary information.
24. Select "Save" to save your sequence when you are finished.

→New Sequence from an Existing Sequence

25. To create a sequence by editing an existing sequence, from the File Menu in the IRD3 software window, select the "Sequence...→Edit Sequence..." option.
26. Select the existing sequence where you'd like to create a new one from by clicking/highlighting it and selecting the "Edit" button.
27. Select the "Save As..." button and create your new sequence name, save, and then make any changes to the sequence and select save. **DO NOT save over an existing sequence.**

Running a Sequence:

28. For a single sample or sequence run select the green "Start Run" button in the top left corner under "Menu". Fill out any necessary information for a single sample within the required fields and select the "Start Run" button. For the sequence run, select the "Sequence run" tab and then from the "Sequence Name" select the sequence to be run from the drop down (However you named and saved your sequence is how it will appear here). It will order it numerically then alphabetically. Select the line in which you would like to start the sequence otherwise it will default to the first line. Verify the path where the data files will be written under "Data File Storage Path:", print the sequence, and then select the "Start Sequence" button. **Example: C:/ASAP DATA/Hedwig 2020/3-5-2020**

Adding Samples to a Sequence Run:

29. To add samples to a sequence while it's running go to File Menu→Sequence→Edit Current Sequence. The sequence will open and you can edit or add to the sequence. Save and exit the window when finished.

Manual Injections:

30. For manual injections you will create and set up your sequence the same as you would for autosample (steps **10-24** or steps **25-27** for an existing sequence, also see maintenance book for manual method information). From the IRD3 Software window select File→User Preferences... and then select the check box for “Bypass GC Prep” and select “Save”. This will signal to the GC to prep for manual injection once a sequence is started.
31. Remove the autosampler tower from the injection port.
32. Follow step **28**.
33. You will have to wait until the GC and IRD3 are ready before manually injecting. Once the “Not Ready” button is no longer highlighted red on the actual Agilent GC instrument panel and the IRD3 states that it is “Waiting for Injection”, manually inject your sample and select the “Start” button on the Agilent GC.
34. Once you are finished running manual injections you will need to unselect the “Bypass GC Prep” check box by following the instructions in step 30 and select “Save” to save and exit out of the window.
35. Additionally, load an autosample method in the Chemstation software by double left clicking on a method in the left-hand column. Then place the autosampler tower back on the front inlet.

Viewing Data Collection:

36. To view your sample chromatogram and spectra while collecting, select the IRD3 Software window.
37. You may select an “eFTIR Snapshot” that will allow for a snapshot to be taken for you to view your data while it is still collecting in the eFTIR software.
38. This will automatically pull up the snapshot in the eFTIR software in the Tool Parameters Window.
39. Select the “Refresh” button to update the sample as it’s running in the Tool Parameters Window.
40. See instructions below for Tool Parameter functions (steps **45-49**) and obtaining data once samples have finished running.

EssentialFTIR (eFTIR) Software (Data Analysis):

41. Click on the eFTIR “Essential FTIR” Shortcut from either the Desktop or the Start Menu.
42. Select the “Advanced” tab in the left bottom side menu and then select the “GC-IRD” option.
43. Select the “Load TRC” button. A window will pop up that will allow for you to “Choose a Chromatogram”. It will have the last file that was loaded in the window. Where you selected to have your data path before starting a sequence in the IRD3 Software is where your data files will be. **Example: C:/ASAP DATA/Hedwig 2020/3-5-2020**
44. Select your data file name folder and then select the “irdata.cgm” file and click “Open”.
45. Depending on what parameters were last used, there will be an “Auto Pick” of the peaks selected in your chromatogram in the Tool Parameters Window. You can adjust these parameters by selecting the “Auto Pick” button (See Essential FTIR manual pages 20-21 for

- more information). Make sure that the peak markers are the best representation for the baseline and peak. You can adjust the peak markers by left mouse clicking and dragging.
46. Once a file has been opened, the Essential FTIR will automatically show the first spectrum (if not all) of the first identified chromatographic peak. Select the "Next Peak" button to select the next peak and "Previous" button to go back.
 47. To add a peak, select "Add Peak". Follow the instructions on how to add a peak.
 48. To perform a library search of a selected peak click the button "Search" inside the GC-IR Tool window.
 49. To print a report make sure you are back in the "GC-IRD" option under the "Advanced" tab and select the "Report" button on the GC-FTIR Tool window. There are 3 different options for reports. Auto-Search Reports, Standard Report, and All Peaks Report. (See Essential FTIR manual page 11 for more information about each report).
 50. After selecting a report, a "GCIR Report Text" window will appear. You can add more information that will be put on your report here. Click "Ok" to then generate a report in Microsoft Word.
 51. Once the report has generated in Microsoft Word, select and highlight the two lined columns that have information from "Data Filename" to "Date Processed" and copy. Scroll down to the second page of the report and double left click the top portion of the page. The Header option should pop up. Paste the copied information in the Header and check the box "Different First Page" in the "Design" tab of the top menu. Once finished, double left click outside the Header to exit out or select the "Close Header and Footer" box in the menu.
 52. Go to File→Print and select "Print".

Manual Weekend Shutdown of IRD3:

53. To manually load the shutdown method for the IRD3 (Example: If there is no sequence running and you are the last one on Friday in the lab) make sure the "SHUTDOWN" IRD3 method is loaded by either selecting from the File Menu→Method...→Edit or Load Method... or by selecting the folder icon below the File Menu and then select the sequence line for "SHUTDOWN" and click on the folder option "Load".

Weekly/Monthly Maintenance

Weekly:

54. Follow steps 1-4.
55. Once everything has stabilized and the system is "READY" in the ASAP Analytical – IRD3 window click on the Optics Align bar under "System Status" to check and record your optics alignment value. The "Current" value should be around +/- 10% of the "Maximum" value. If it is not within +/- 10% of the "Maximum" value, an optical alignment may be needed prior to analysis. Close out of the window when you are finished.
56. Change liner, o-ring, septa as needed.

Monthly:

57. Clip column and change gold seal as needed.
58. Run the GC/IR Test Solution (Amphetamine, Phentermine, Methamphetamine) by following steps **10-28** and select GC method "60TO270" (or run appropriate check/test solution and GC method for type of column used) and IRD method "IRD3" or "IRD3 EXT" and perform a Wavenumber Evaluation of the selected three or four higher resolved peaks across 550-4000 cm⁻¹ for each standard (See **ASAP Analytical IRD3 and IRD3 EXT Wavenumber Evaluation** maintenance sheet for specific peaks). Follow steps **41-52** for obtaining data for the GC/IR Test Solution. Wavenumbers of the three or four selected higher resolved peaks across 550-4000 cm⁻¹ for each standard of the GC/IR Test Solution must be within +/- 8 cm⁻¹ of the wavenumbers of the three or four selected higher resolved peaks across 550-4000 cm⁻¹ of comparable concentration of the standards used in validation (See further instructions below). Print and retain records in the instruments calibration and maintenance logbook.

Instructions for Wavenumber Evaluation:

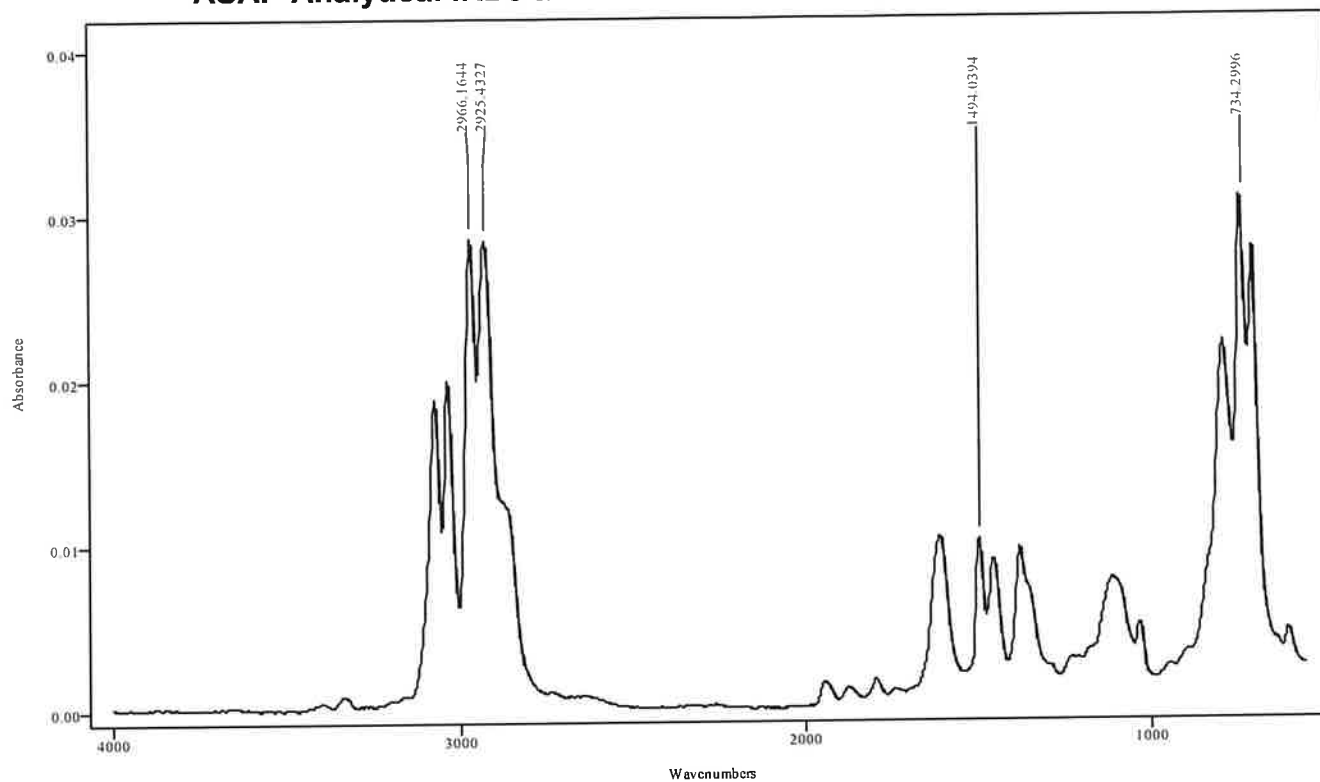
59. Follow steps **41-45**.
60. Select the "Analysis" tab in the bottom left side menu.
61. You will have to view and evaluate one spectrum of each standard at a time by clicking on the checked boxes in the "Available Spectra List" in the upper left side of the window under "Filename" to unselect the spectrums from the "Workspace Window" that you do not wish to view.
62. Then select the "Manual Peak Picking" or "Peak Picking" option. The "Manual Peak Picking" option will let you manual select/deselect peaks by right clicking, the "Peak Picking" option will let you raise and lower a bar by left clicking and dragging to select peaks by height.
63. Select the three or four higher resolved peaks across 550-4000 cm⁻¹ for that standard (See **ASAP Analytical IRD3 and IRD3 EXT Wavenumber Evaluation** maintenance sheet for specific peaks) and select the "Report" button.
64. Once the report has generated in Microsoft Word, go to File→Print and select "Print".
65. Repeat for each standard spectrum starting with step **60**.
66. "Peak at" values for the three or four higher resolved peaks across 550-4000 cm⁻¹ for each individual standard will be recorded in the "Measured" box values in the **ASAP Analytical IRD3 and IRD3 EXT Wavenumber Evaluation** maintenance sheet.
67. Print and retain reports of each individual standard along with the **ASAP Analytical IRD3 and IRD3 EXT Wavenumber Evaluation** maintenance sheet and place in the instrument's calibration and maintenance logbook.

This is not meant to be all-inclusive. There may be other ways to accomplish the same task. See ASAP Analytical manuals for additional information.

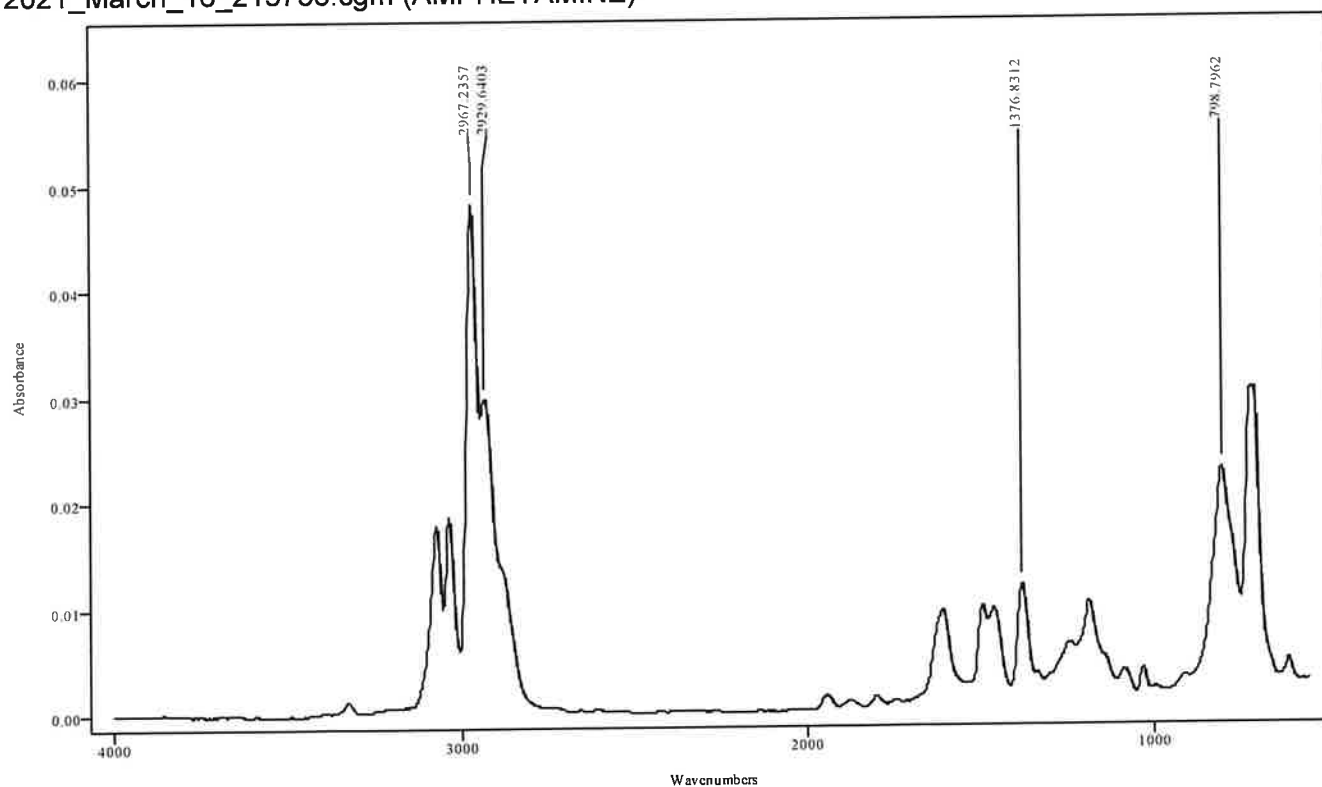
Instrument Name: _____

Initials and Date: _____

ASAP Analytical IRD3 and IRD3 EXT Wavenumber Evaluation



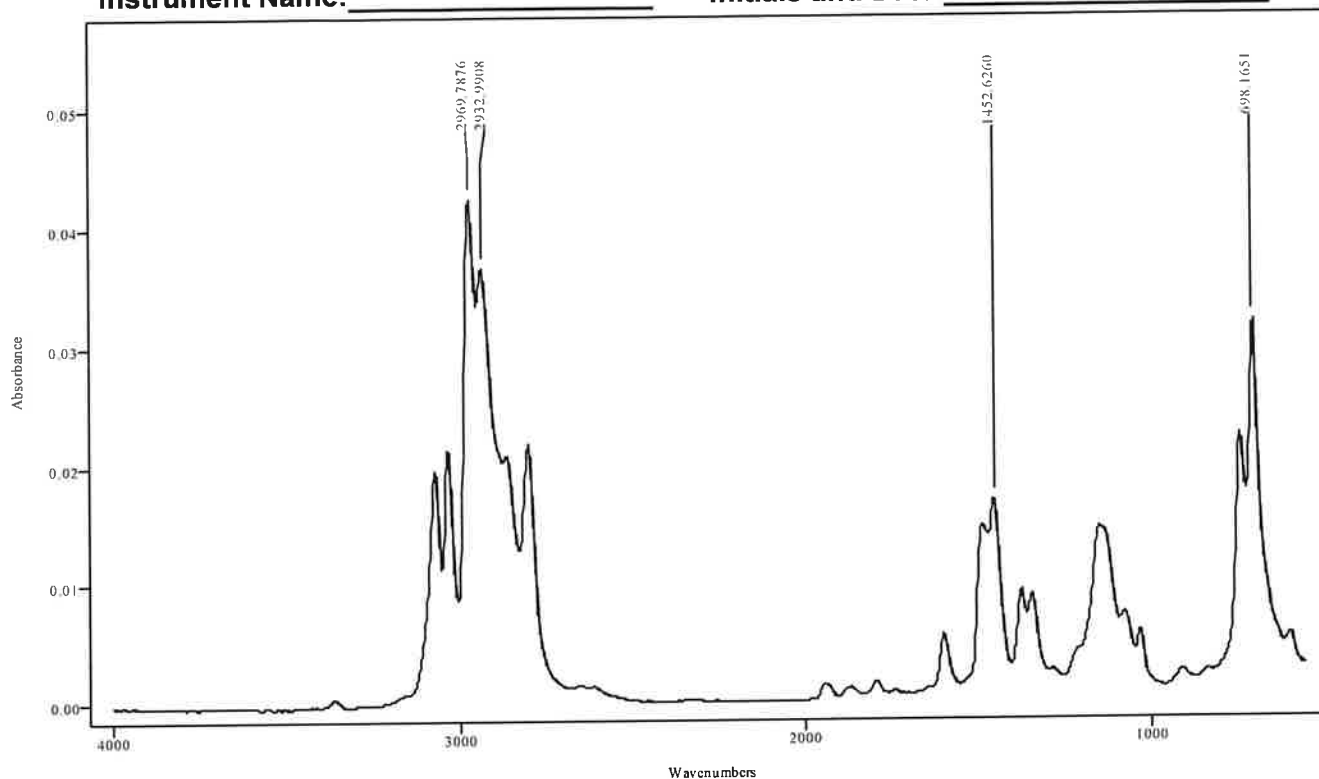
IRDATA.SPC: 4.72 minutes: AVE (4.71: 4.73) Ref. (4.41: 4.68) of GC-IR TEST SOL EXT
2021_March_16_215736.cgm (AMPHETAMINE)



IRDATA.SPC: 4.87 minutes: AVE (4.84: 4.88) Ref. (4.41: 4.68) of GC-IR TEST SOL EXT
2021_March_16_215736.cgm (PHENTERMINE)

Instrument Name: _____

Initials and Date: _____



IRDATA.SPC: 4.93 minutes: AVE (4.92: 4.95) Ref. (4.41: 4.68) of GC-IR TEST SOL EXT
 2021_March_16_215736.cgm (METHAMPHETAMINE)

Compound		Expected	Measured	Criteria	Result
Amphetamine (IRD3 EXT)	Peak 1	734.2996		+/- 8 cm-1	Pass ☐
	Peak 2	1494.0394		+/- 8 cm-1	Pass ☐
	Peak 3	2925.4327		+/- 8 cm-1	Pass ☐
	Peak 4	2966.1644		+/- 8 cm-1	Pass ☐
Phentermine (IRD3 EXT)	Peak 1	798.7962		+/- 8 cm-1	Pass ☐
	Peak 2	1376.8312		+/- 8 cm-1	Pass ☐
	Peak 3	2929.6403		+/- 8 cm-1	Pass ☐
	Peak 4	2967.2357		+/- 8 cm-1	Pass ☐
Methamphetamine (IRD3 EXT)	Peak 1	698.1651		+/- 8 cm-1	Pass ☐
	Peak 2	1452.6260		+/- 8 cm-1	Pass ☐
	Peak 3	2932.9908		+/- 8 cm-1	Pass ☐
	Peak 4	2969.7876		+/- 8 cm-1	Pass ☐

Sequence Name: IRD3 EXT METHOD STANDARDS (9-29-21)

Handwritten signature and date: 9-29-21

Sample Path: C:\ASAP DATA\Aslan 2021\RH\IRD3 EXTENDED METHOD STANDARDS

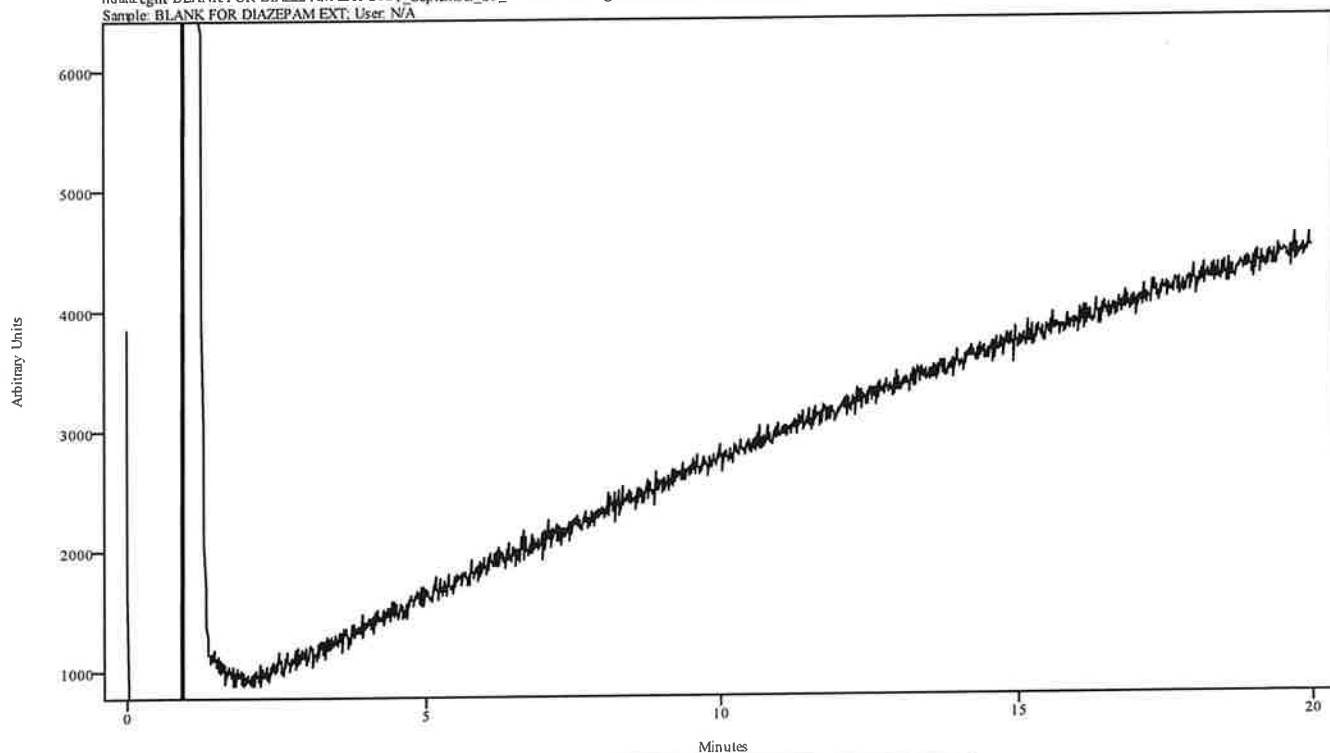
Type	IRD Method	GC Method	Vial	Sample ID	Data File	Solvent/Extract	Instrument ID
1	IRD3 EXT	120TO270	111	WASH1	WASH1 \$(DA	MEOH	ASLAN
2	IRD3 EXT	200TO270(2	111	BLANK FOR	BLANK FOR	MEOH	ASLAN
3	IRD3 EXT	200TO270(2	101	DIAZEPAM E	DIAZEPAM E	MEOH	ASLAN
4	IRD3 EXT	120TO270(2	111	BLANK FOR	BLANK FOR	MEOH	ASLAN
5	IRD3 EXT	120TO270(2	102	THF4A MIX	THF4A MIX	MEOH	ASLAN
6	IRD3 EXT	120TO270	112	BLANK FOR	BLANK FOR	CHCl3	ASLAN
7	IRD3 EXT	120TO270	103	3,4 MDMA E	3,4 MDMA E	0.5N NaOH-->CH	ASLAN
8	IRD3 EXT	200TO270	111	BLANK FOR	BLANK FOR	MEOH	ASLAN
9	IRD3 EXT	200TO270	104	COCAINE EX	COCAINE EX	ACETONITRILE	ASLAN
10	IRD3 EXT	ISO270(15M	111	BLANK FOR	BLANK FOR	MEOH	ASLAN
11	IRD3 EXT	ISO270(15M	105	HYDROCODON	HYDROCODON	MEOH	ASLAN
12	IRD3 EXT	120TO270(2	111	BLANK FOR	BLANK FOR	MEOH	ASLAN
13	IRD3 EXT	120TO270(2	106	DELTA 8 AN	DELTA 8, 9	MEOH	ASLAN
14	IRD3 EXT	200TO270(2	111	BLANK FOR	BLANK FOR	MEOH	ASLAN
15	IRD3 EXT	200TO270(2	107	DELTA 10 T	DELTA 10 T	ACETONITRILE	ASLAN
16	IRD3 EXT	ISO270(20M	111	BLANK FOR	BLANK FOR	MEOH	ASLAN
17	IRD3 EXT	ISO270(20M	108	DESPROPION	DES P-FLUO	MEOH	ASLAN
18	IRD3 EXT	60TO270	112	BLANK FOR	BLANK FOR	CHCl3	ASLAN
19	IRD3 EXT	60TO270	109	GC-IR TEST	GC-IR TEST	0.5N NaOH-->CH	ASLAN
20	IRD3 EXT	ISO270(30M	111	BLANK FOR	BLANK FOR	MEOH	ASLAN
21	IRD3 EXT	ISO270(30M	110	TESTOSTERO	TESTOST AC	MEOH	ASLAN
22	IRD3 EXT	120TO270	111	WASH2	WASH2 \$(DA	MEOH	ASLAN

IRD Data Analysis Report

MA 9-30-21

Data Filename	BLANK FOR DIAZEPAM EXT 2021_September_29_222457
Data Path	C:/ASAP DATA/Aslan 2021/RH/IRD3 EXTENDED METHOD STANDARDS
IRD Method	IRD3 EXT
GC Method	200TO270(20MIN)
GC Vial	111
Sample Name	BLANK FOR DIAZEPAM EXT
Misc. Info	MEOH:ASLAN
User ID	N/A
Injection Time	Wed Sep 29 22:48:36 2021
Date Processed	Thu Sep 30 08:49:30 2021

irdata.cgm: BLANK FOR DIAZEPAM EXT 2021_September_29_222457; Misc. Info: MEOH:ASLAN;
Sample: BLANK FOR DIAZEPAM EXT; User: N/A



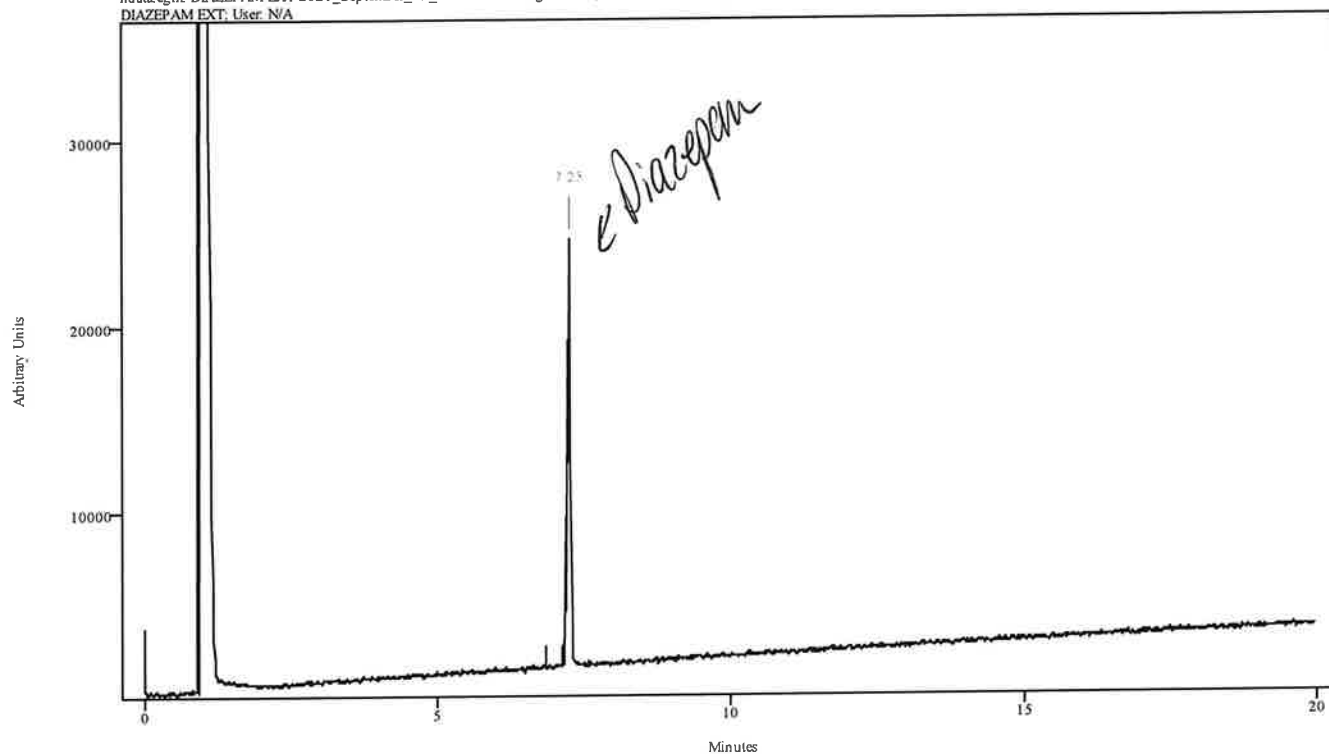
Peak Start	Peak End	Peak Width	Reference Start	Reference End
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IRD Data Analysis Report

9/30/21

Data Filename	DIAZEPAM EXT 2021_September_29_224836
Data Path	C:/ASAP DATA/Aslan 2021/RH/IRD3 EXTENDED METHOD STANDARDS
IRD Method	IRD3 EXT
GC Method	200TO270(20MIN)
GC Vial	101
Sample Name	DIAZEPAM EXT
Misc. Info	MEOH:ASLAN
User ID	N/A
Injection Time	Wed Sep 29 23:11:57 2021
Date Processed	Thu Sep 30 11:00:55 2021

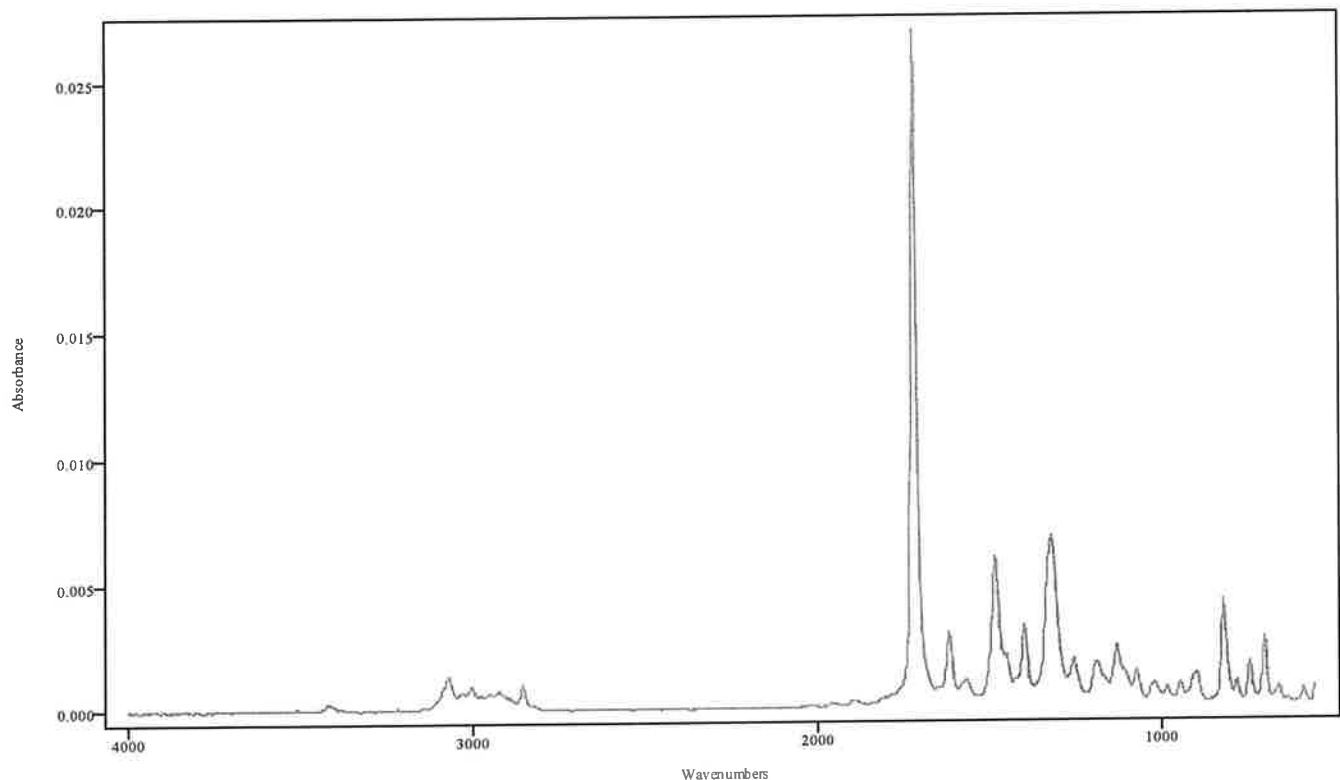
irdata.cgm: DIAZEPAM EXT 2021_September_29_224836\irdata.cgm: Misc. Info: MEOH:ASLAN; Sample: DIAZEPAM EXT; User: N/A



Peak Start	Peak End	Peak Width	Reference Start	Reference End
7.208	7.274	0.066	6.821	7.130

11/9/30/21

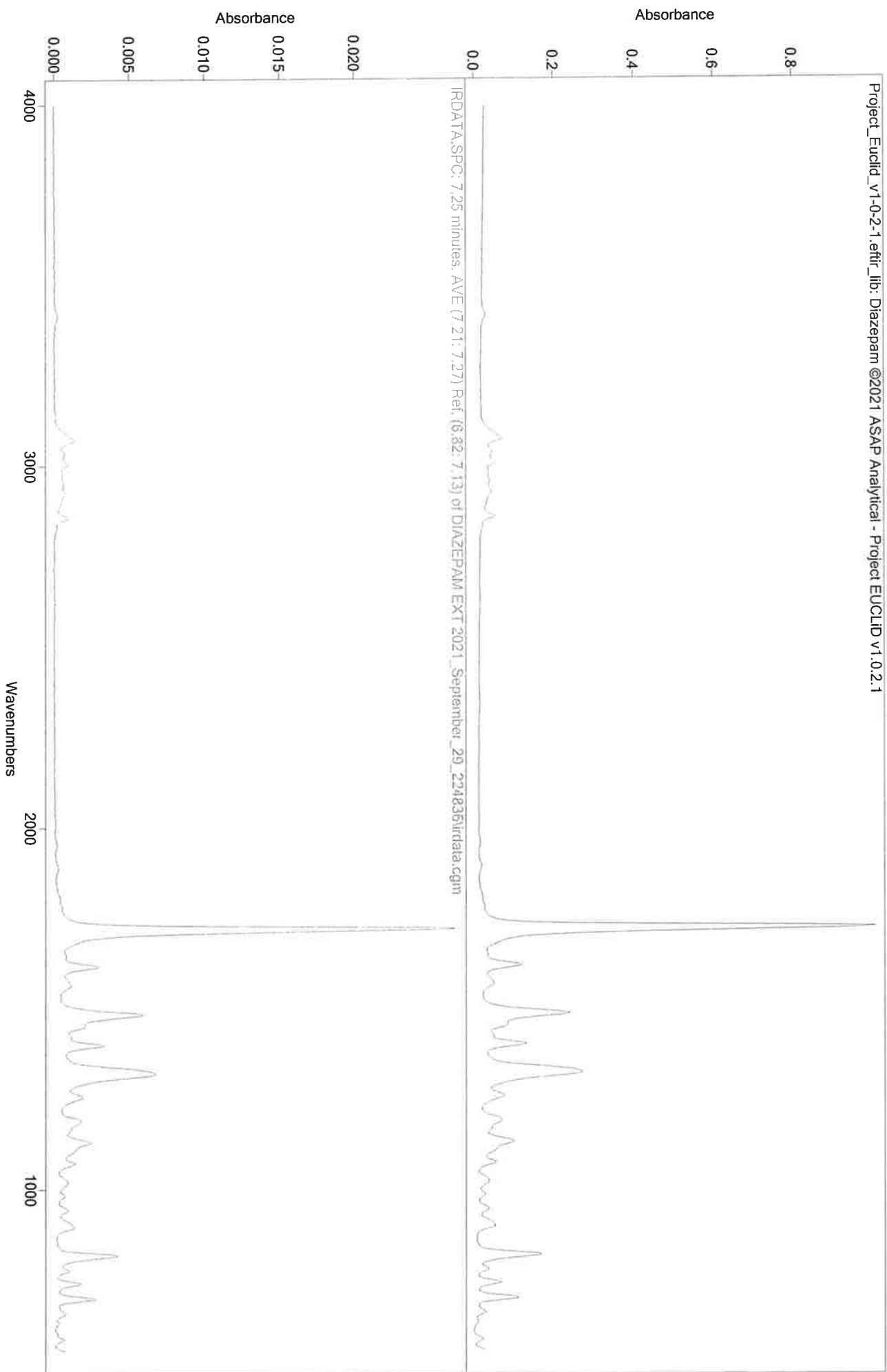
Data Filename	DIAZEPAM EXT 2021_September_29_224836
Data Path	C:/ASAP DATA/Aslan 2021/RH/IRD3 EXTENDED METHOD STANDARDS
IRD Method	IRD3 EXT
GC Method	200TO270(20MIN)
GC Vial	101
Sample Name	DIAZEPAM EXT
Misc. Info	MEOH:ASLAN
User ID	N/A
Injection Time	Wed Sep 29 23:11:57 2021
Date Processed	Thu Sep 30 11:00:55 2021



IRDATA.SPC: 7.25 minutes: AVE (7.21: 7.27) Ref. (6.82: 7.13) of DIAZEPAM EXT
2021_September_29_224836.cgm

Diazepam

U119-3021

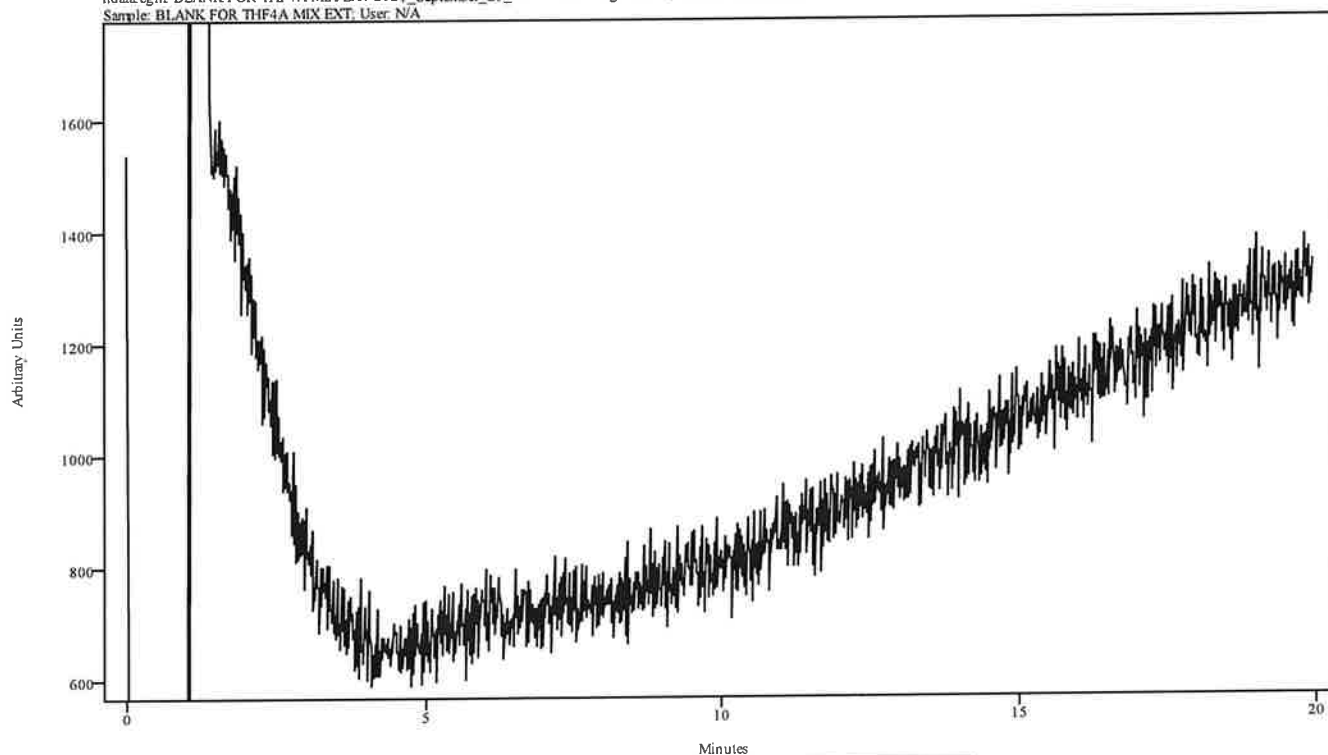


CHA 9/30/21

IRD Data Analysis Report

Data Filename	BLANK FOR THF4A MIX EXT 2021_September_29_231157
Data Path	C:/ASAP DATA/Aslan 2021/RH/IRD3 EXTENDED METHOD STANDARDS
IRD Method	IRD3 EXT
GC Method	120TO270(20MIN)
GC Vial	111
Sample Name	BLANK FOR THF4A MIX EXT
Misc. Info	MEOH:ASLAN
User ID	N/A
Injection Time	Wed Sep 29 23:36:11 2021
Date Processed	Thu Sep 30 08:53:47 2021

irdata.cgm: BLANK FOR THF4A MIX EXT 2021_September_29_231157\irdata.cgm: Misc. Info: MEOH:ASLAN;
Sample: BLANK FOR THF4A MIX EXT, User: N/A



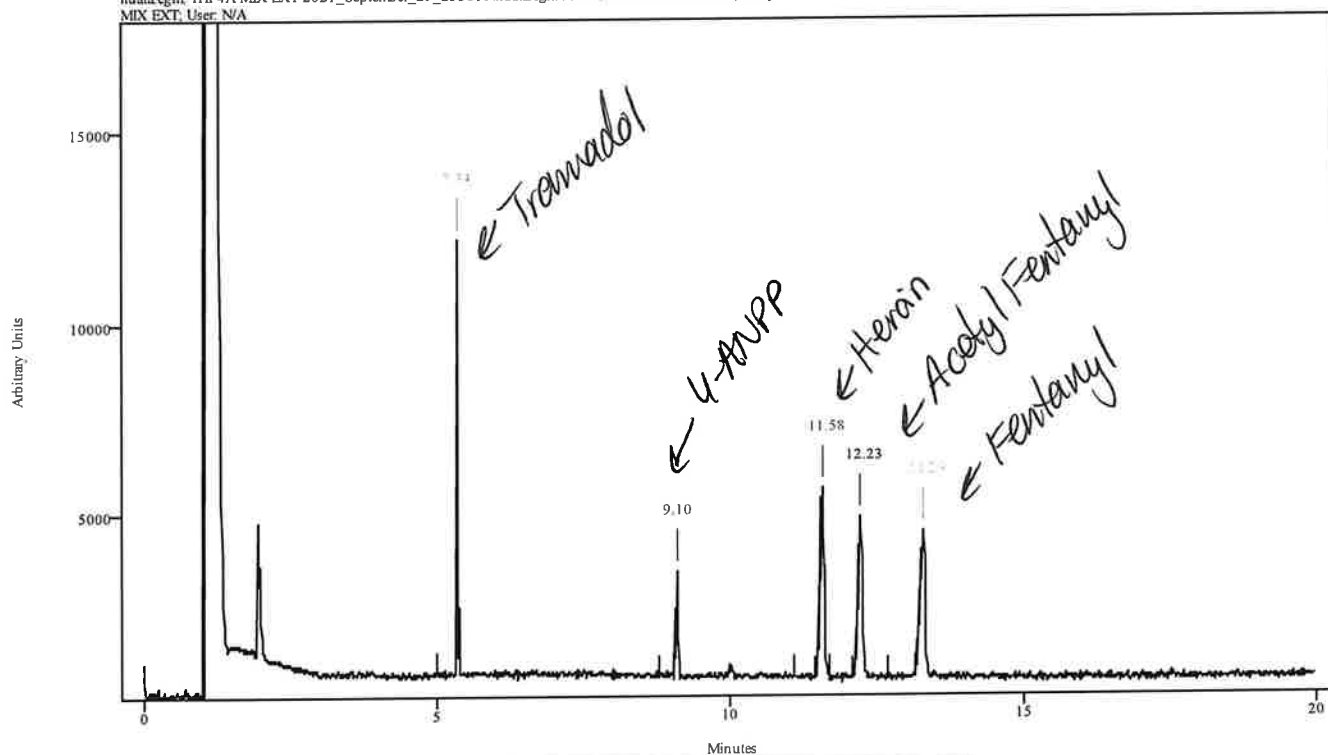
Peak Start	Peak End	Peak Width	Reference Start	Reference End
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IRD Data Analysis Report

MA 9-30-21

Data Filename	THF4A MIX EXT 2021_September_29_233611
Data Path	C:/ASAP DATA/Aslan 2021/RH/IRD3 EXTENDED METHOD STANDARDS
IRD Method	IRD3 EXT
GC Method	120TO270(20MIN)
GC Vial	102
Sample Name	THF4A MIX EXT
Misc. Info	MEOH:ASLAN
User ID	N/A
Injection Time	Thu Sep 30 00:00:11 2021
Date Processed	Thu Sep 30 08:55:31 2021

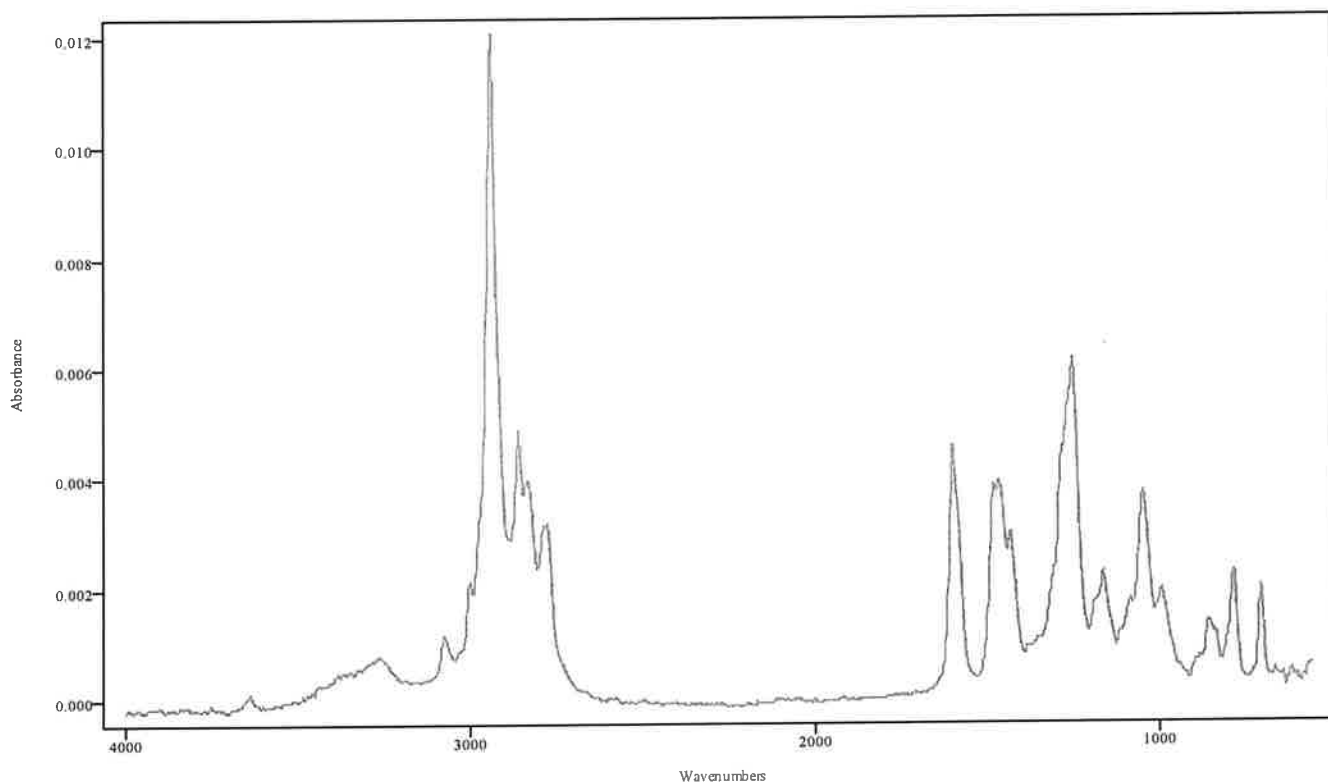
irdata.cgm: THF4A MIX EXT 2021_September_29_233611\irdata.cgm : Misc. Info: MEOH:ASLAN; Sample: THF4A MIX EXT; User: N/A



Peak Start	Peak End	Peak Width	Reference Start	Reference End
5.327	5.366	0.033	4.990	5.299
9.064	9.119	0.055	8.799	9.020
11.526	11.614	0.088	11.096	11.449
12.177	12.277	0.099	11.692	12.089
13.226	13.337	0.110	12.696	13.138

11/9-3021

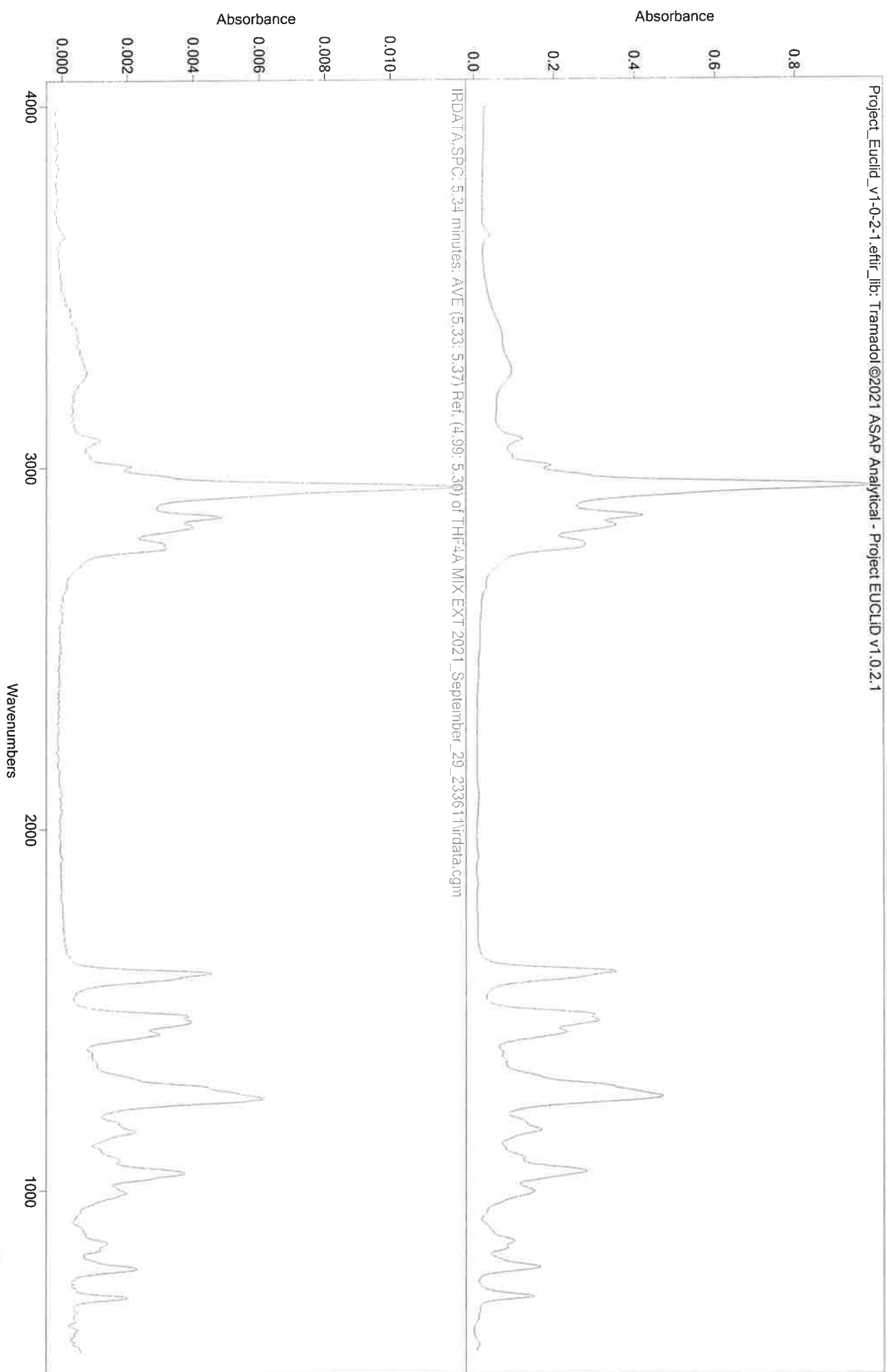
Data Filename	THF4A MIX EXT 2021_September_29_233611
Data Path	C:/ASAP DATA/Aslan 2021/RH/IRD3 EXTENDED METHOD STANDARDS
IRD Method	IRD3 EXT
GC Method	120TO270(20MIN)
GC Vial	102
Sample Name	THF4A MIX EXT
Misc. Info	MEOH:ASLAN
User ID	N/A
Injection Time	Thu Sep 30 00:00:11 2021
Date Processed	Thu Sep 30 08:55:31 2021



IRDATA.SPC: 5.34 minutes: AVE (5.33: 5.37) Ref. (4.99: 5.30) of THF4A MIX EXT
2021_September_29_233611.cgm

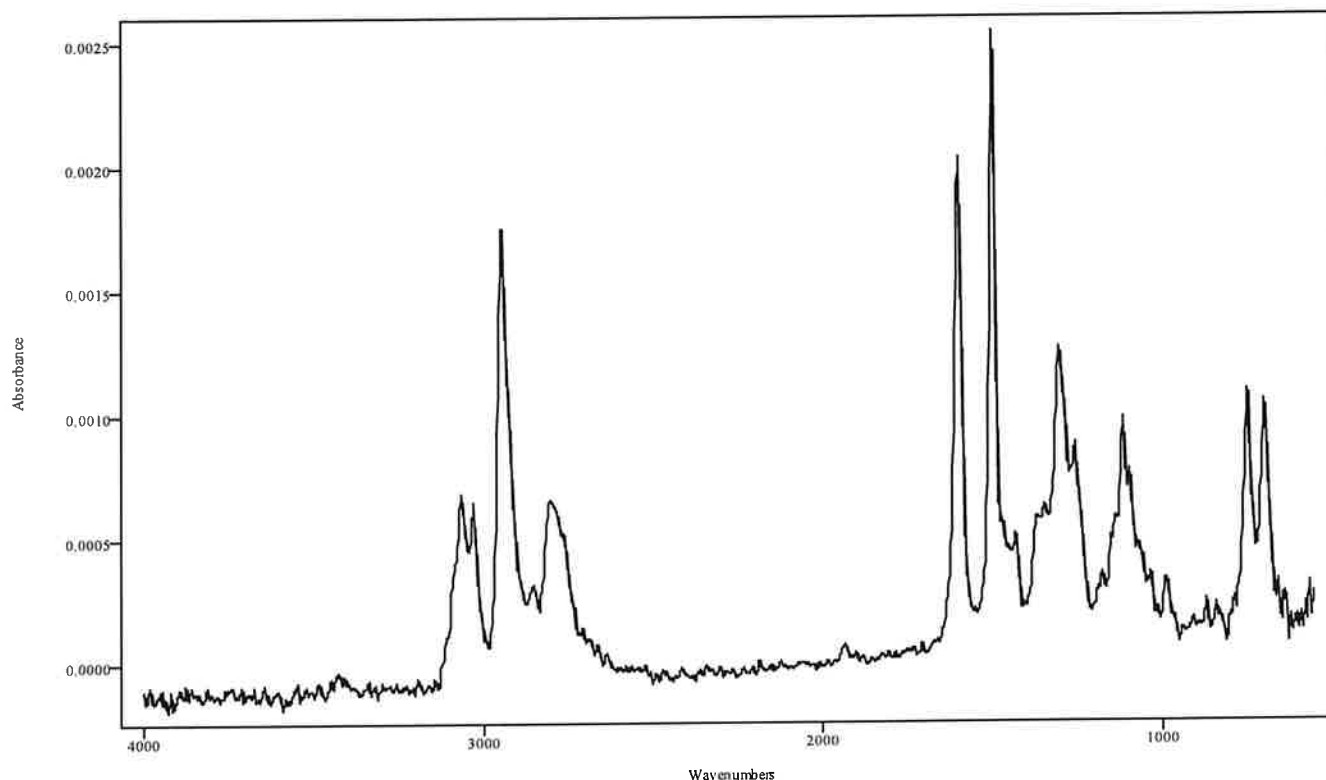
Tramadol

44 9-30-21



11/9-3021

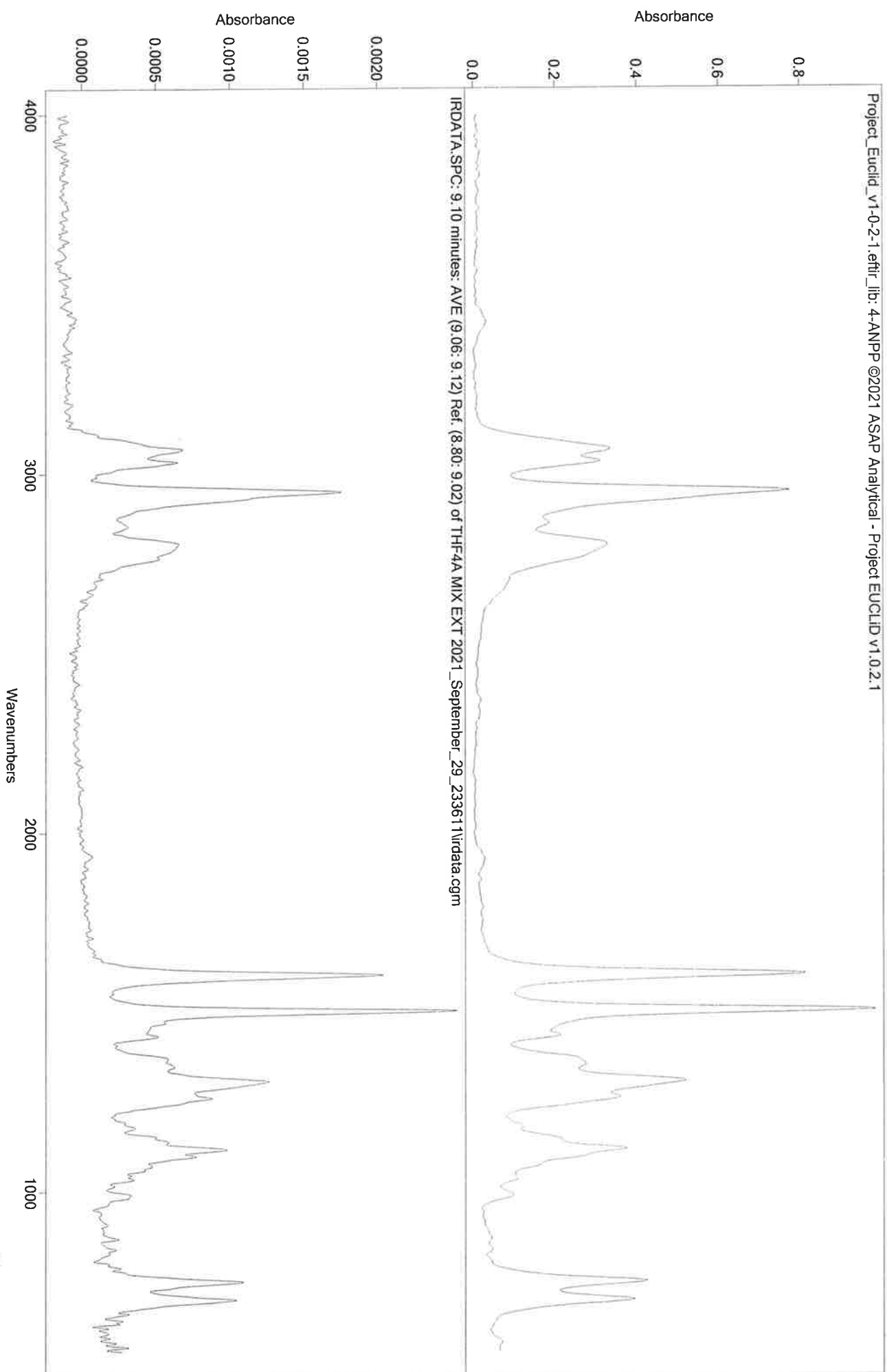
Data Filename	THF4A MIX EXT 2021_September_29_233611
Data Path	C:/ASAP DATA/Aslan 2021/RH/IRD3 EXTENDED METHOD STANDARDS
IRD Method	IRD3 EXT
GC Method	120TO270(20MIN)
GC Vial	102
Sample Name	THF4A MIX EXT
Misc. Info	MEOH:ASLAN
User ID	N/A
Injection Time	Thu Sep 30 00:00:11 2021
Date Processed	Thu Sep 30 08:55:31 2021



IRDATA.SPC: 9.10 minutes: AVE (9.06: 9.12) Ref. (8.80: 9.02) of THF4A MIX EXT
2021_September_29_233611.cgm

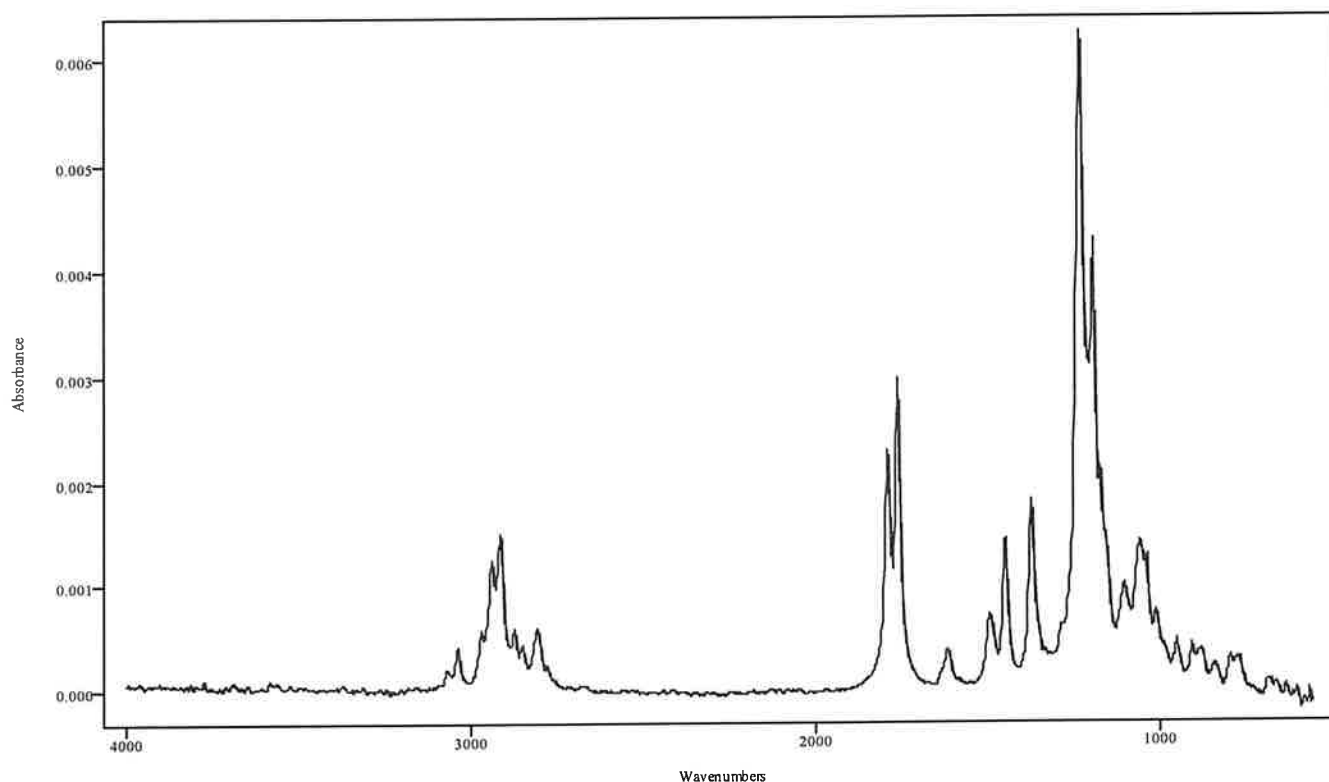
4-ANPP

44 9-30-21



11-9-30-21

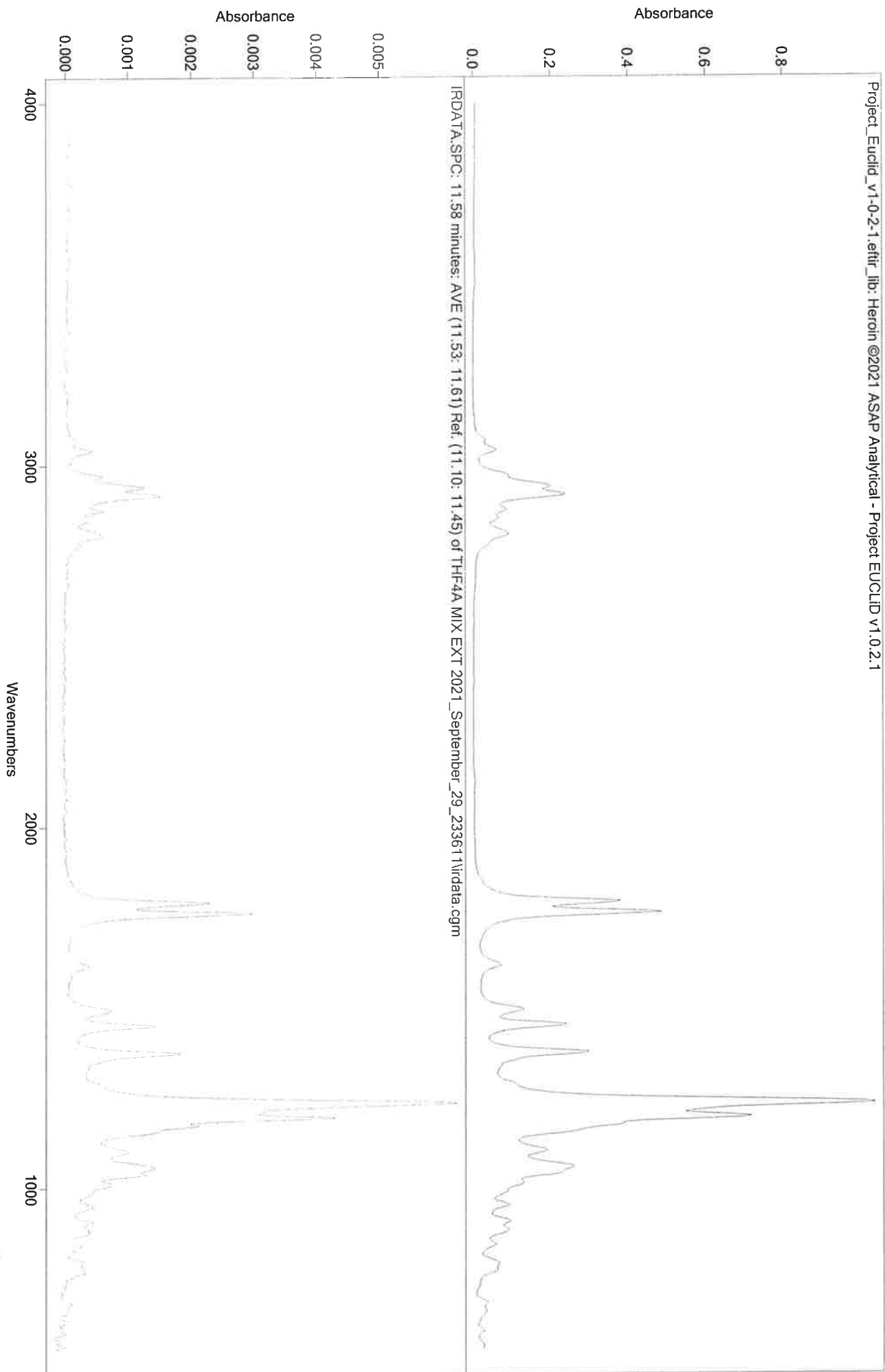
Data Filename	THF4A MIX EXT 2021_September_29_233611
Data Path	C:/ASAP DATA/Aslan 2021/RH/IRD3 EXTENDED METHOD STANDARDS
IRD Method	IRD3 EXT
GC Method	120TO270(20MIN)
GC Vial	102
Sample Name	THF4A MIX EXT
Misc. Info	MEOH:ASLAN
User ID	N/A
Injection Time	Thu Sep 30 00:00:11 2021
Date Processed	Thu Sep 30 08:55:31 2021



IRDATA.SPC: 11.58 minutes: AVE (11.53: 11.61) Ref. (11.10: 11.45) of THF4A MIX EXT 2021_September_29_233611.cgm

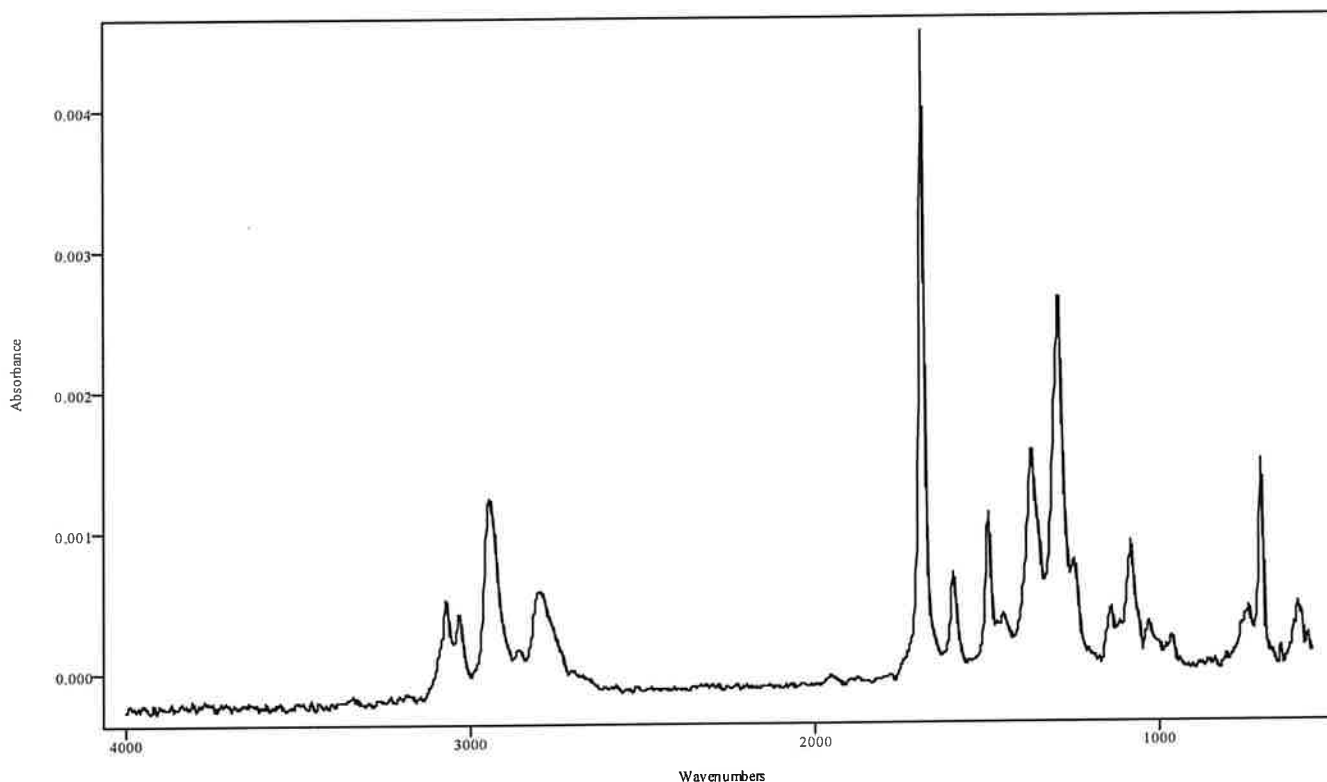
Heran

4/4 9-30-21



11/9/2021

Data Filename	THF4A MIX EXT 2021_September_29_233611
Data Path	C:/ASAP DATA/Aslan 2021/RH/IRD3 EXTENDED METHOD STANDARDS
IRD Method	IRD3 EXT
GC Method	120TO270(20MIN)
GC Vial	102
Sample Name	THF4A MIX EXT
Misc. Info	MEOH:ASLAN
User ID	N/A
Injection Time	Thu Sep 30 00:00:11 2021
Date Processed	Thu Sep 30 08:55:31 2021

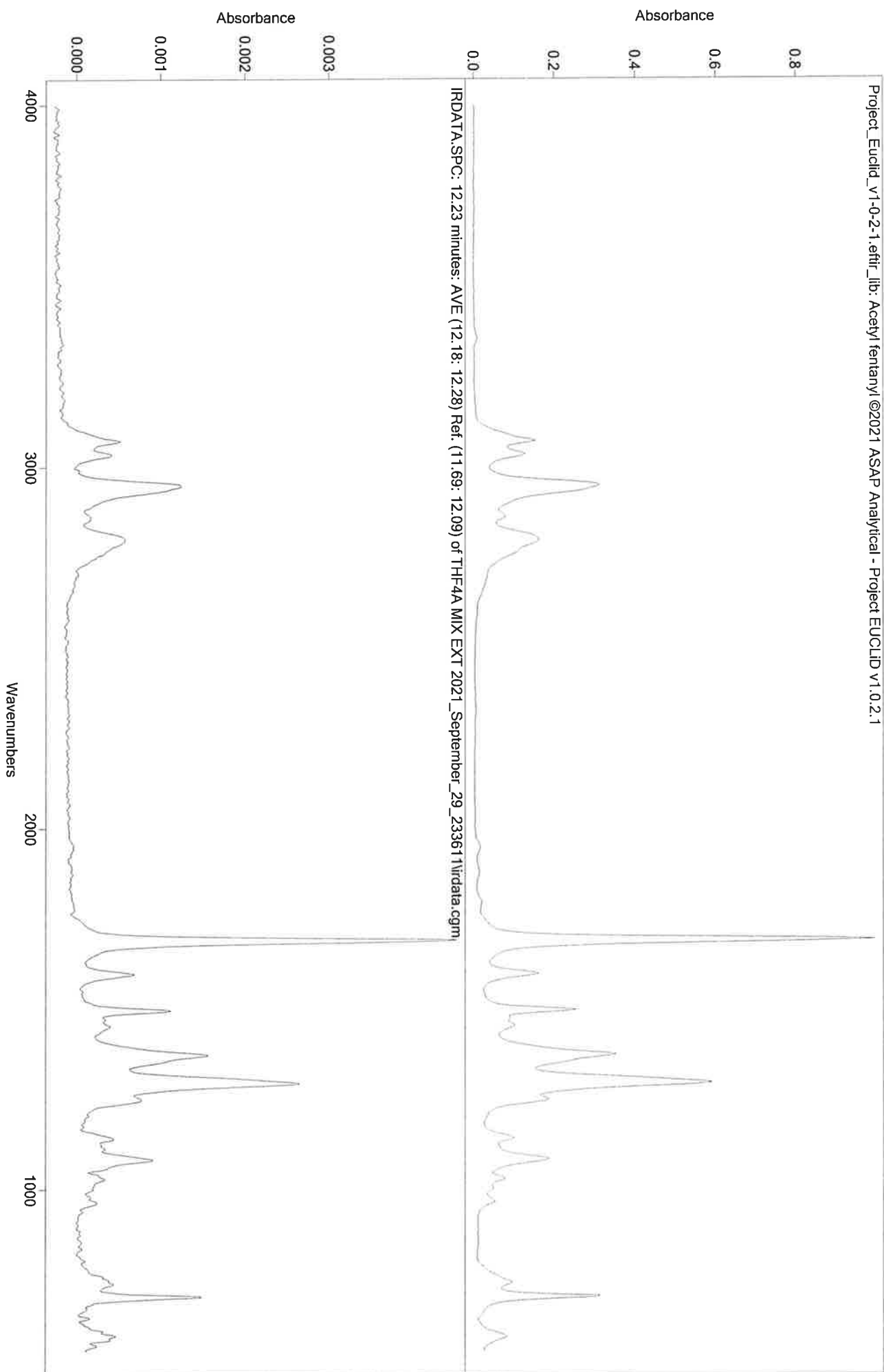


IRDATA.SPC: 12.23 minutes: AVE (12.18: 12.28) Ref. (11.69: 12.09) of THF4A MIX EXT 2021_September_29_233611.cgm

Acetyl Fentanyl

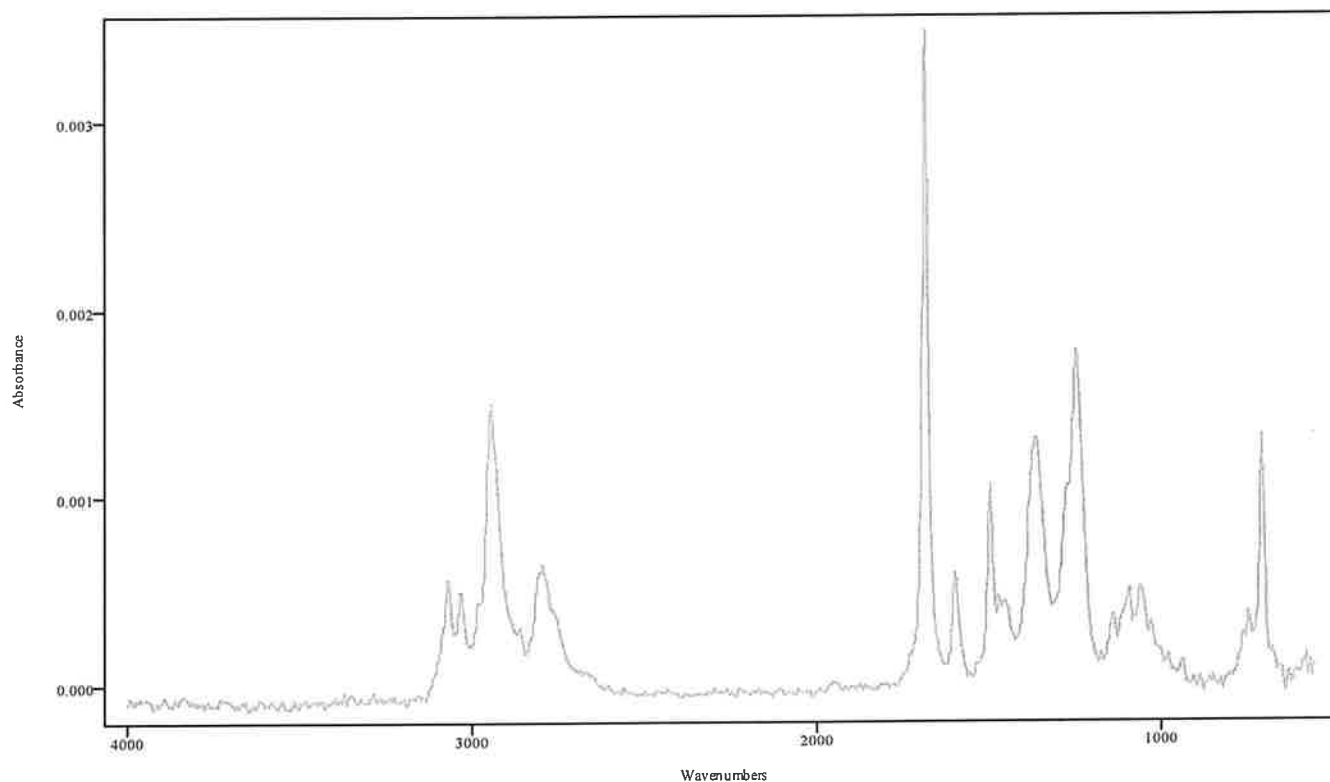
Alt 9-30-21

Project_Euclid_v1-0-2-1_eftir.lib: Acetyl fentanyl ©2021 ASAP Analytical - Project EUCLID v1.0.2.1



UH 9-3021

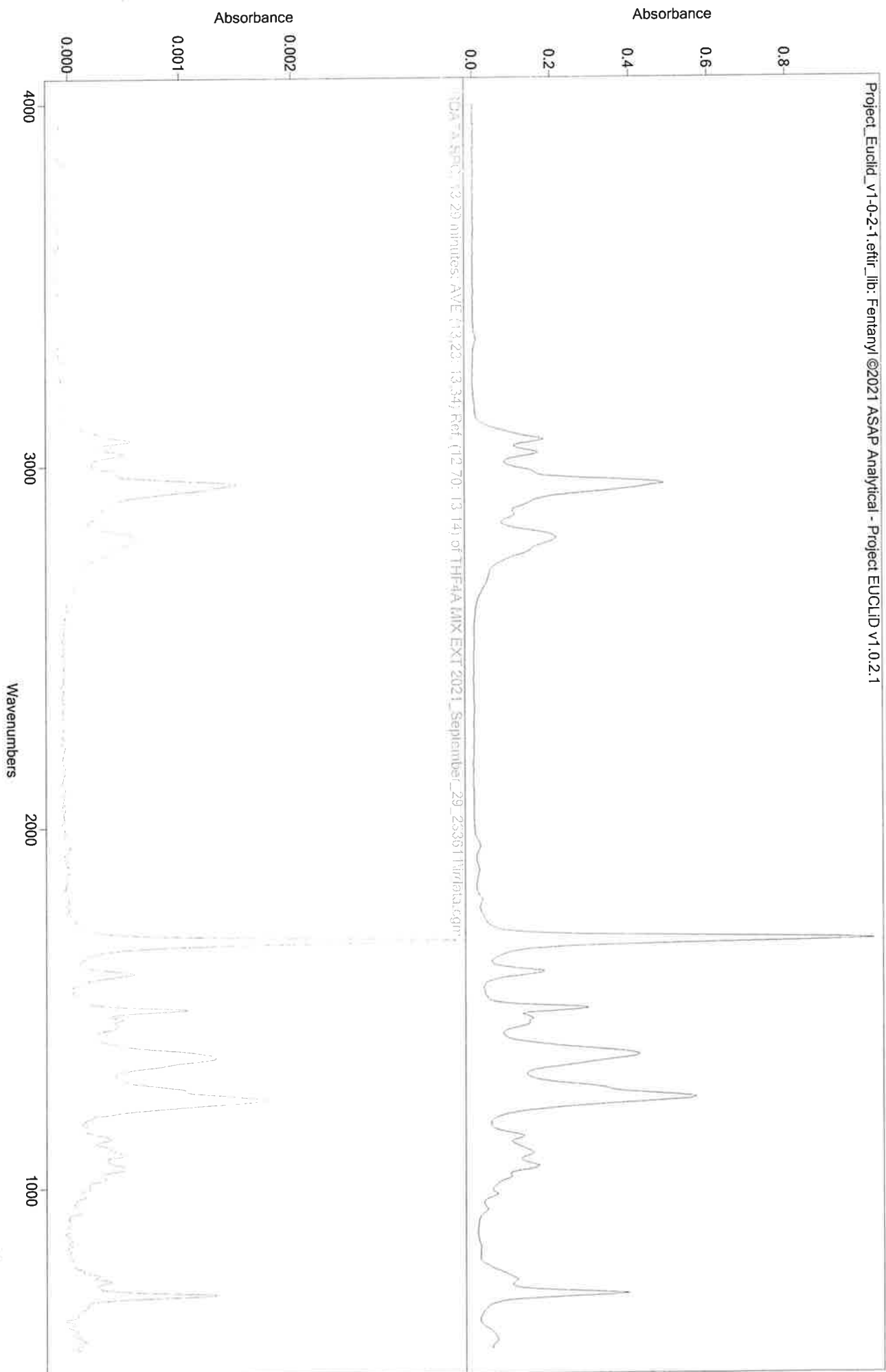
Data Filename	THF4A MIX EXT 2021_September_29_233611
Data Path	C:/ASAP DATA/Aslan 2021/RH/IRD3 EXTENDED METHOD STANDARDS
IRD Method	IRD3 EXT
GC Method	120TO270(20MIN)
GC Vial	102
Sample Name	THF4A MIX EXT
Misc. Info	MEOH:ASLAN
User ID	N/A
Injection Time	Thu Sep 30 00:00:11 2021
Date Processed	Thu Sep 30 08:55:31 2021



IRDATA.SPC: 13.29 minutes: AVE (13.23: 13.34) Ref. (12.70: 13.14) of THF4A MIX EXT 2021_September_29_233611.cgm

Fontanyl

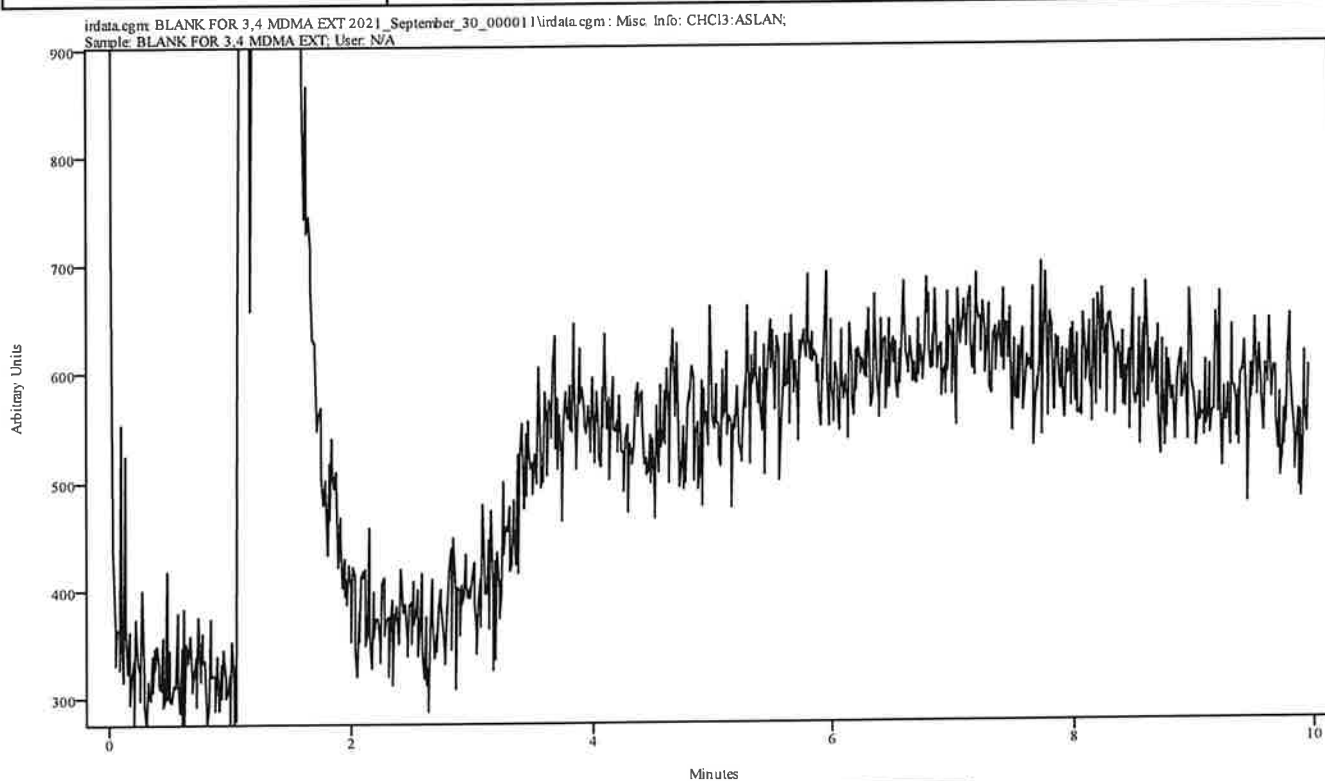
UH 9-30-21



4/11/2021

IRD Data Analysis Report

Data Filename	BLANK FOR 3,4 MDMA EXT 2021_September_30_000011
Data Path	C:/ASAP DATA/Aslan 2021/RH/IRD3 EXTENDED METHOD STANDARDS
IRD Method	IRD3 EXT
GC Method	120TO270
GC Vial	112
Sample Name	BLANK FOR 3,4 MDMA EXT
Misc. Info	CHCI3:ASLAN
User ID	N/A
Injection Time	Thu Sep 30 00:14:09 2021
Date Processed	Thu Sep 30 08:41:10 2021



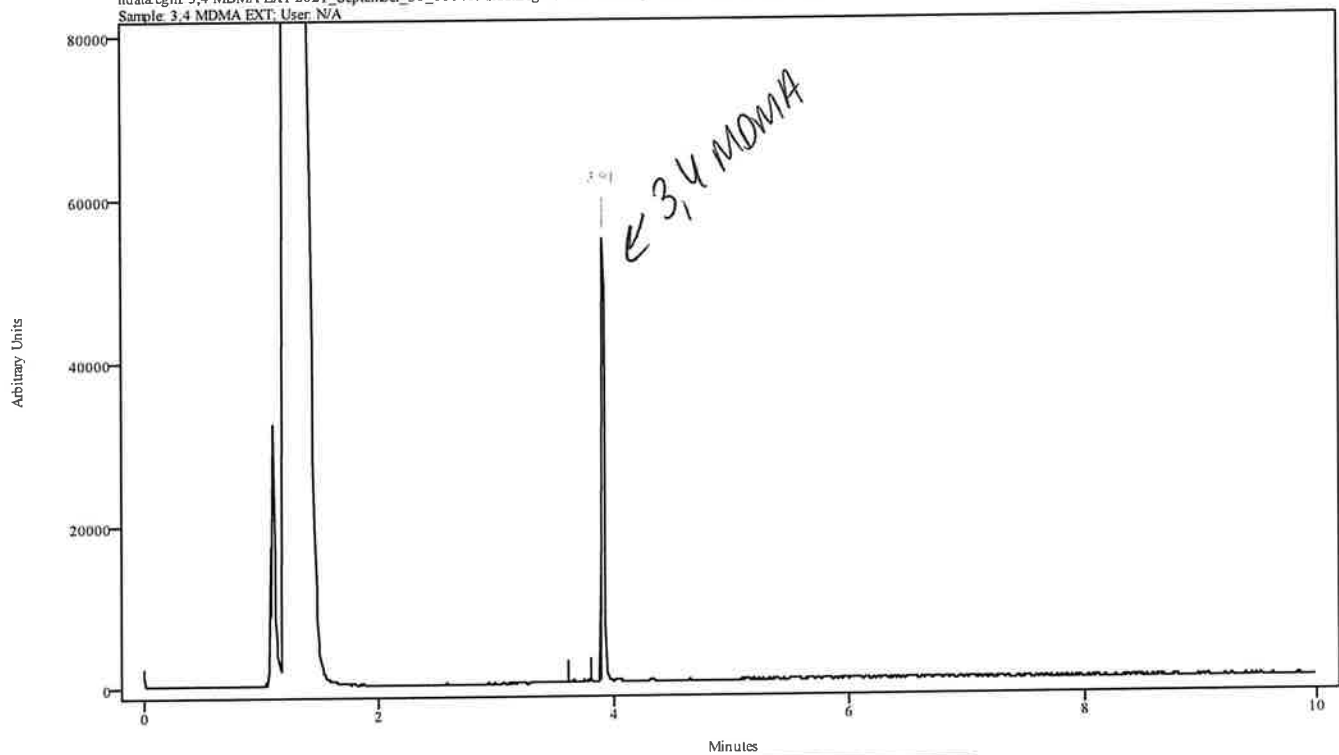
Peak Start	Peak End	Peak Width	Reference Start	Reference End
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IRD Data Analysis Report

9/30/21

Data Filename	3,4 MDMA EXT 2021_September_30_001409
Data Path	C:/ASAP DATA/Aslan 2021/RH/IRD3 EXTENDED METHOD STANDARDS
IRD Method	IRD3 EXT
GC Method	120TO270
GC Vial	103
Sample Name	3,4 MDMA EXT
Misc. Info	0.5N NaOH-->CHCl3:ASLAN
User ID	N/A
Injection Time	Thu Sep 30 00:28:14 2021
Date Processed	Thu Sep 30 08:42:01 2021

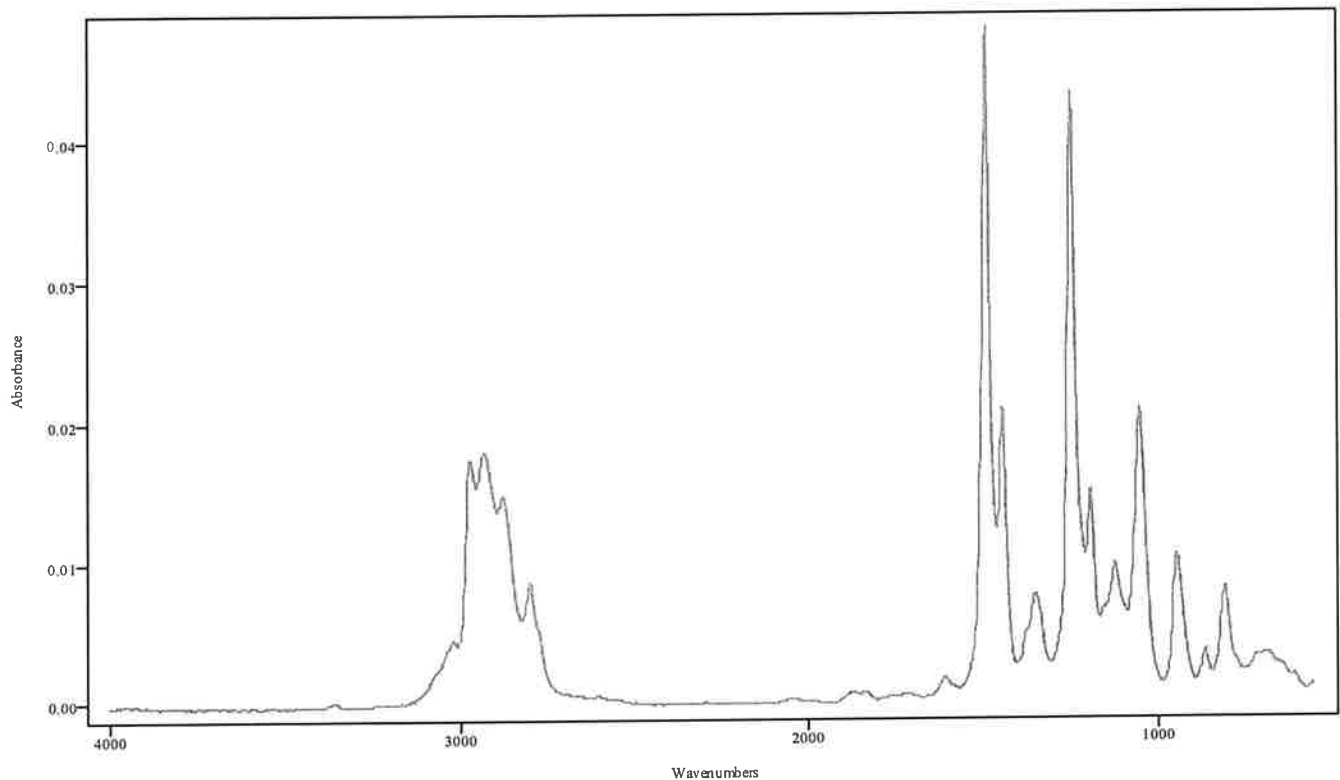
irdata.cgm: 3,4 MDMA EXT 2021_September_30_001409\irdata.cgm : Misc. Info: 0.5N NaOH-->CHCl3:ASLAN;
Sample: 3,4 MDMA EXT; User: N/A



Peak Start	Peak End	Peak Width	Reference Start	Reference End
3.897	3.931	0.033	3.611	3.794

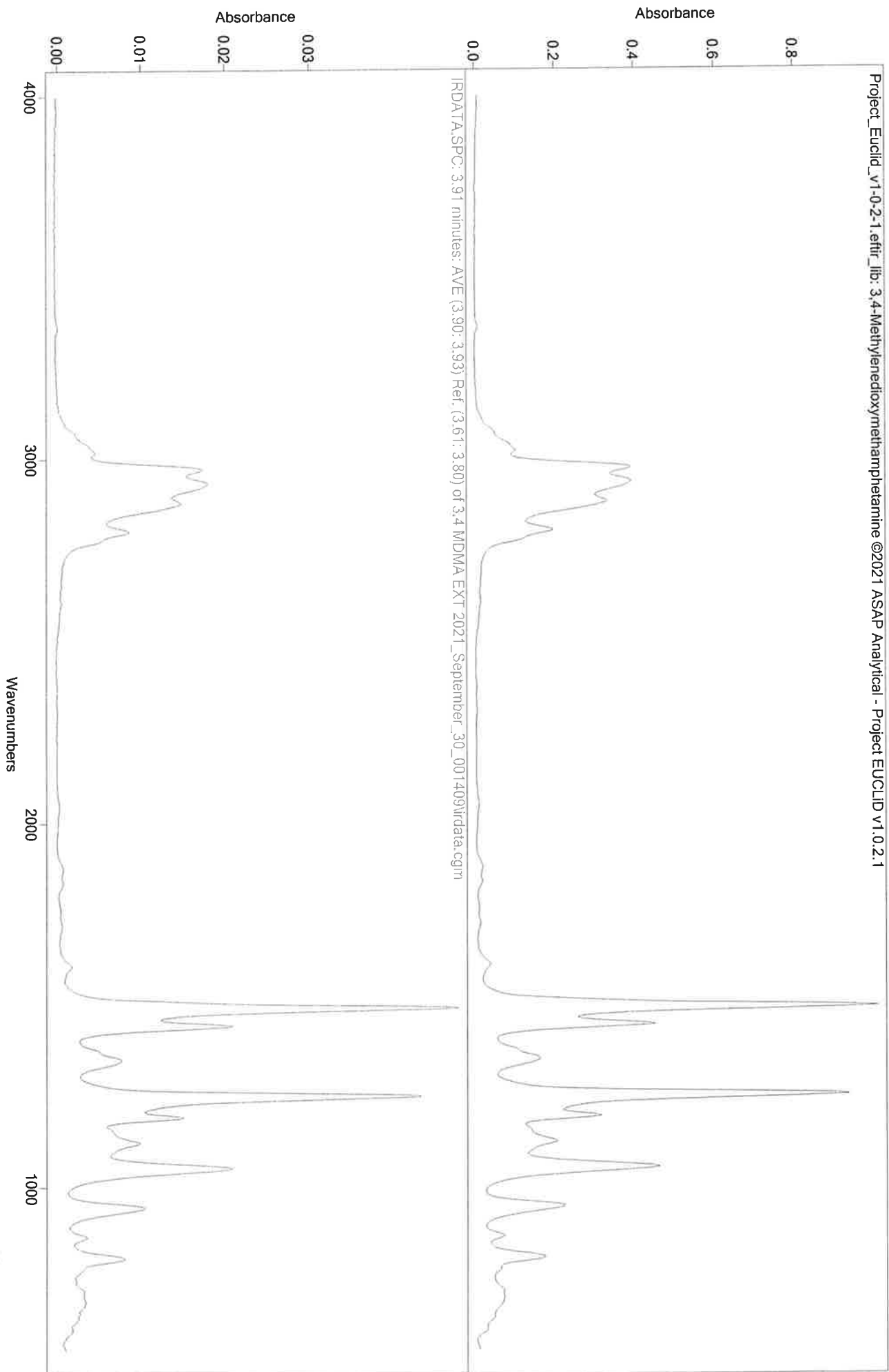
9-30-21

Data Filename	3,4 MDMA EXT 2021_September_30_001409
Data Path	C:/ASAP DATA/Aslan 2021/RH/IRD3 EXTENDED METHOD STANDARDS
IRD Method	IRD3 EXT
GC Method	120TO270
GC Vial	103
Sample Name	3,4 MDMA EXT
Misc. Info	0.5N NaOH-->CHCl3:ASLAN
User ID	N/A
Injection Time	Thu Sep 30 00:28:14 2021
Date Processed	Thu Sep 30 08:42:01 2021



IRDATA.SPC: 3.91 minutes: AVE (3.90: 3.93) Ref. (3.61: 3.80) of 3,4 MDMA EXT
2021_September_30_001409.cgm 3,4 MDMA

MA 93021

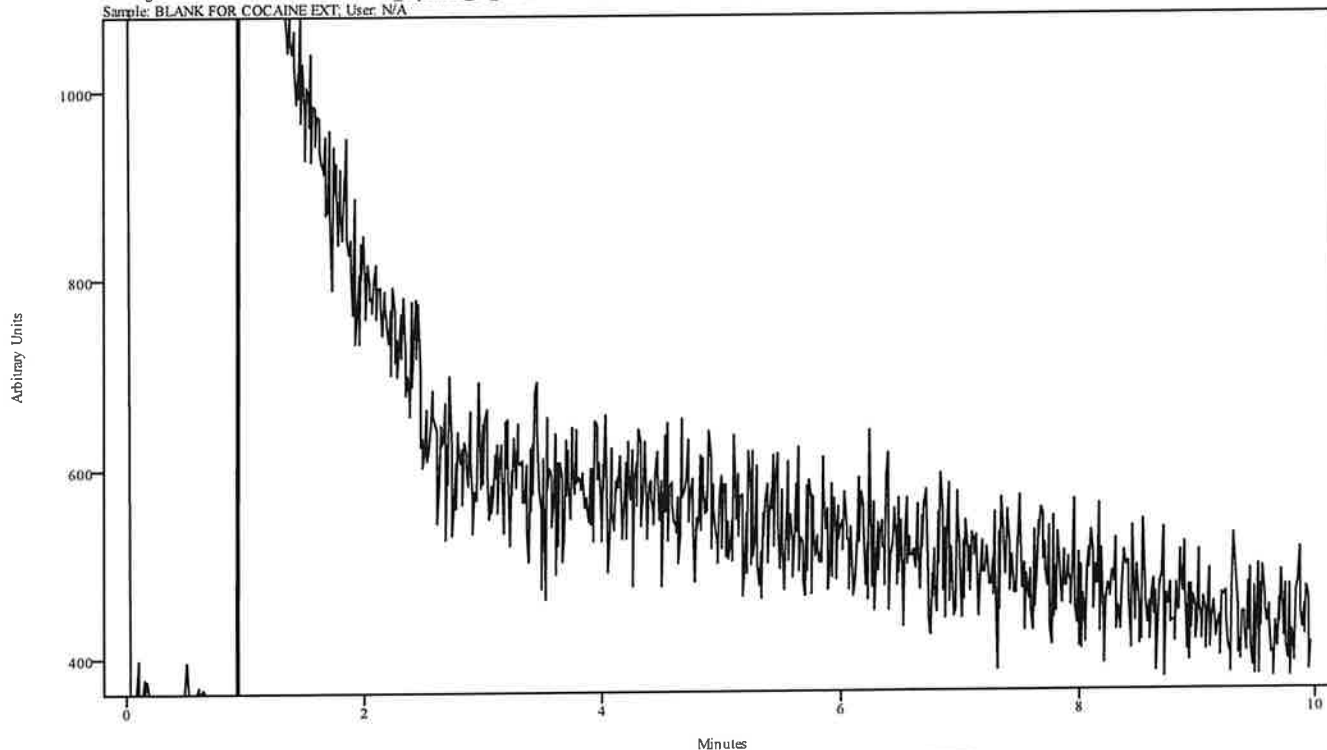


11/9/2021

IRD Data Analysis Report

Data Filename	BLANK FOR COCAINE EXT 2021_September_30_002814
Data Path	C:/ASAP DATA/Aslan 2021/RH/IRD3 EXTENDED METHOD STANDARDS
IRD Method	IRD3 EXT
GC Method	200TO270
GC Vial	111
Sample Name	BLANK FOR COCAINE EXT
Misc. Info	MEOH :ASLAN
User ID	N/A
Injection Time	Thu Sep 30 00:42:08 2021
Date Processed	Thu Sep 30 08:42:24 2021

irdata.cgm: BLANK FOR COCAINE EXT 2021_September_30_002814irdata.cgm: Misc. Info: MEOH :ASLAN;
Sample: BLANK FOR COCAINE EXT, User: N/A



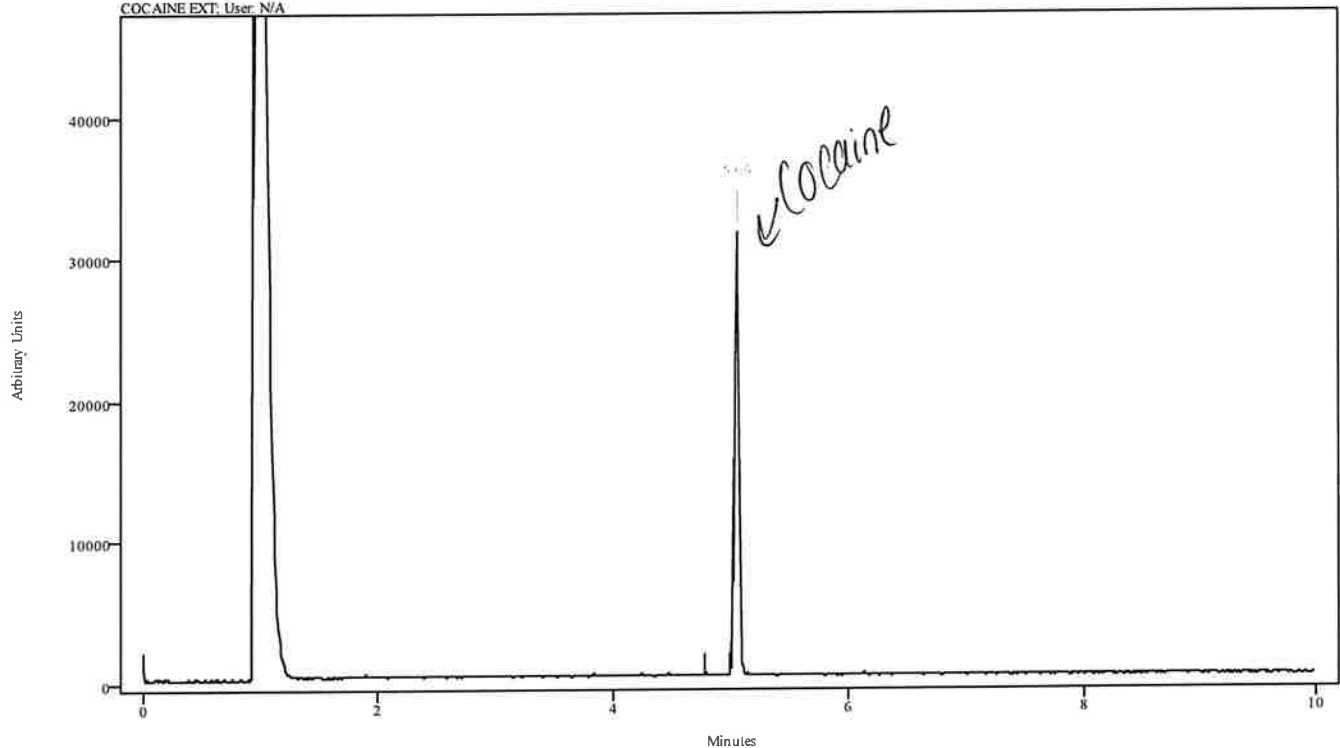
Peak Start	Peak End	Peak Width	Reference Start	Reference End
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9/30/21

IRD Data Analysis Report

Data Filename	COCAINE EXT 2021_September_30_004208
Data Path	C:/ASAP DATA/Aslan 2021/RH/IRD3 EXTENDED METHOD STANDARDS
IRD Method	IRD3 EXT
GC Method	200TO270
GC Vial	104
Sample Name	COCAINE EXT
Misc. Info	ACETONITRILE:ASLAN
User ID	N/A
Injection Time	Thu Sep 30 00:55:52 2021
Date Processed	Thu Sep 30 11:00:12 2021

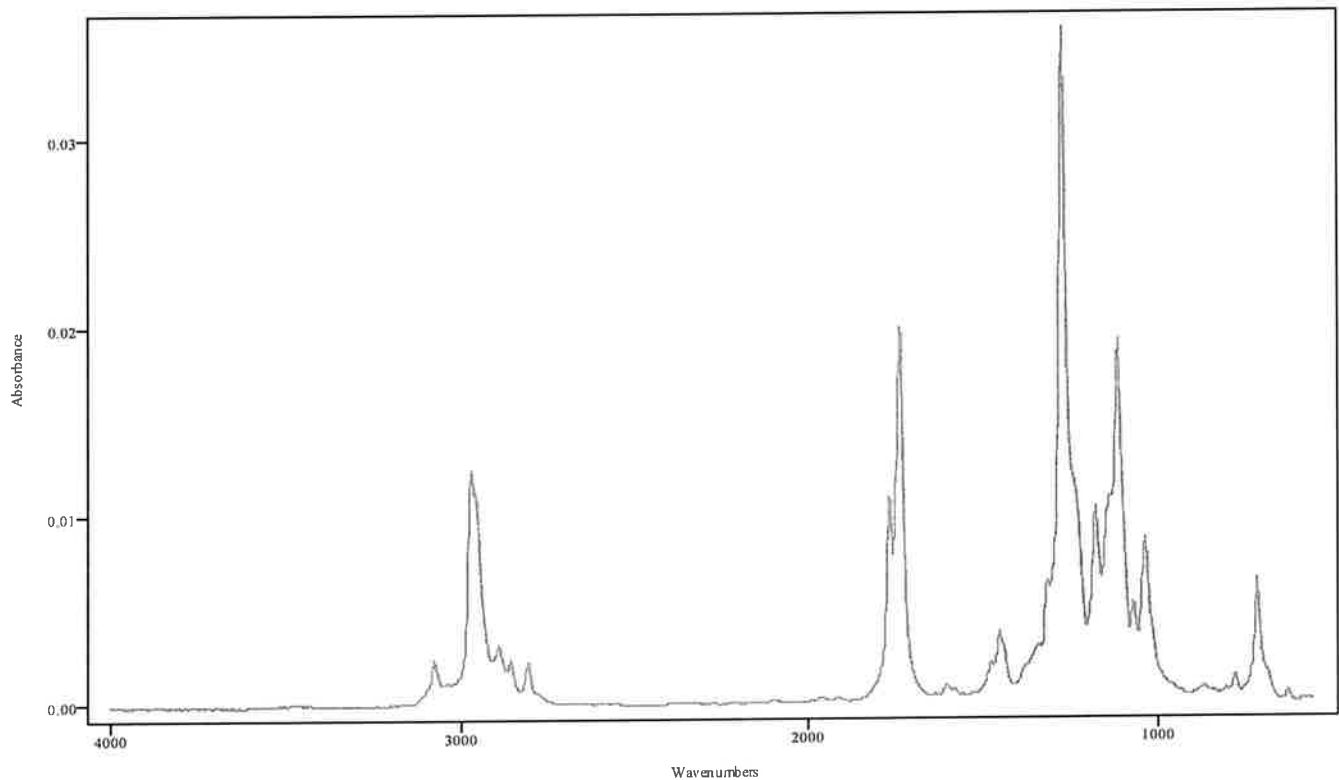
irdata.cgm: COCAINE EXT 2021_September_30_004208\irdata.cgm : Misc. Info: ACETONITRILE:ASLAN; Sample: COCAINE EXT; User: N/A



Peak Start	Peak End	Peak Width	Reference Start	Reference End
5.034	5.078	0.044	4.769	4.990

9/30/21

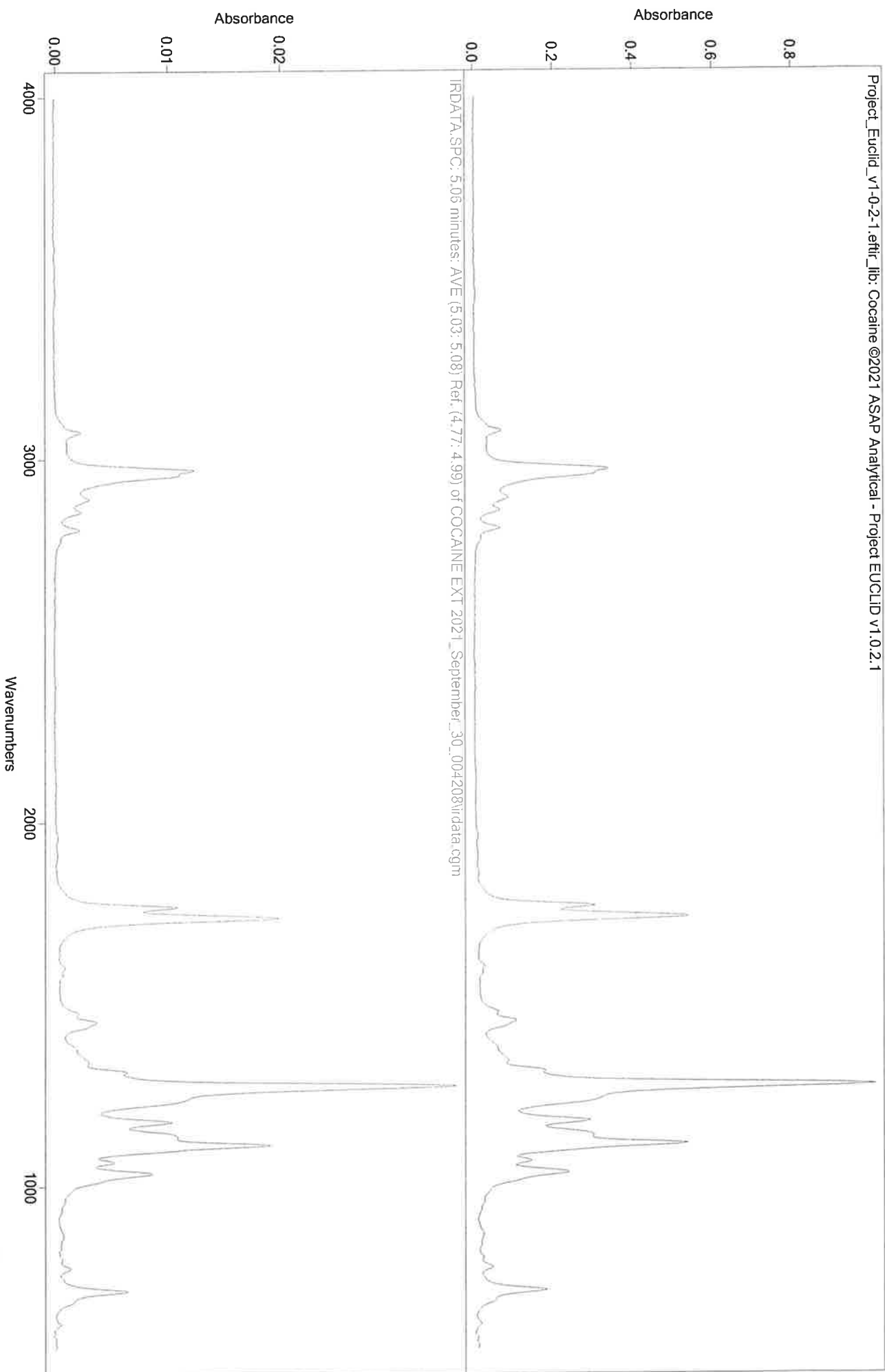
Data Filename	COCAINE EXT 2021_September_30_004208
Data Path	C:/ASAP DATA/Aslan 2021/RH/IRD3 EXTENDED METHOD STANDARDS
IRD Method	IRD3 EXT
GC Method	200TO270
GC Vial	104
Sample Name	COCAINE EXT
Misc. Info	ACETONITRILE:ASLAN
User ID	N/A
Injection Time	Thu Sep 30 00:55:52 2021
Date Processed	Thu Sep 30 11:00:12 2021



IRDATA.SPC: 5.06 minutes: AVE (5.03: 5.08) Ref. (4.77: 4.99) of COCAINE EXT
2021_September_30_004208.cgm

cocaine

Alt 9-30-21

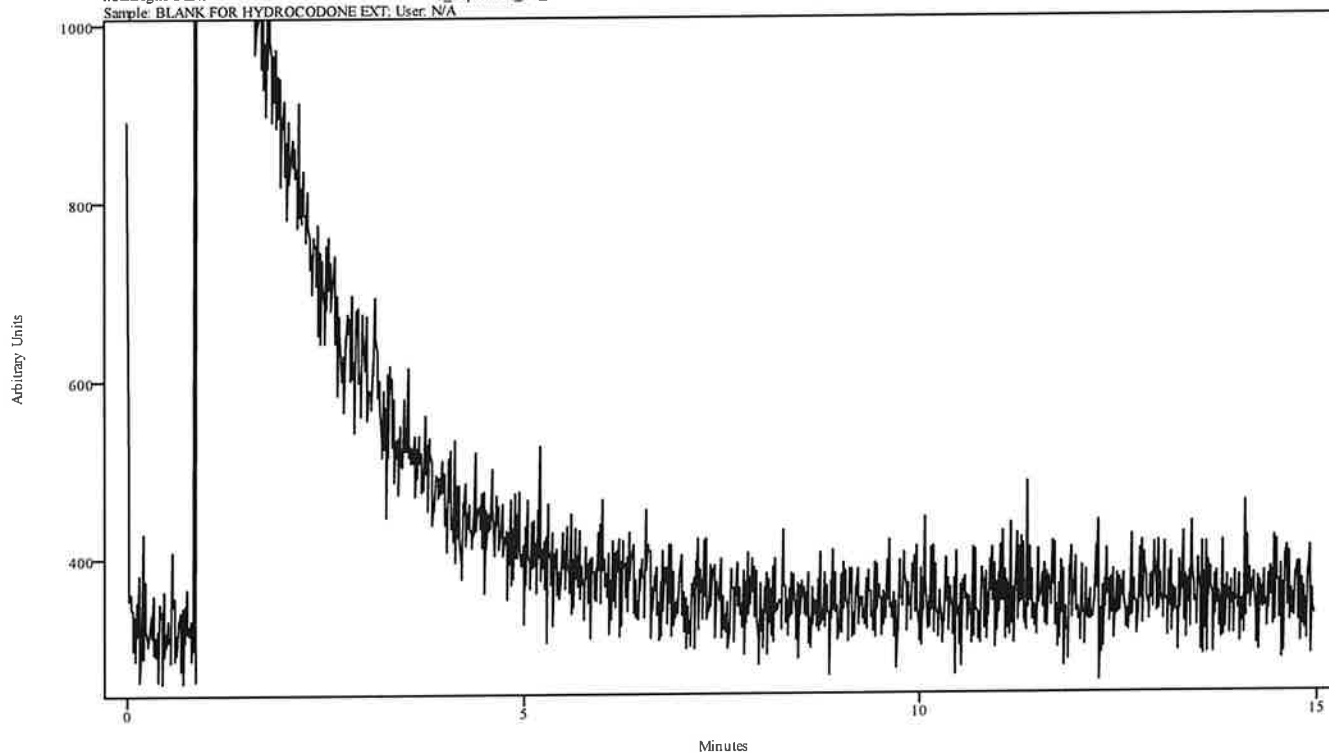


MA 9-30-21

IRD Data Analysis Report

Data Filename	BLANK FOR HYDROCODONE EXT 2021_September_30_005552
Data Path	C:/ASAP DATA/Aslan 2021/RH/IRD3 EXTENDED METHOD STANDARDS
IRD Method	IRD3 EXT
GC Method	ISO270(15MIN)
GC Vial	111
Sample Name	BLANK FOR HYDROCODONE EXT
Misc. Info	MEOH:ASLAN
User ID	N/A
Injection Time	Thu Sep 30 01:15:15 2021
Date Processed	Thu Sep 30 08:52:11 2021

irdata.cgm: BLANK FOR HYDROCODONE EXT 2021_September_30_005552\irdata.cgm; Misc. Info: MEOH:ASLAN;
Sample: BLANK FOR HYDROCODONE EXT; User: N/A

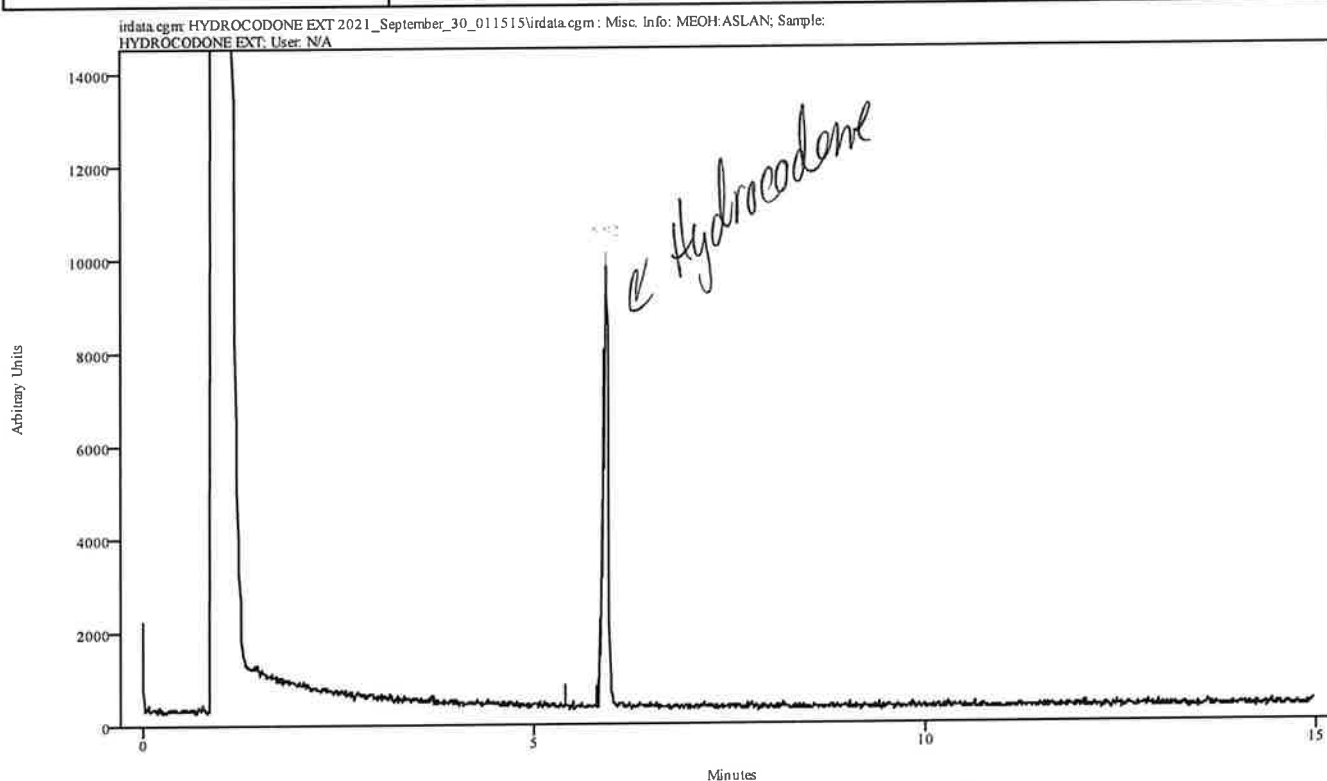


Peak Start	Peak End	Peak Width	Reference Start	Reference End
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11/9-2021

IRD Data Analysis Report

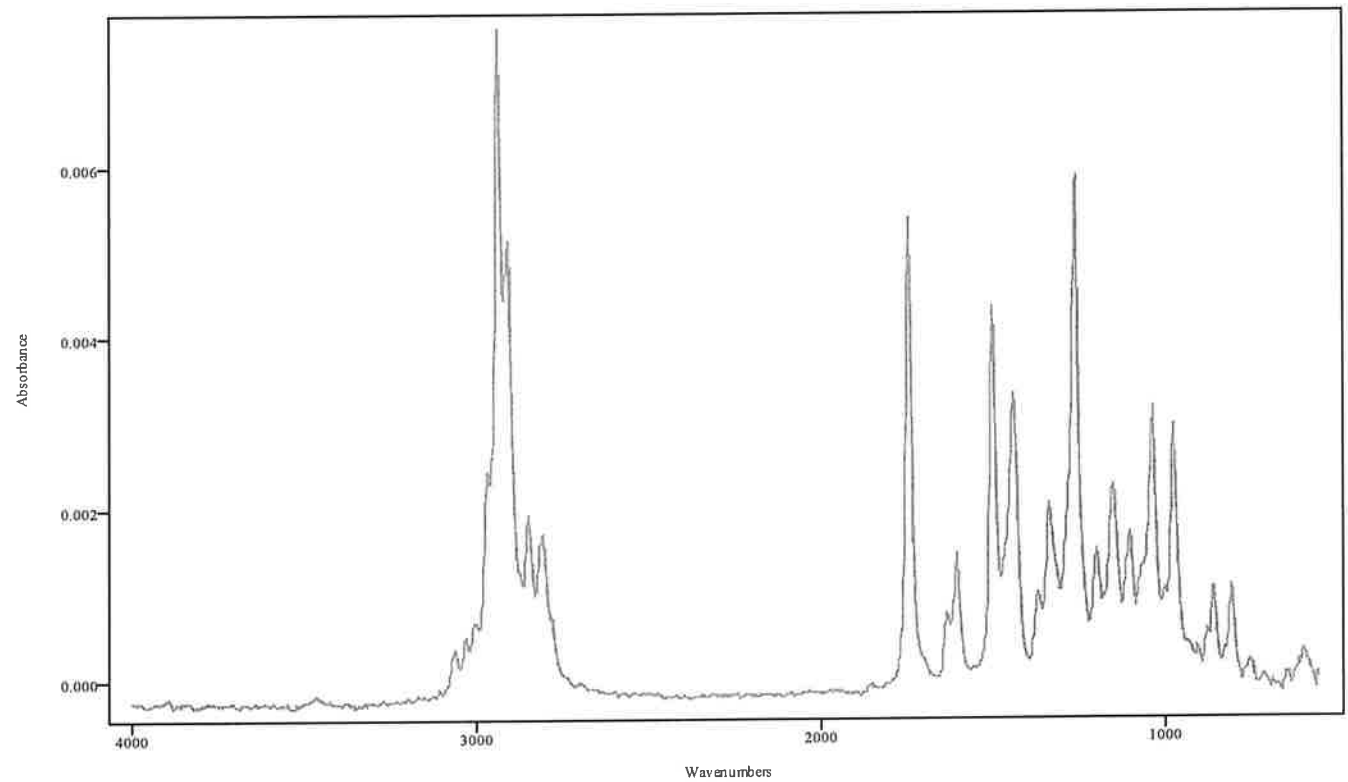
Data Filename	HYDROCODONE EXT 2021_September_30_011515
Data Path	C:/ASAP DATA/Aslan 2021/RH/IRD3 EXTENDED METHOD STANDARDS
IRD Method	IRD3 EXT
GC Method	ISO270(15MIN)
GC Vial	105
Sample Name	HYDROCODONE EXT
Misc. Info	MEOH:ASLAN
User ID	N/A
Injection Time	Thu Sep 30 01:32:49 2021
Date Processed	Thu Sep 30 11:02:42 2021



Peak Start	Peak End	Peak Width	Reference Start	Reference End
5.872	5.960	0.088	5.397	5.794

UH 9-30-21

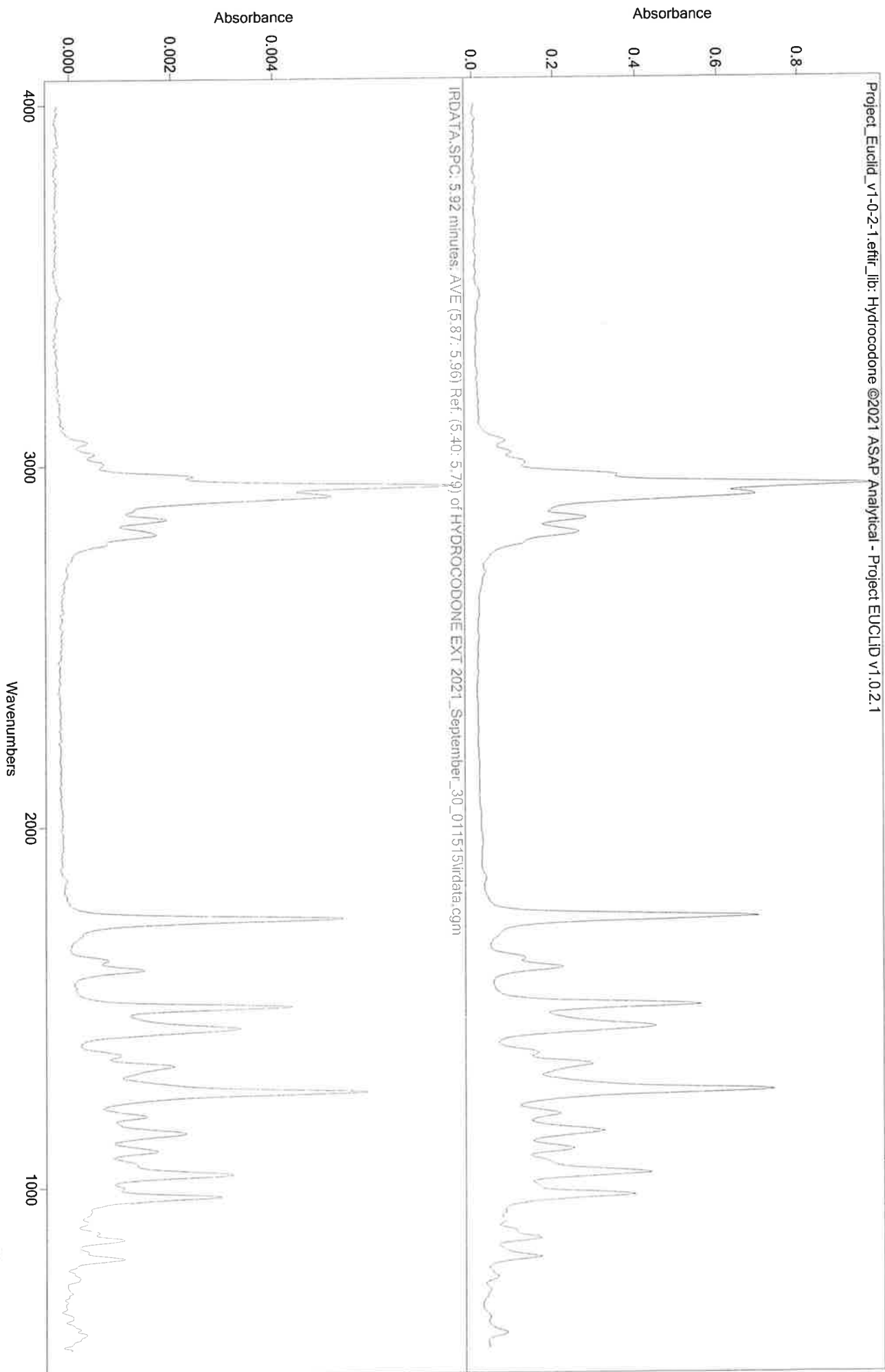
Data Filename	HYDROCODONE EXT 2021_September_30_011515
Data Path	C:/ASAP DATA/Aslan 2021/RH/IRD3 EXTENDED METHOD STANDARDS
IRD Method	IRD3 EXT
GC Method	ISO270(15MIN)
GC Vial	105
Sample Name	HYDROCODONE EXT
Misc. Info	MEOH:ASLAN
User ID	N/A
Injection Time	Thu Sep 30 01:32:49 2021
Date Processed	Thu Sep 30 11:02:42 2021



IRDATA.SPC: 5.92 minutes: AVE (5.87: 5.96) Ref. (5.40: 5.79) of HYDROCODONE EXT
2021_September_30_011515.cgm

Hydrocodone

Alt 9-30-21

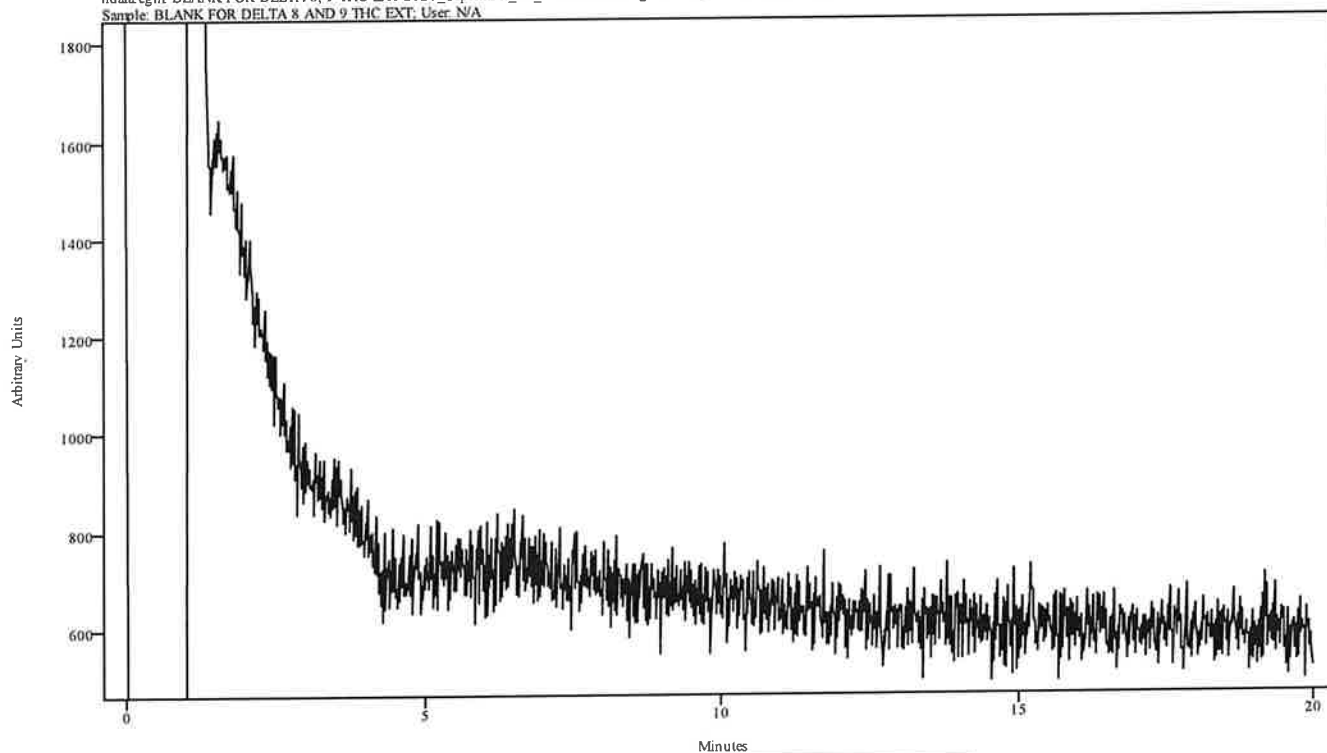


IRD Data Analysis Report

WHA 9-30-21

Data Filename	BLANK FOR DELTA 8, 9 THC EXT 2021_September_30_013249
Data Path	C:/ASAP DATA/Aslan 2021/RH/IRD3 EXTENDED METHOD STANDARDS
IRD Method	IRD3 EXT
GC Method	120TO270(20MIN)
GC Vial	111
Sample Name	BLANK FOR DELTA 8 AND 9 THC EXT
Misc. Info	MEOH:ASLAN
User ID	N/A
Injection Time	Thu Sep 30 01:57:19 2021
Date Processed	Thu Sep 30 08:44:33 2021

irdata.cgm: BLANK FOR DELTA 8, 9 THC EXT 2021_September_30_013249\irdata.cgm : Misc. Info: MEOH:ASLAN;
Sample: BLANK FOR DELTA 8 AND 9 THC EXT; User: N/A



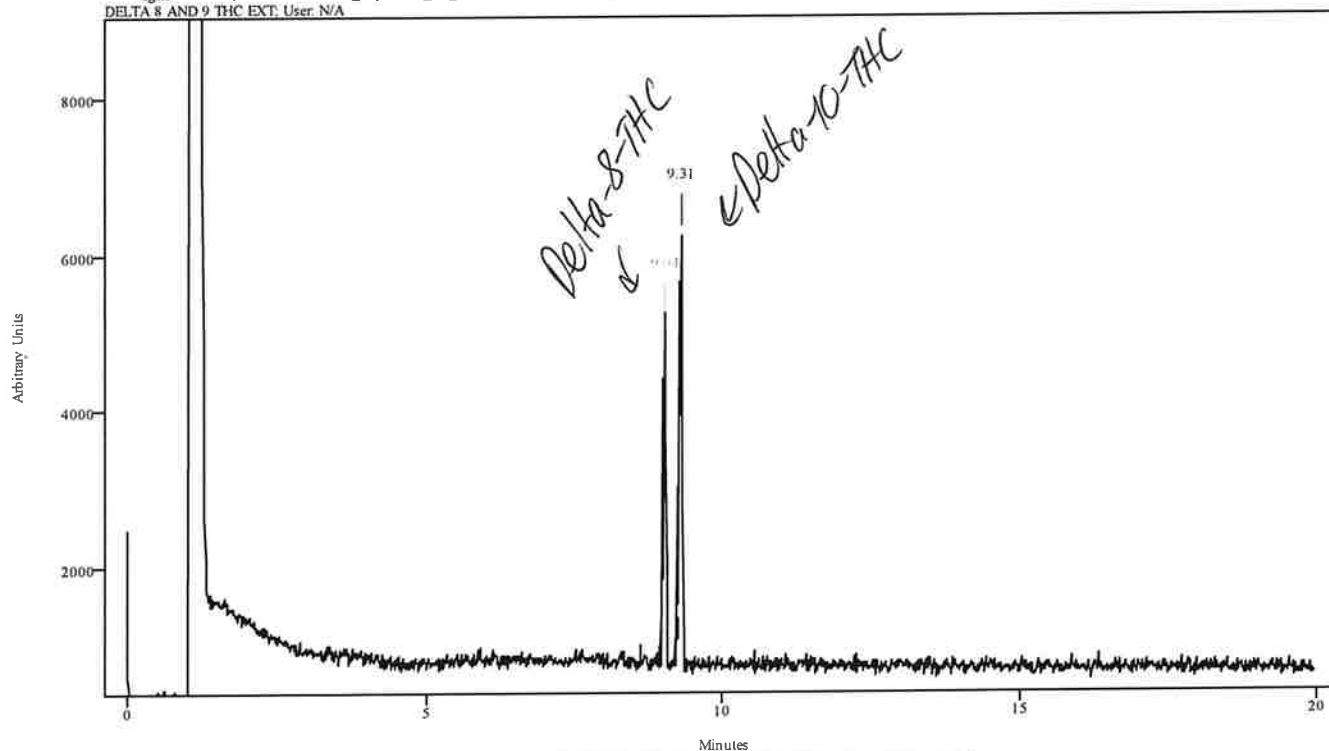
Peak Start	Peak End	Peak Width	Reference Start	Reference End
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IRD Data Analysis Report

JA 9/30/21

Data Filename	DELTA 8, 9 THC EXT 2021_September_30_015719
Data Path	C:/ASAP DATA/Aslan 2021/RH/IRD3 EXTENDED METHOD STANDARDS
IRD Method	IRD3 EXT
GC Method	120TO270(20MIN)
GC Vial	106
Sample Name	DELTA 8 AND 9 THC EXT
Misc. Info	MEOH:ASLAN
User ID	N/A
Injection Time	Thu Sep 30 02:21:16 2021
Date Processed	Thu Sep 30 08:45:24 2021

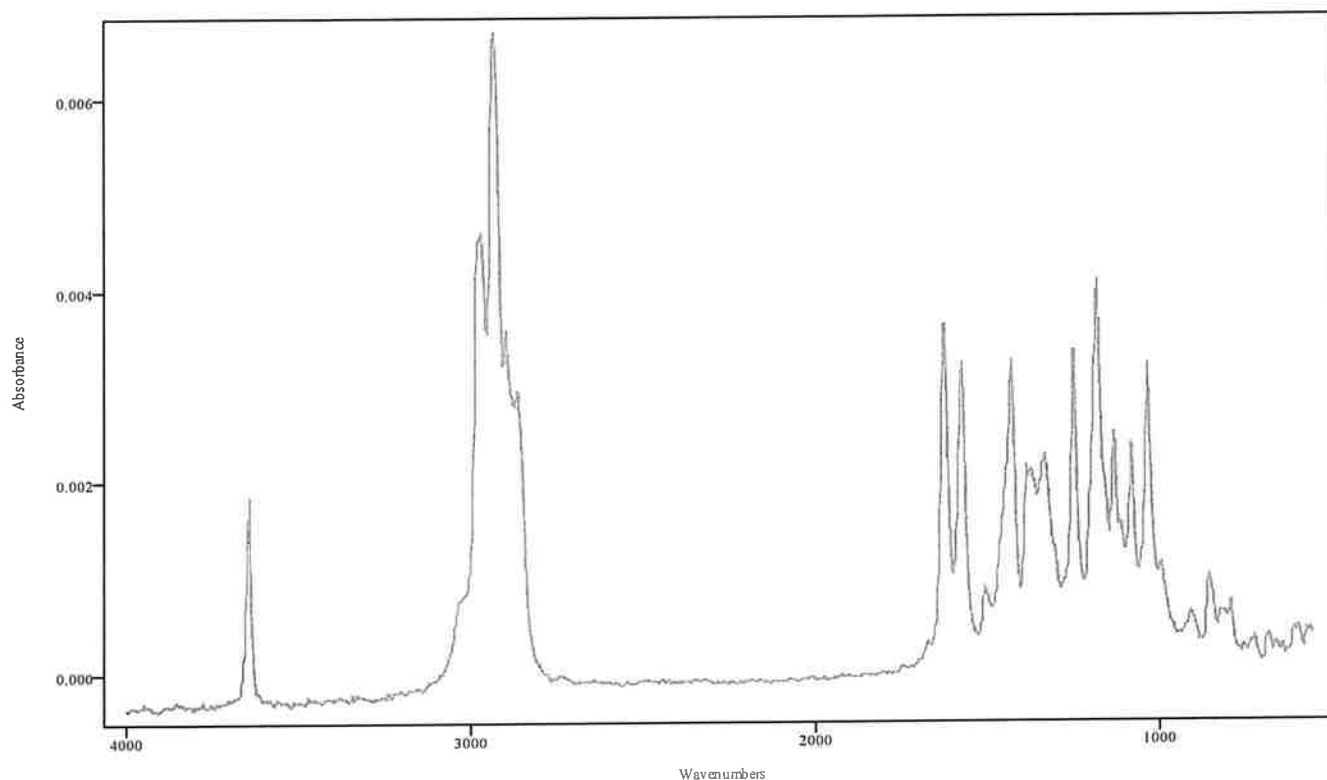
irdata.cgm: DELTA 8, 9 THC EXT 2021_September_30_015719\irdata.cgm : Misc. Info: MEOH:ASLAN; Sample: DELTA 8 AND 9 THC EXT; User: N/A



Peak Start	Peak End	Peak Width	Reference Start	Reference End
9.005	9.071	0.066	8.641	8.950
9.239	9.336	0.099	8.641	8.950

9-30-21

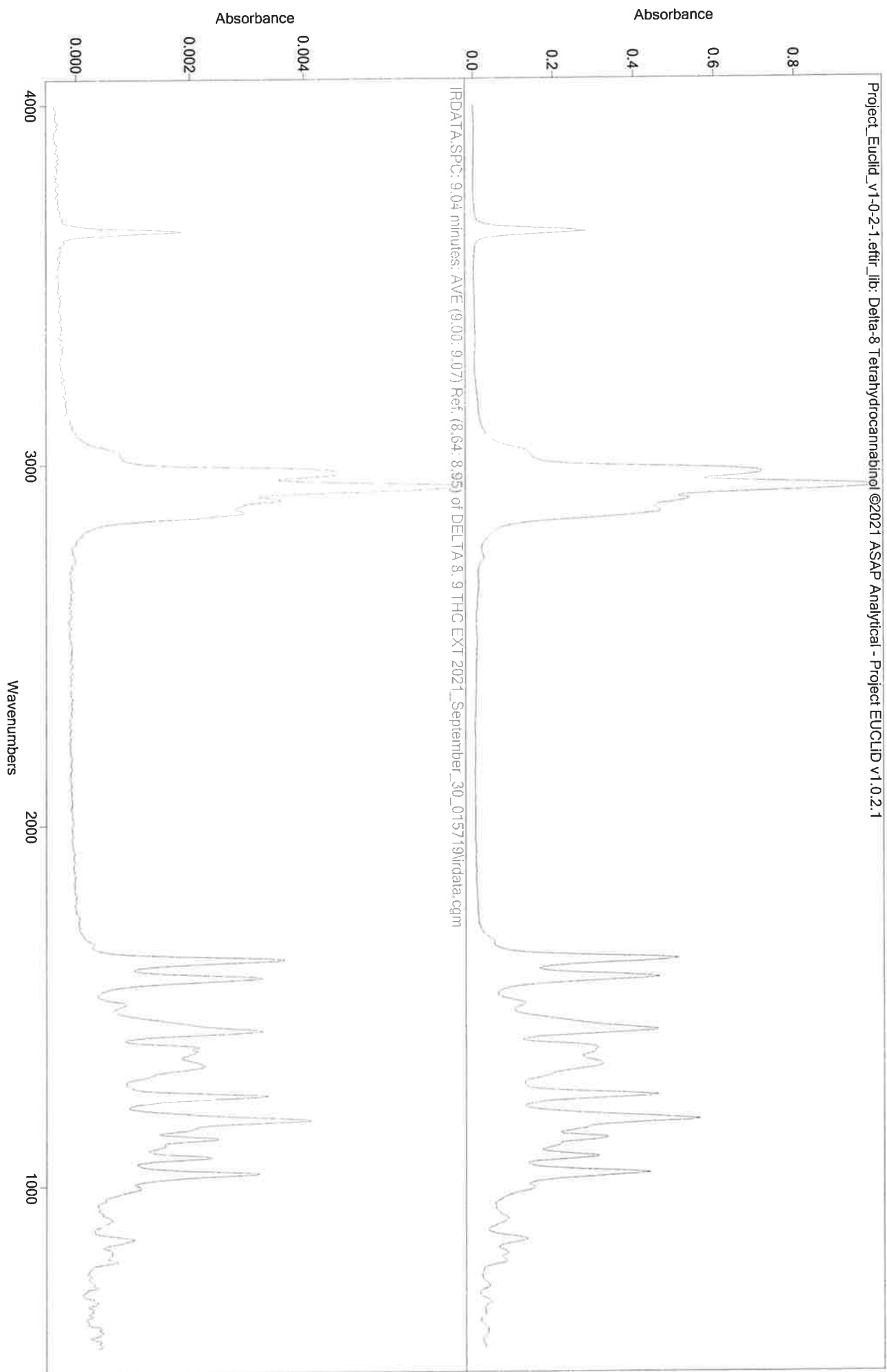
Data Filename	DELTA 8, 9 THC EXT 2021_September_30_015719
Data Path	C:/ASAP DATA/Aslan 2021/RH/IRD3 EXTENDED METHOD STANDARDS
IRD Method	IRD3 EXT
GC Method	120TO270(20MIN)
GC Vial	106
Sample Name	DELTA 8 AND 9 THC EXT
Misc. Info	MEOH:ASLAN
User ID	N/A
Injection Time	Thu Sep 30 02:21:16 2021
Date Processed	Thu Sep 30 08:45:24 2021



IRDATA.SPC: 9.04 minutes: AVE (9.00: 9.07) Ref. (8.64: 8.95) of DELTA 8, 9 THC EXT 2021_September_30_015719.cgm

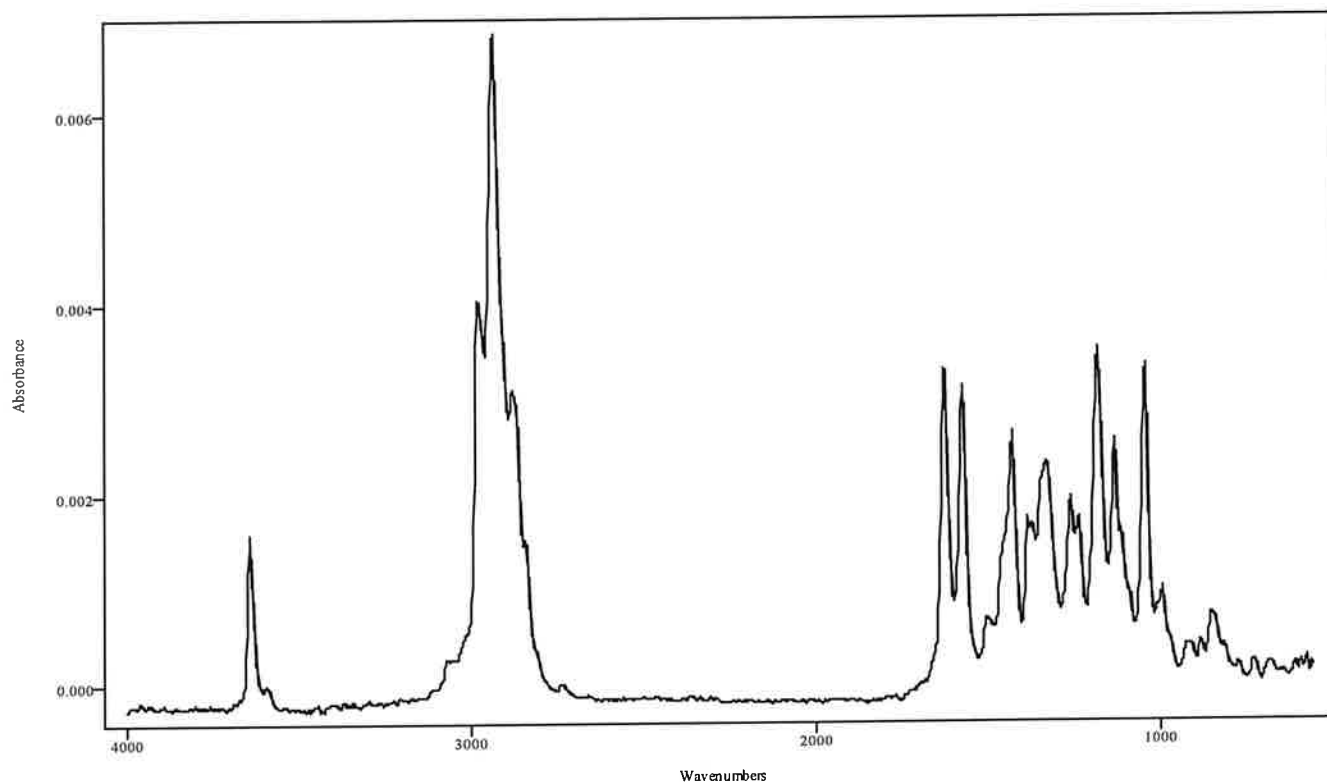
Delta-8-THC

449-30021



11/9/30/21

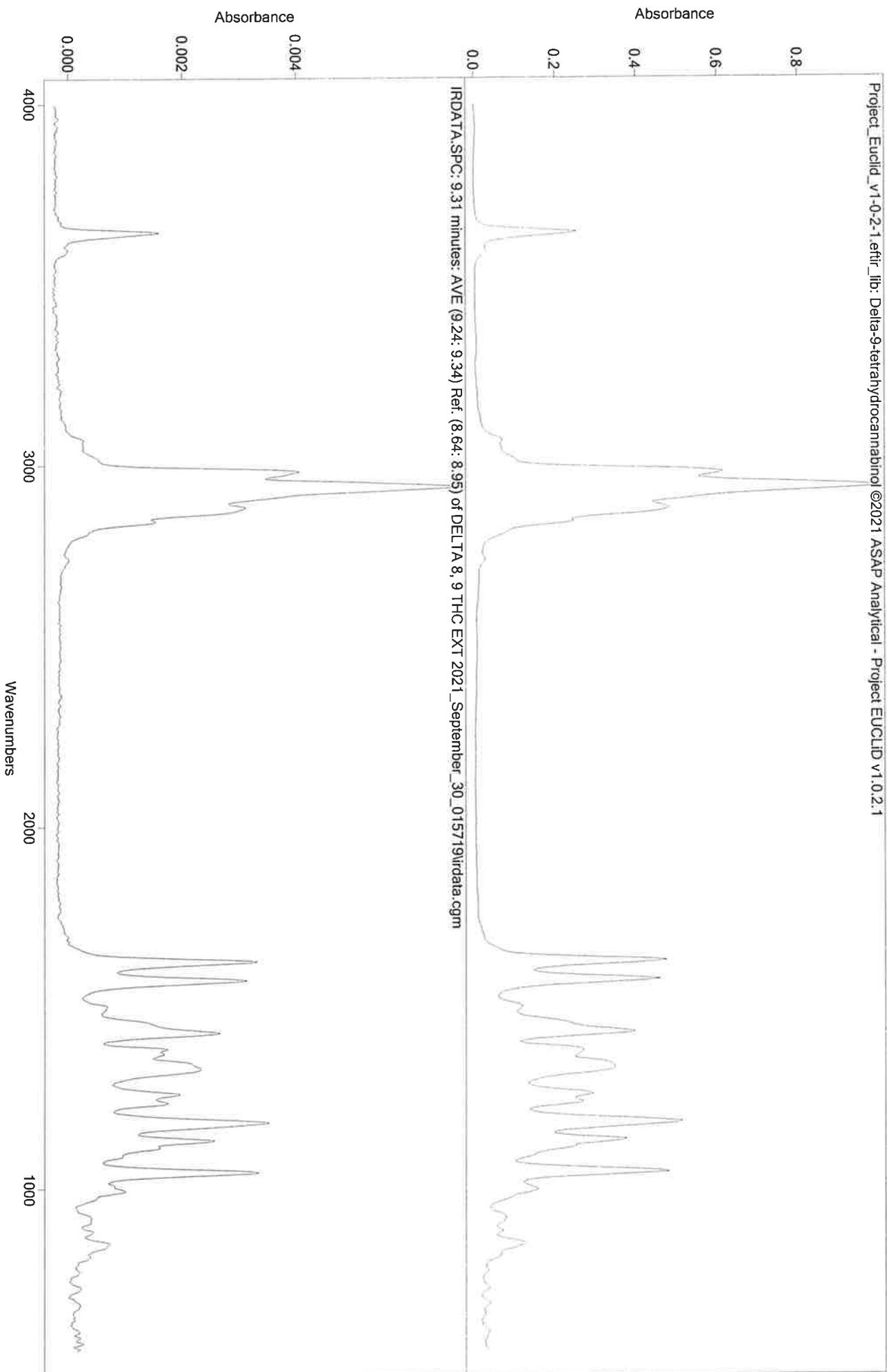
Data Filename	DELTA 8, 9 THC EXT 2021_September_30_015719
Data Path	C:/ASAP DATA/Aslan 2021/RH/IRD3 EXTENDED METHOD STANDARDS
IRD Method	IRD3 EXT
GC Method	120TO270(20MIN)
GC Vial	106
Sample Name	DELTA 8 AND 9 THC EXT
Misc. Info	MEOH:ASLAN
User ID	N/A
Injection Time	Thu Sep 30 02:21:16 2021
Date Processed	Thu Sep 30 08:45:24 2021



IRDATA.SPC: 9.31 minutes: AVE (9.24: 9.34) Ref. (8.64: 8.95) of DELTA 8, 9 THC EXT 2021_September_30_015719.cgm

Delta-9-THC

CH 9-30-21

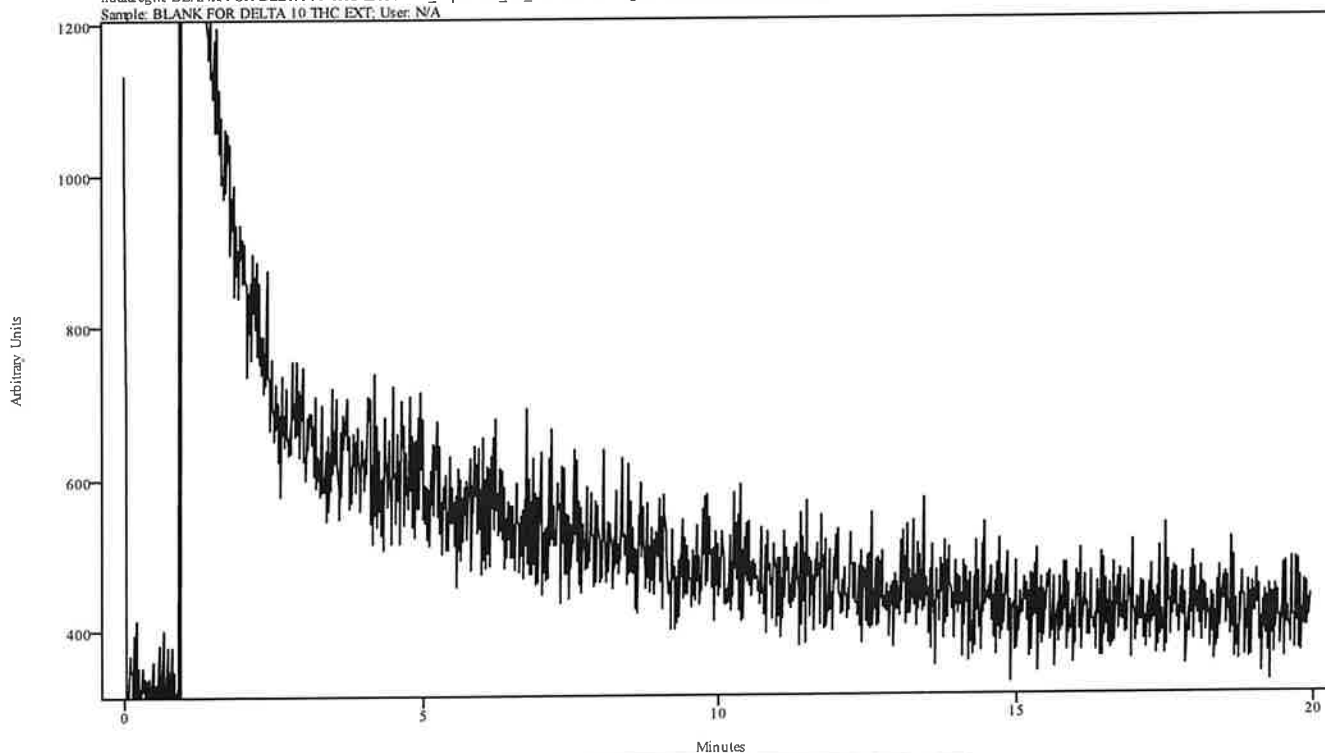


9-30-21

IRD Data Analysis Report

Data Filename	BLANK FOR DELTA 10 THC EXT 2021_September_30_022116
Data Path	C:/ASAP DATA/Aslan 2021/RH/IRD3 EXTENDED METHOD STANDARDS
IRD Method	IRD3 EXT
GC Method	200TO270(20MIN)
GC Vial	111
Sample Name	BLANK FOR DELTA 10 THC EXT
Misc. Info	MEOH:ASLAN
User ID	N/A
Injection Time	Thu Sep 30 02:45:11 2021
Date Processed	Thu Sep 30 08:43:22 2021

irdata.cgm: BLANK FOR DELTA 10 THC EXT 2021_September_30_022116\irdata.cgm : Misc. Info: MEOH:ASLAN;
Sample: BLANK FOR DELTA 10 THC EXT; User: N/A



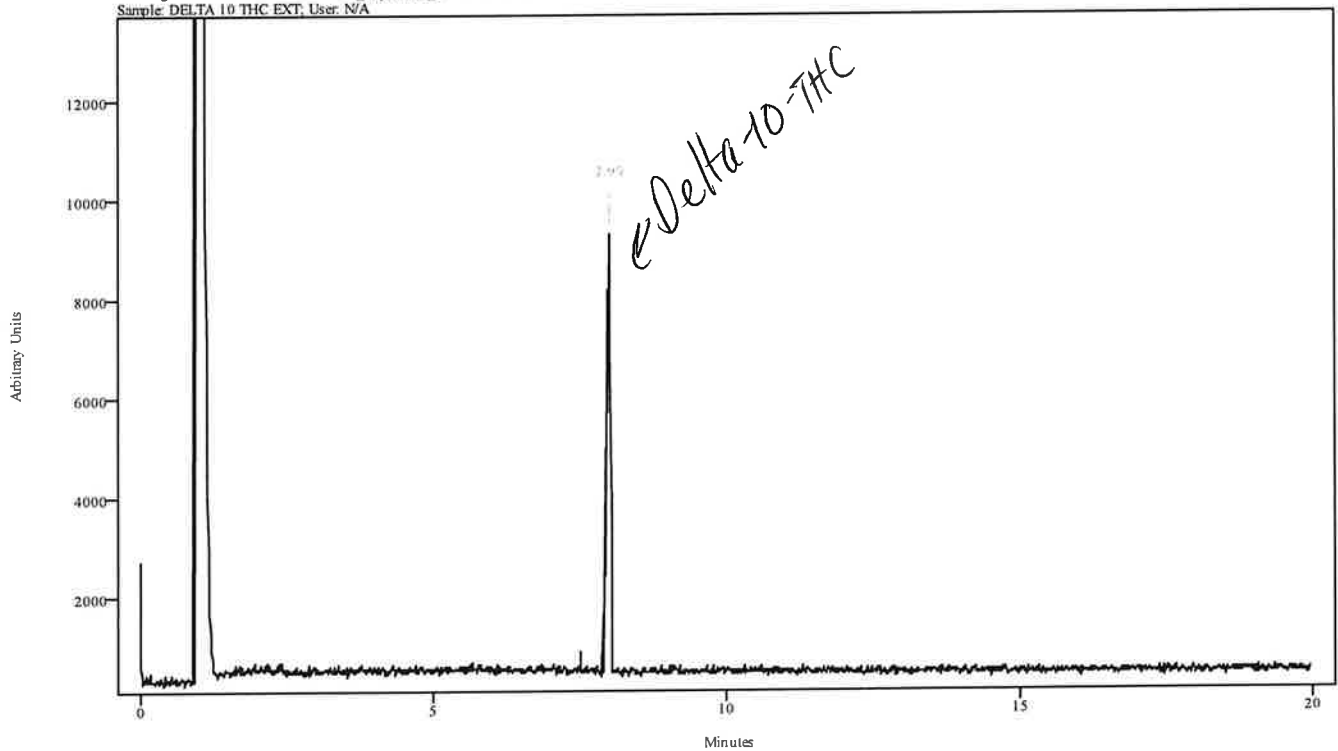
Peak Start	Peak End	Peak Width	Reference Start	Reference End
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YH 9-30-21

IRD Data Analysis Report

Data Filename	DELTA 10 THC EXT 2021_September_30_024511
Data Path	C:/ASAP DATA/Aslan 2021/RH/IRD3 EXTENDED METHOD STANDARDS
IRD Method	IRD3 EXT
GC Method	200TO270(20MIN)
GC Vial	107
Sample Name	DELTA 10 THC EXT
Misc. Info	ACETONITRILE:ASLAN
User ID	N/A
Injection Time	Thu Sep 30 03:08:33 2021
Date Processed	Thu Sep 30 08:44:00 2021

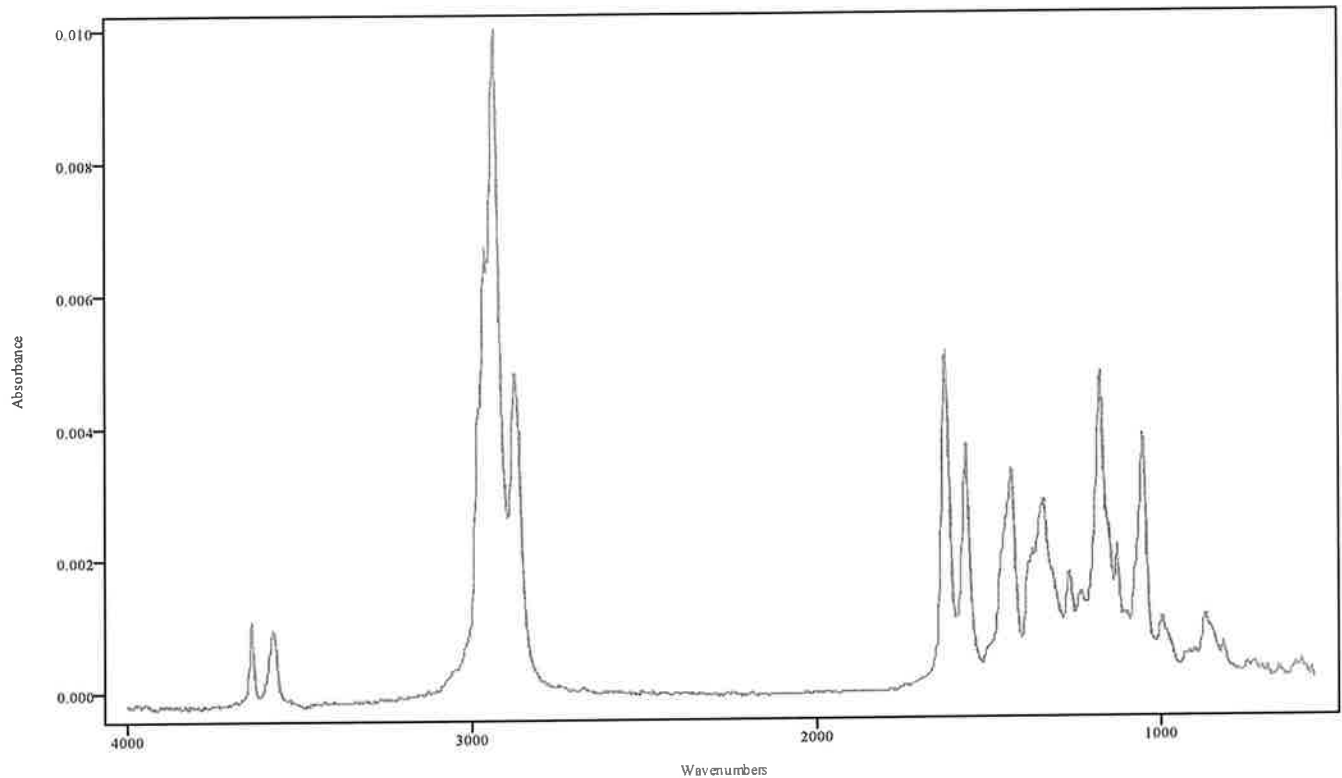
irdata.cgm: DELTA 10 THC EXT 2021_September_30_024511\irdata.cgm : Misc. Info: ACETONITRILE:ASLAN;
Sample: DELTA 10 THC EXT; User: N/A



Peak Start	Peak End	Peak Width	Reference Start	Reference End
7.947	8.024	0.077	7.517	7.870

9-30-21

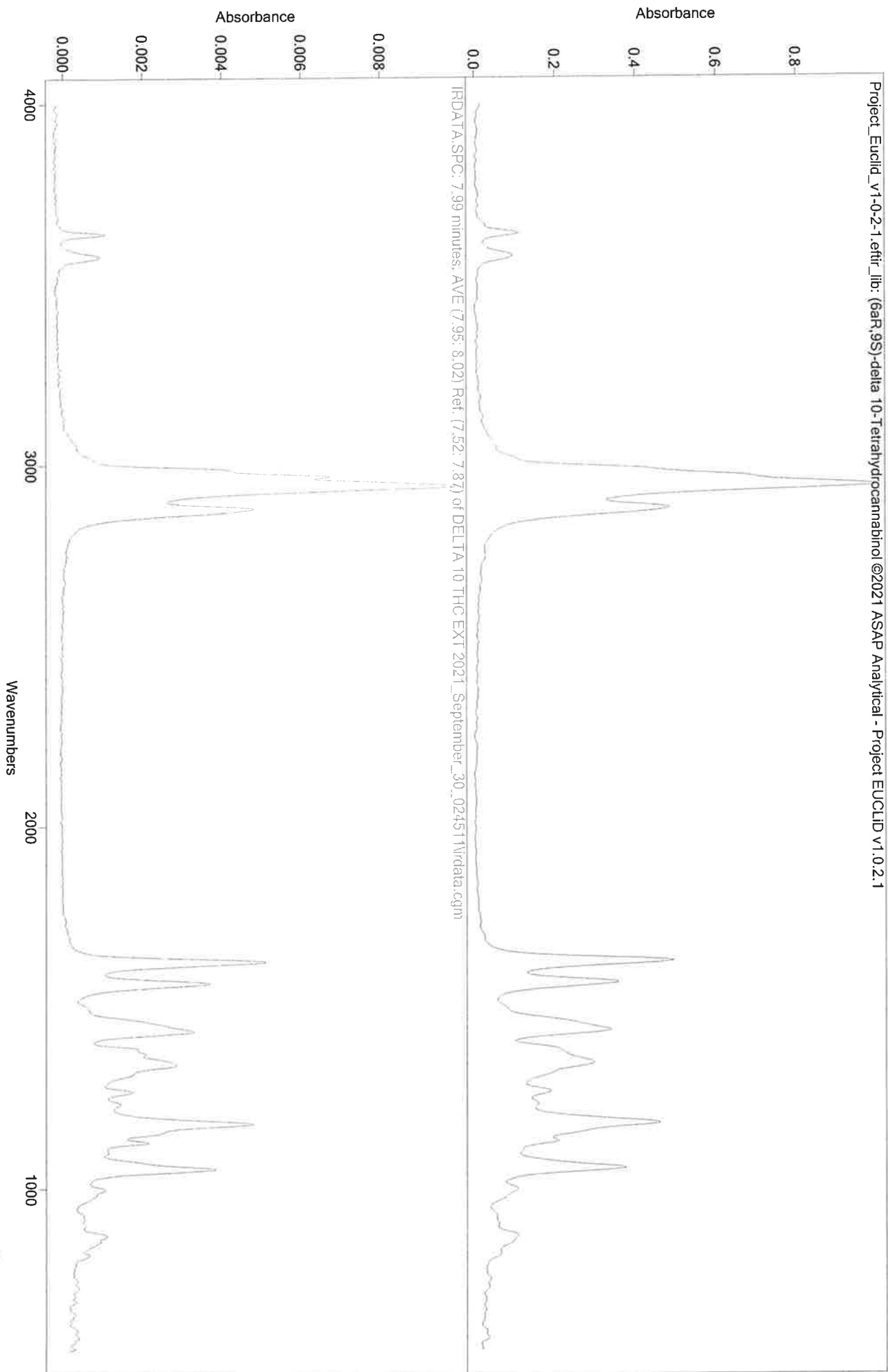
Data Filename	DELTA 10 THC EXT 2021_September_30_024511
Data Path	C:/ASAP DATA/Aslan 2021/RH/IRD3 EXTENDED METHOD STANDARDS
IRD Method	IRD3 EXT
GC Method	200TO270(20MIN)
GC Vial	107
Sample Name	DELTA 10 THC EXT
Misc. Info	ACETONITRILE:ASLAN
User ID	N/A
Injection Time	Thu Sep 30 03:08:33 2021
Date Processed	Thu Sep 30 08:44:00 2021



IRDATA.SPC: 7.99 minutes: AVE (7.95: 8.02) Ref. (7.52: 7.87) of DELTA 10 THC EXT
2021_September_30_024511.cgm

Delta-10-THC

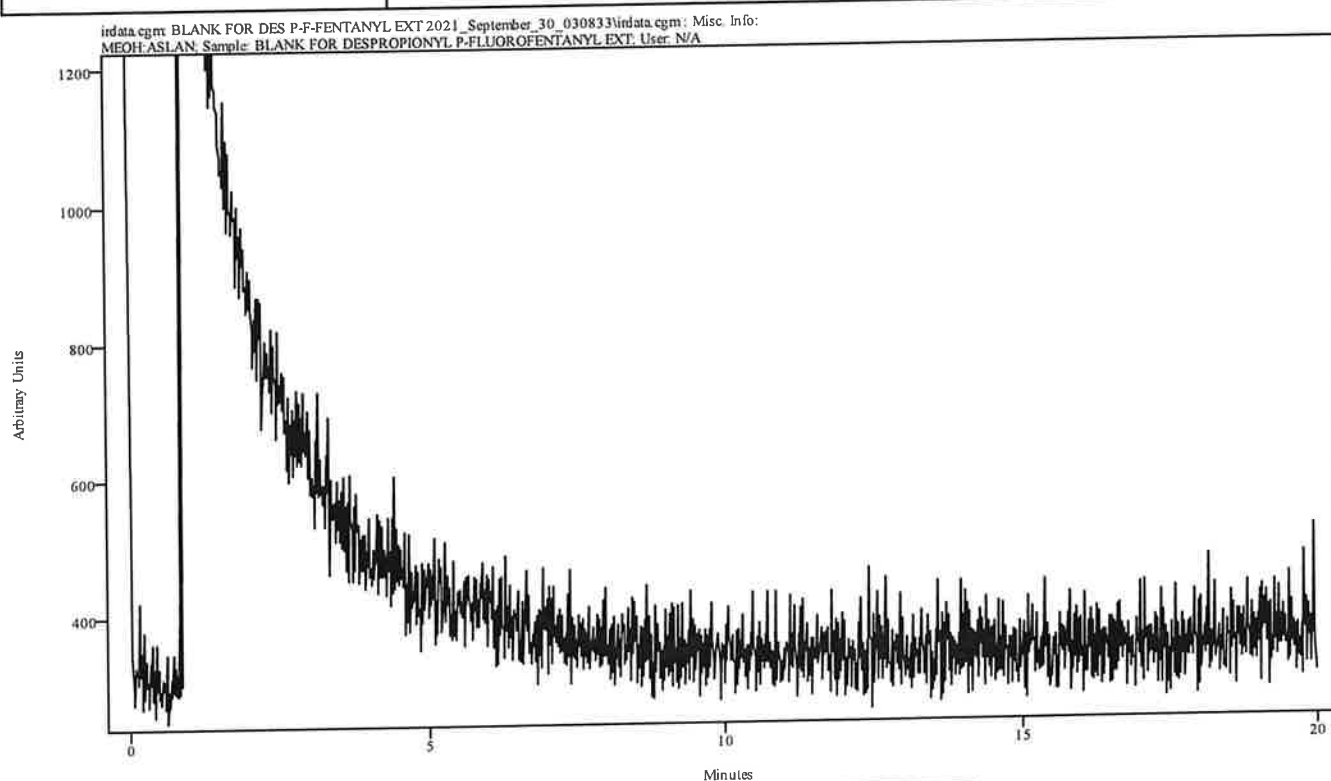
44 9-30-21



MA 9-30-21

IRD Data Analysis Report

Data Filename	BLANK FOR DES P-F-FENTANYL EXT 2021_September_30_030833
Data Path	C:/ASAP DATA/Aslan 2021/RH/IRD3 EXTENDED METHOD STANDARDS
IRD Method	IRD3 EXT
GC Method	ISO270(20MIN)
GC Vial	111
Sample Name	BLANK FOR DESPROPIONYL P-FLUOROFENTANYL EXT
Misc. Info	MEOH:ASLAN
User ID	N/A
Injection Time	Thu Sep 30 03:32:55 2021
Date Processed	Thu Sep 30 13:43:13 2021



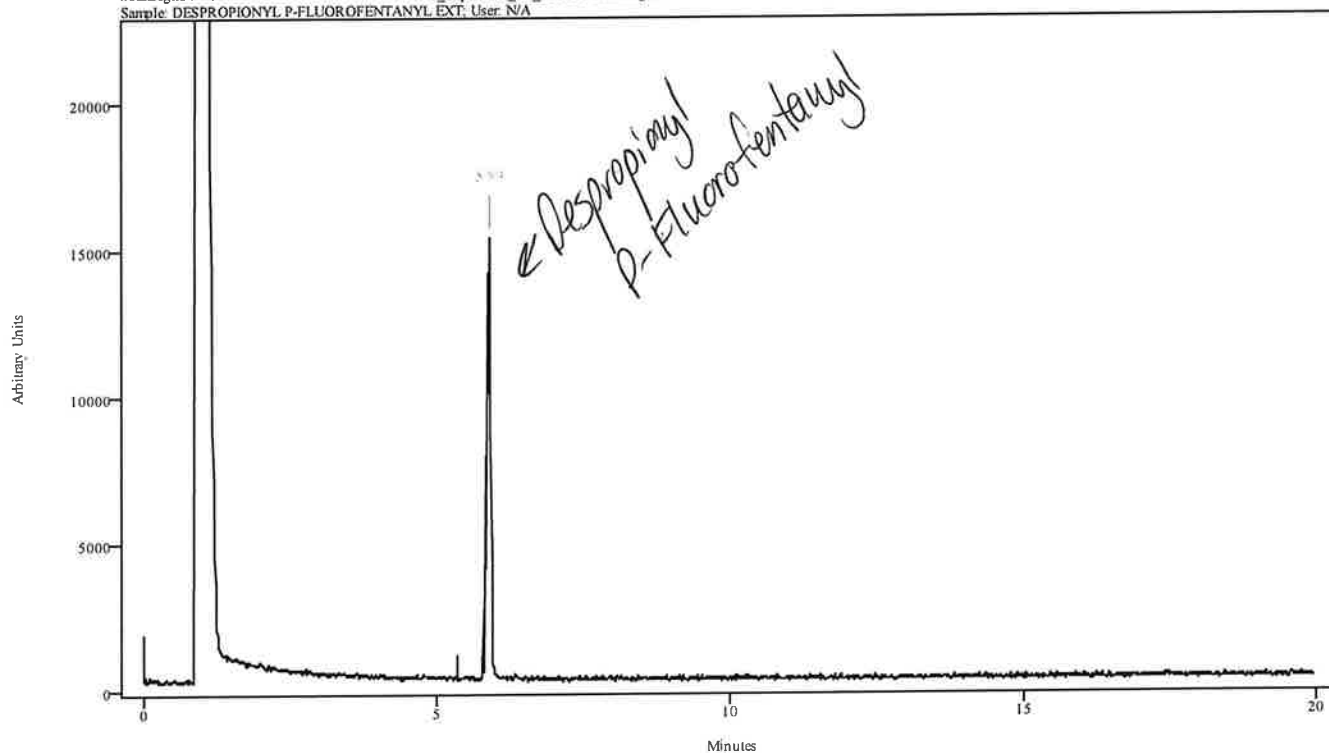
Peak Start	Peak End	Peak Width	Reference Start	Reference End
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IRD Data Analysis Report

9/30/21

Data Filename	DES P-FLUOROFENTANYL EXT 2021_September_30_033255
Data Path	C:/ASAP DATA/Aslan 2021/RH/IRD3 EXTENDED METHOD STANDARDS
IRD Method	IRD3 EXT
GC Method	ISO270(20MIN)
GC Vial	108
Sample Name	DESPROPIONYL P-FLUOROFENTANYL EXT
Misc. Info	MEOH:ASLAN
User ID	N/A
Injection Time	Thu Sep 30 03:55:28 2021
Date Processed	Thu Sep 30 08:48:58 2021

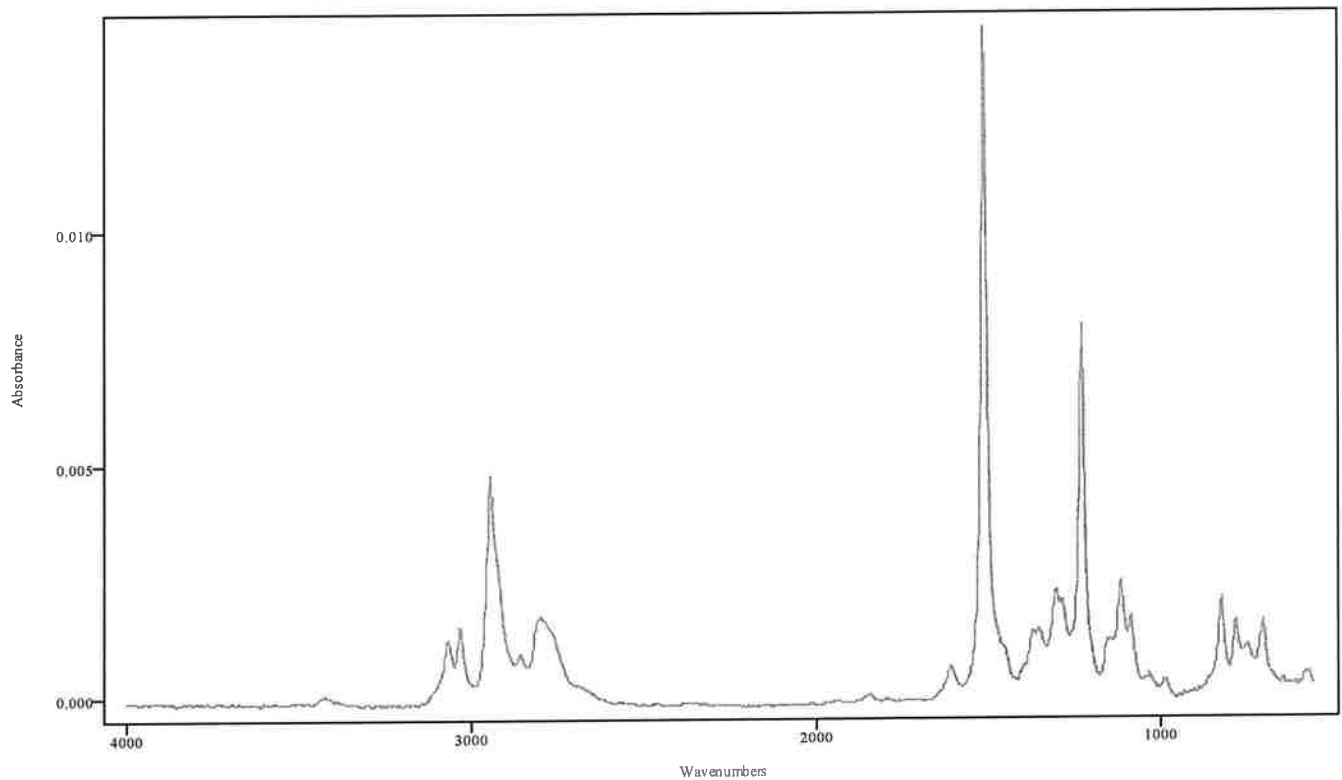
indata.cgm: DES P-FLUOROFENTANYL EXT 2021_September_30_033255\indata.cgm: Misc. Info: MEOH:ASLAN;
Sample: DESPROPIONYL P-FLUOROFENTANYL EXT; User: N/A



Peak Start	Peak End	Peak Width	Reference Start	Reference End
5.838	5.927	0.088	5.353	5.750

MA 9-30-21

Data Filename	DES P-FLUOROFENTANYL EXT 2021_September_30_033255
Data Path	C:/ASAP DATA/Aslan 2021/RH/IRD3 EXTENDED METHOD STANDARDS
IRD Method	IRD3 EXT
GC Method	ISO270(20MIN)
GC Vial	108
Sample Name	DESPROPIONYL P-FLUOROFENTANYL EXT
Misc. Info	MEOH:ASLAN
User ID	N/A
Injection Time	Thu Sep 30 03:55:28 2021
Date Processed	Thu Sep 30 08:48:58 2021



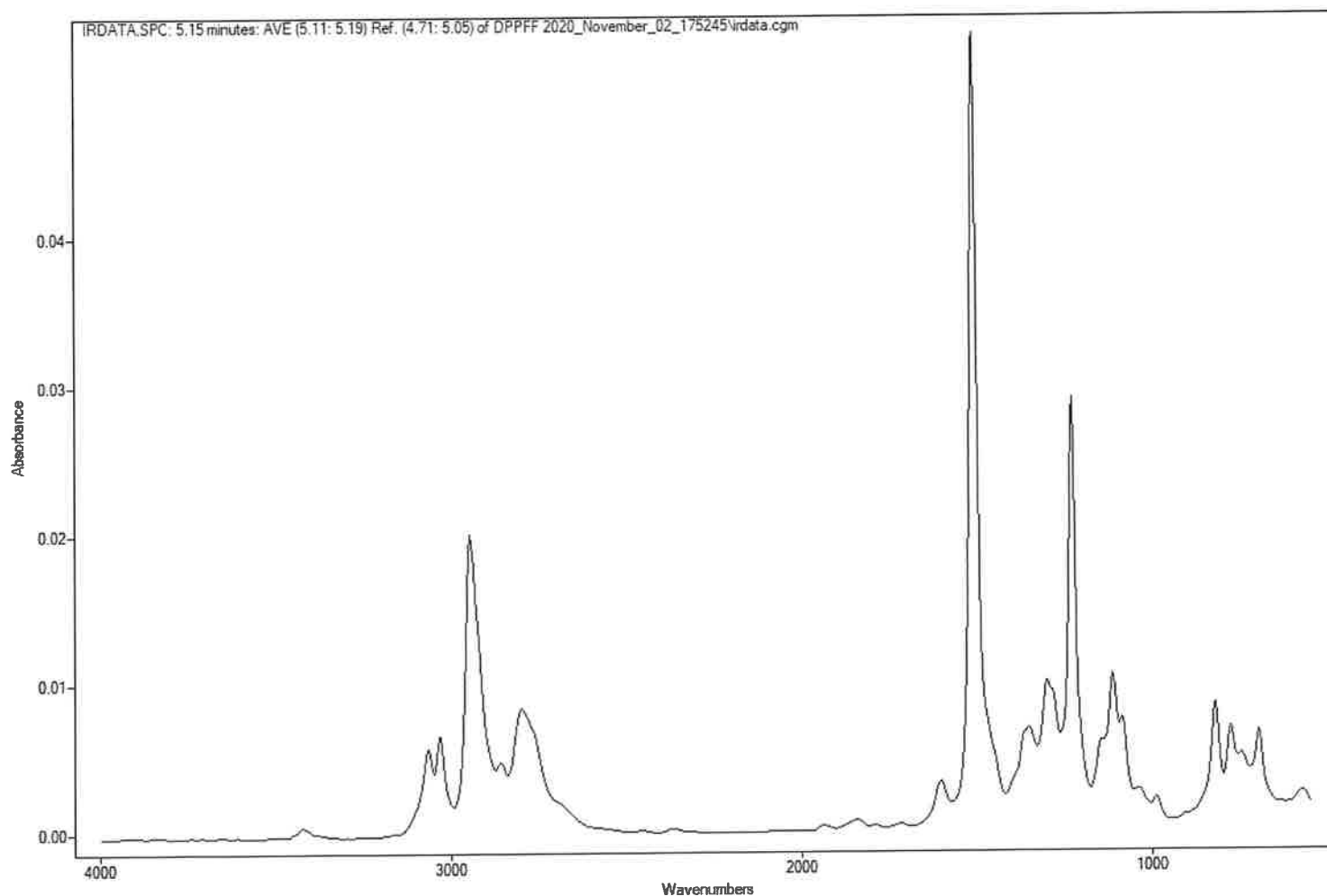
IRDATA.SPC: 5.89 minutes: AVE (5.84: 5.93) Ref. (5.35: 5.75) of DES P-FLUOROFENTANYL EXT 2021_September_30_033255.cgm

Despropionyl P-Fluorofentanyl

pk 9-3021

Instrument: Gandalf
Data: N:\RD DATA\DPPFF 2020_November_02_175245\RDdata.SPC
Library: FSCIRD2013

Analyst: Kevin Kramer
Date Printed: 12/04/2020

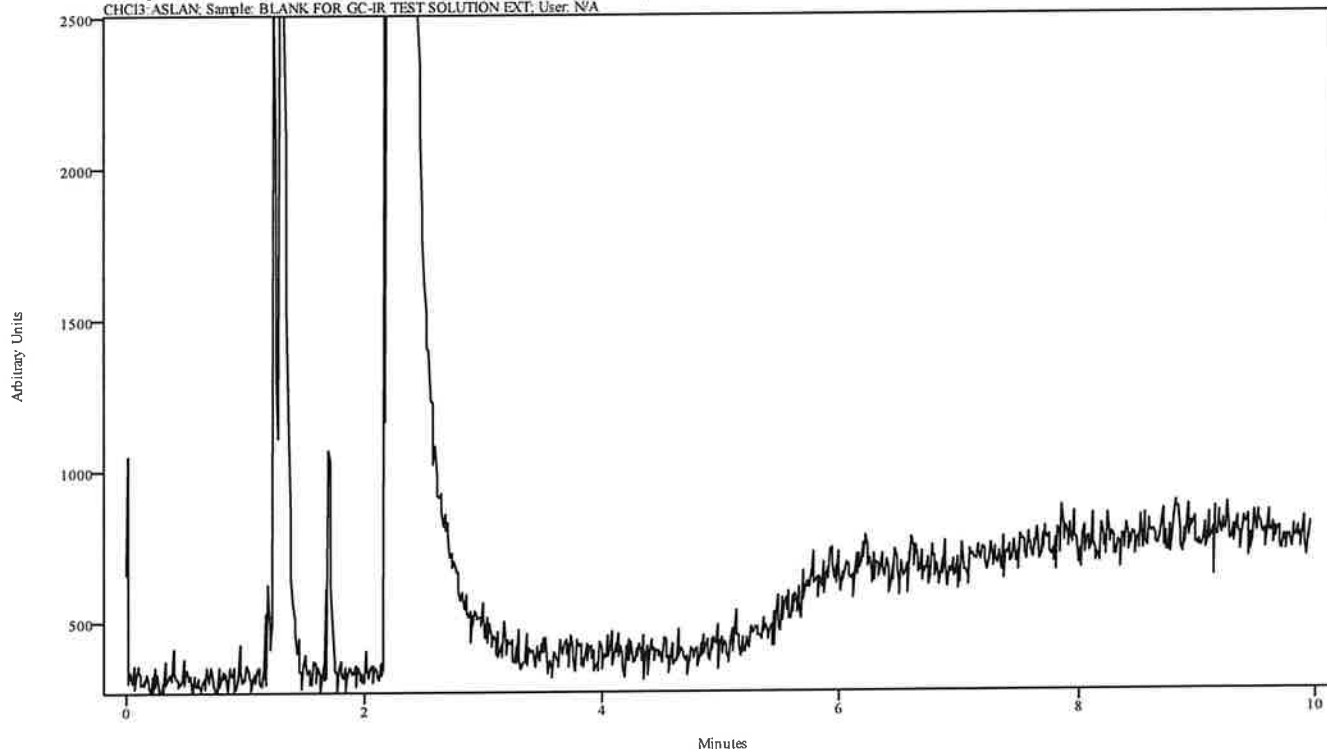


CHK 9/30/21

IRD Data Analysis Report

Data Filename	BLANK FOR GC-IR TEST SOL EXT 2021_September_30_035528
Data Path	C:/ASAP DATA/Aslan 2021/RH/IRD3 EXTENDED METHOD STANDARDS
IRD Method	IRD3 EXT
GC Method	60TO270
GC Vial	112
Sample Name	BLANK FOR GC-IR TEST SOLUTION EXT Exp 3/22
Misc. Info	CHCl3:ASLAN
User ID	N/A
Injection Time	Thu Sep 30 04:11:17 2021
Date Processed	Thu Sep 30 08:50:54 2021

irdata.cgm: BLANK FOR GC-IR TEST SOL EXT 2021_September_30_035528; Misc. Info: CHCl3:ASLAN; Sample: BLANK FOR GC-IR TEST SOLUTION EXT; User: N/A

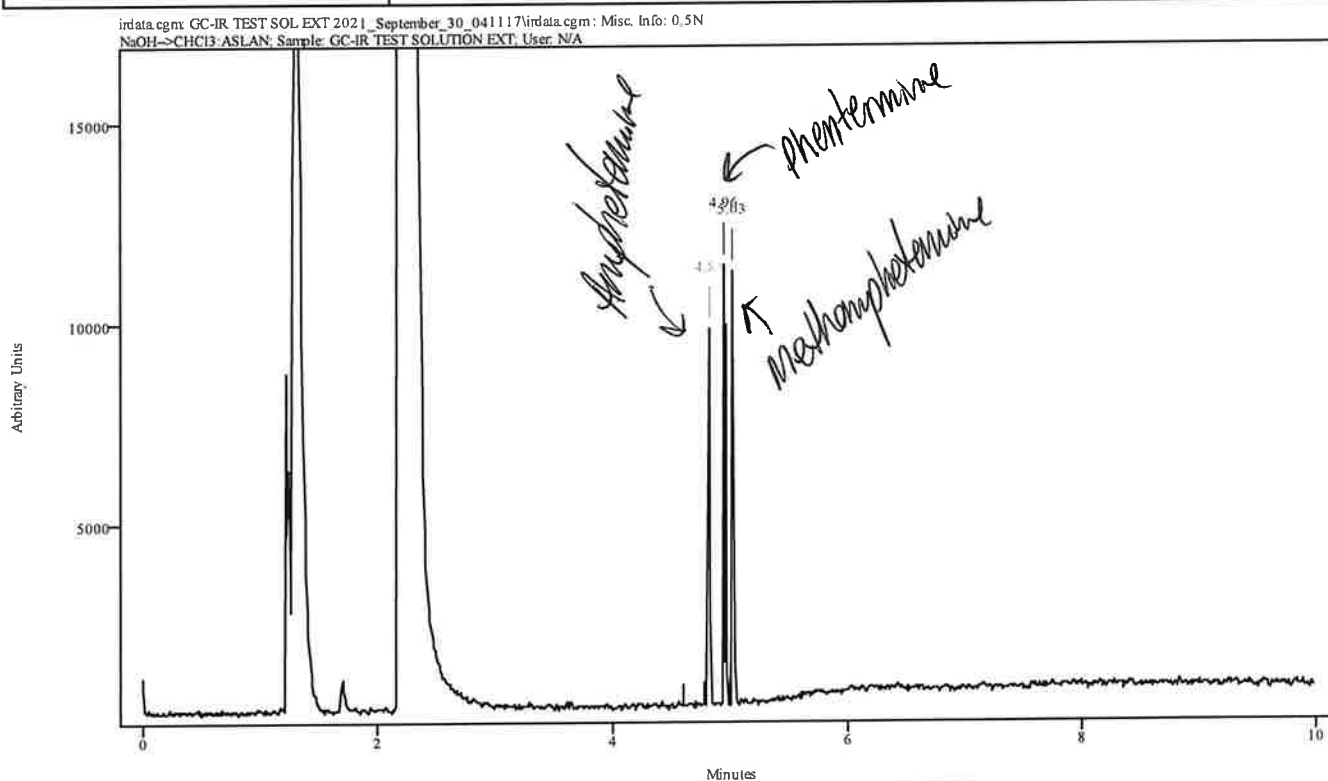


Peak Start	Peak End	Peak Width	Reference Start	Reference End
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IRD Data Analysis Report

WA 93021

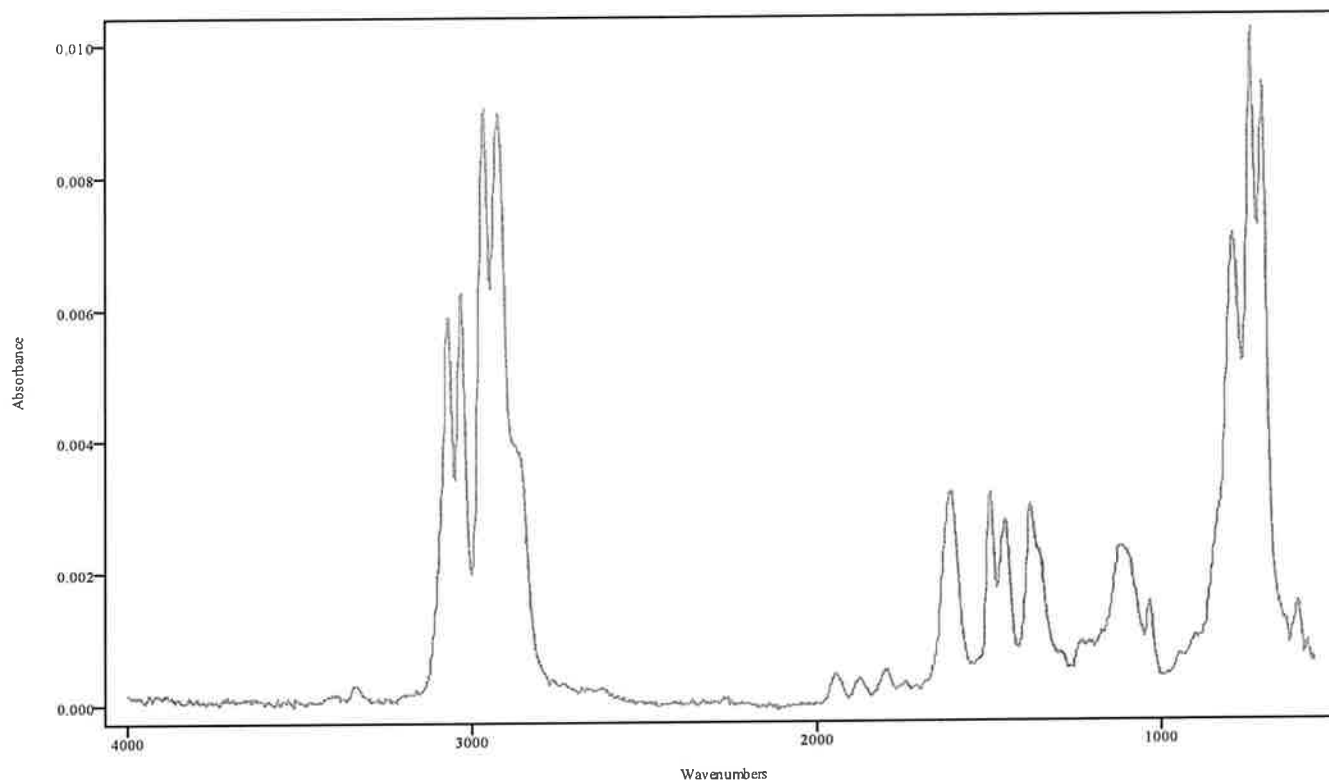
Data Filename	GC-IR TEST SOL EXT 2021_September_30_041117
Data Path	C:/ASAP DATA/Aslan 2021/RH/IRD3 EXTENDED METHOD STANDARDS
IRD Method	IRD3 EXT
GC Method	60TO270
GC Vial	109
Sample Name	GC-IR TEST SOLUTION EXT
Misc. Info	0.5N NaOH-->CHCl3:ASLAN
User ID	N/A
Injection Time	Thu Sep 30 04:26:28 2021
Date Processed	Thu Sep 30 11:02:11 2021



Peak Start	Peak End	Peak Width	Reference Start	Reference End
4.805	4.838	0.033	4.606	4.783
4.948	4.981	0.033	4.606	4.783
5.014	5.048	0.033	4.606	4.783

UH 9/30/21

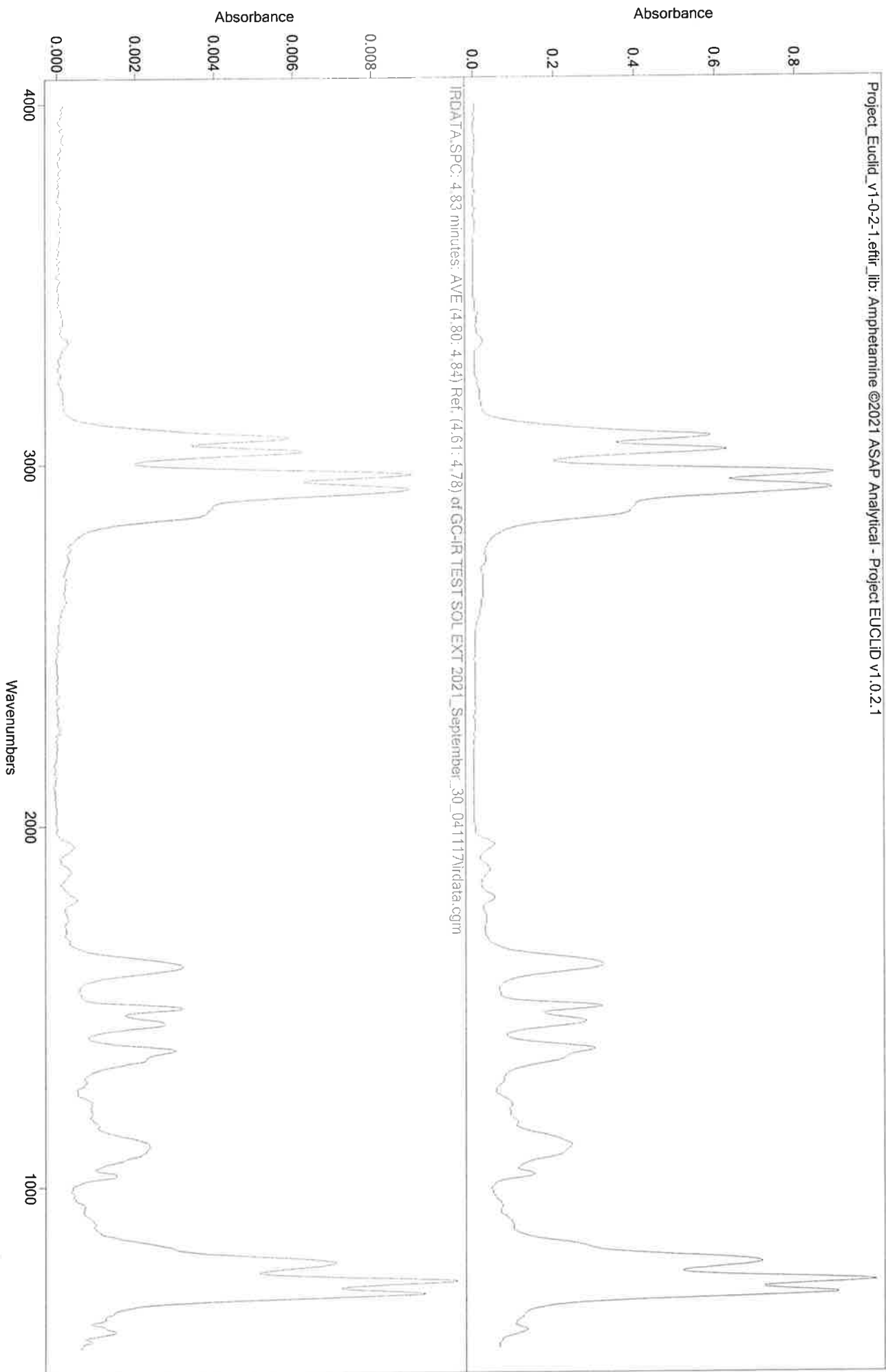
Data Filename	GC-IR TEST SOL EXT 2021_September_30_041117
Data Path	C:/ASAP DATA/Aslan 2021/RH/IRD3 EXTENDED METHOD STANDARDS
IRD Method	IRD3 EXT
GC Method	60TO270
GC Vial	109
Sample Name	GC-IR TEST SOLUTION EXT
Misc. Info	0.5N NaOH-->CHCl3:ASLAN
User ID	N/A
Injection Time	Thu Sep 30 04:26:28 2021
Date Processed	Thu Sep 30 11:02:11 2021



IRDATA.SPC: 4.83 minutes: AVE (4.80: 4.84) Ref. (4.61: 4.78) of GC-IR TEST SOL EXT 2021_September_30_041117.cgm

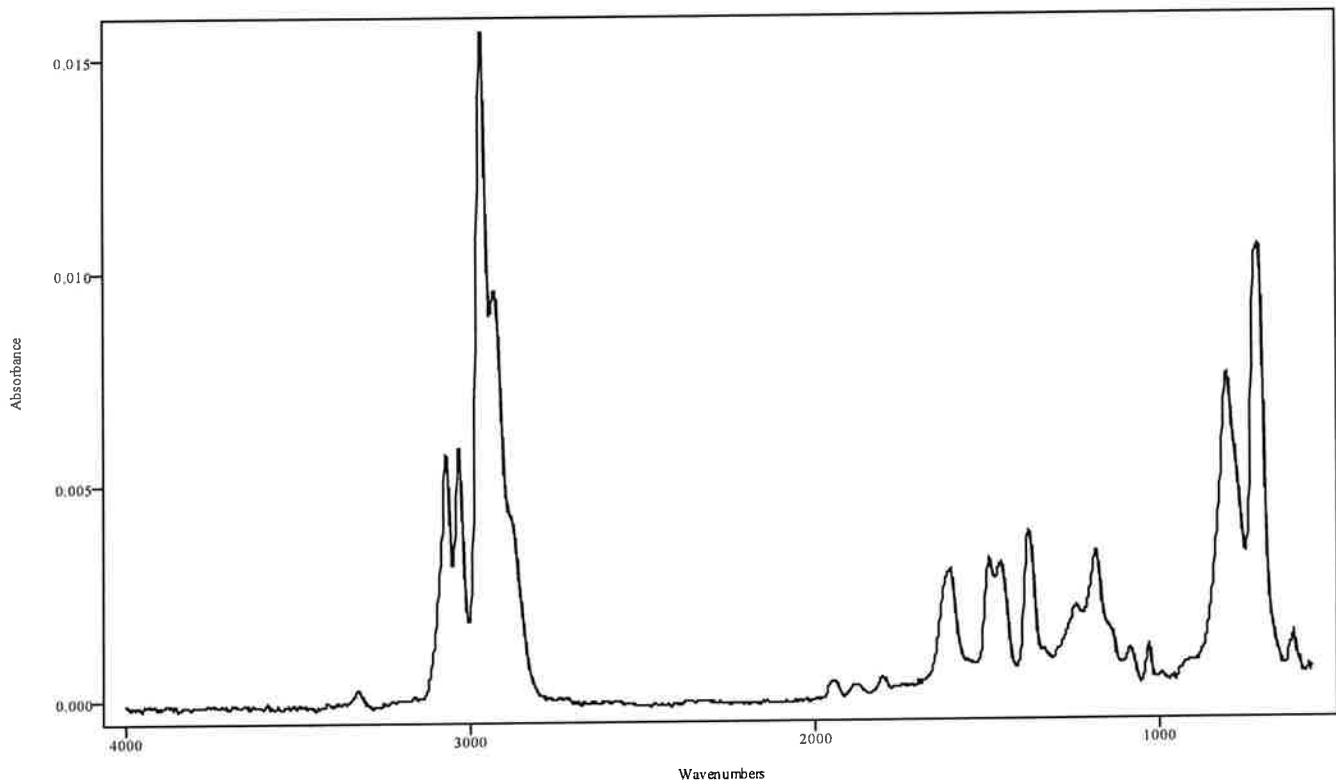
Amphetamine

44 9-30-21



MA 9-30-21

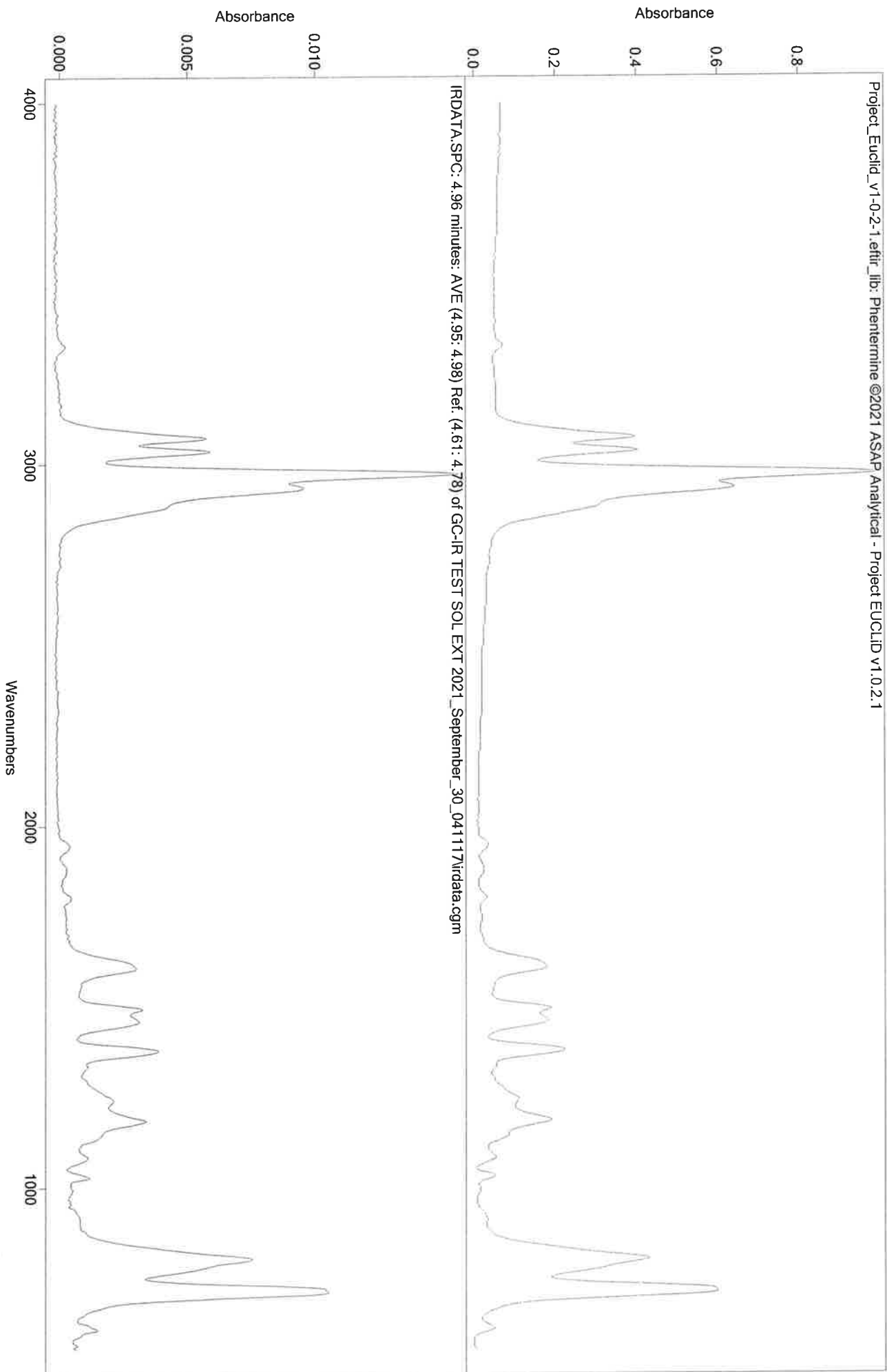
Data Filename	GC-IR TEST SOL EXT 2021_September_30_041117
Data Path	C:/ASAP DATA/Aslan 2021/RH/IRD3 EXTENDED METHOD STANDARDS
IRD Method	IRD3 EXT
GC Method	60TO270
GC Vial	109
Sample Name	GC-IR TEST SOLUTION EXT
Misc. Info	0.5N NaOH-->CHCl3:ASLAN
User ID	N/A
Injection Time	Thu Sep 30 04:26:28 2021
Date Processed	Thu Sep 30 11:02:11 2021



IRDATA.SPC: 4.96 minutes: AVE (4.95: 4.98) Ref. (4.61: 4.78) of GC-IR TEST SOL EXT 2021_September_30_041117.cgm

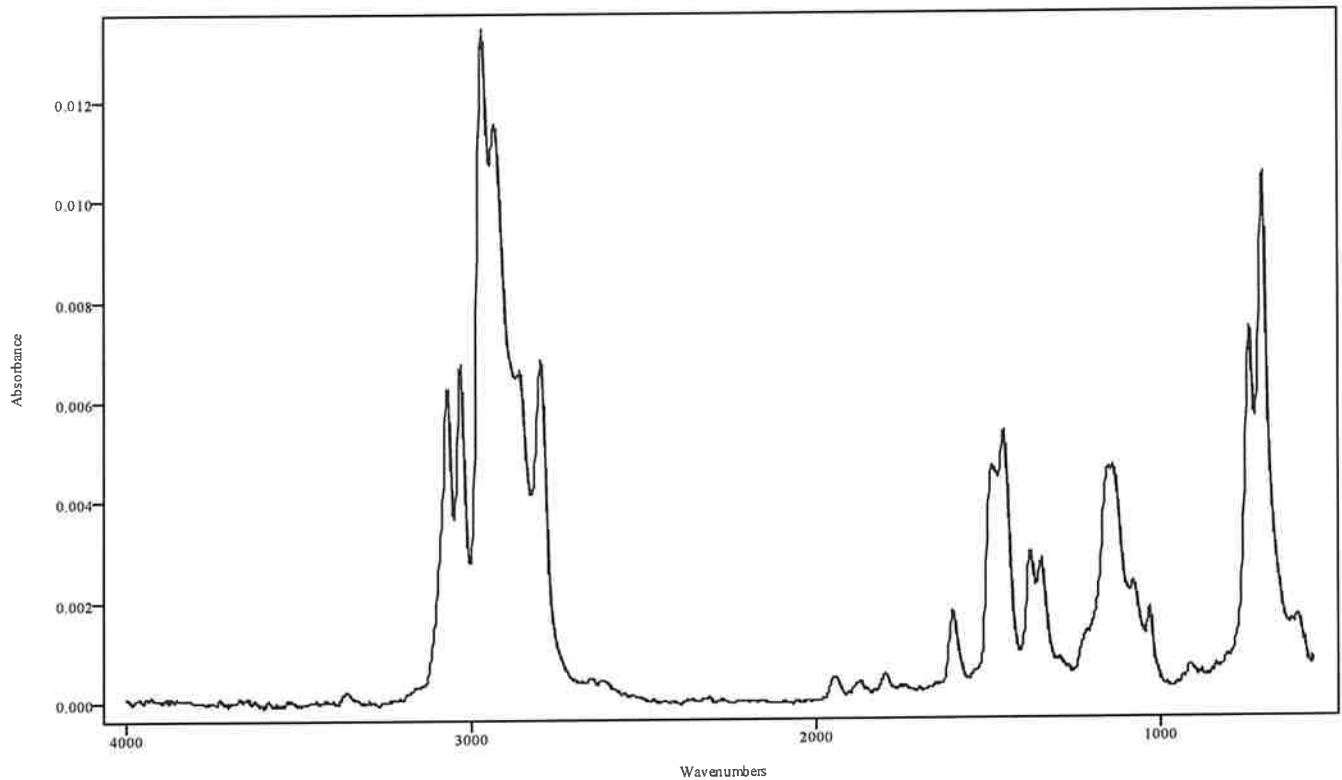
phentermine

09/30/21



9-30-21

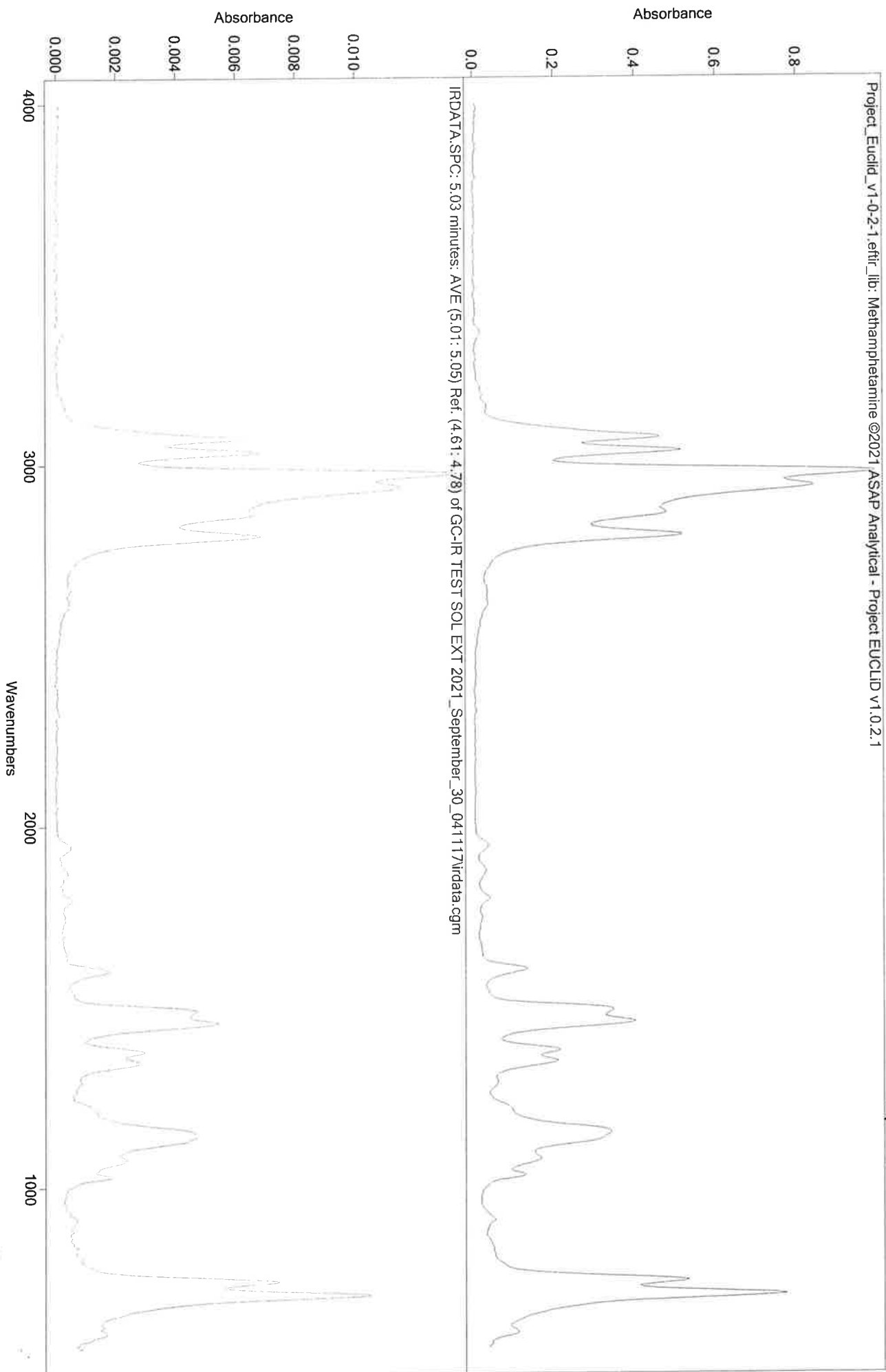
Data Filename	GC-IR TEST SOL EXT 2021_September_30_041117
Data Path	C:/ASAP DATA/Aslan 2021/RH/IRD3 EXTENDED METHOD STANDARDS
IRD Method	IRD3 EXT
GC Method	60TO270
GC Vial	109
Sample Name	GC-IR TEST SOLUTION EXT
Misc. Info	0.5N NaOH-->CHCl3:ASLAN
User ID	N/A
Injection Time	Thu Sep 30 04:26:28 2021
Date Processed	Thu Sep 30 11:02:11 2021



IRDATA.SPC: 5.03 minutes: AVE (5.01: 5.05) Ref. (4.61: 4.78) of GC-IR TEST SOL EXT
2021_September_30_041117.cgm

Methamphetamine

MA 9-30-21

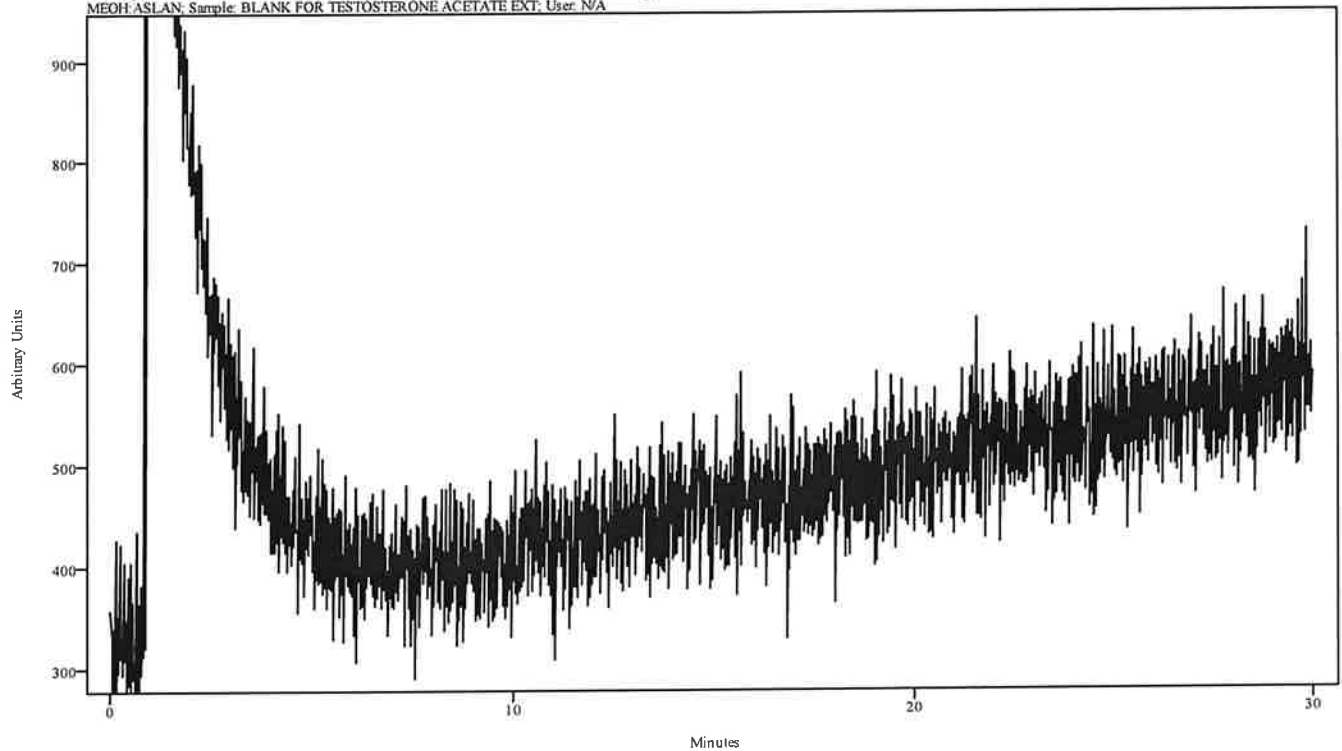


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IRD Data Analysis Report

Data Filename	BLANK FOR TESTOST ACETATE EXT 2021_September_30_042628
Data Path	C:/ASAP DATA/Aslan 2021/RH/IRD3 EXTENDED METHOD STANDARDS
IRD Method	IRD3 EXT
GC Method	ISO270(30MIN)
GC Vial	111
Sample Name	BLANK FOR TESTOSTERONE ACETATE EXT
Misc. Info	MEOH:ASLAN
User ID	N/A
Injection Time	Thu Sep 30 05:01:43 2021
Date Processed	Thu Sep 30 08:52:49 2021

indata.cgm: BLANK FOR TESTOST ACETATE EXT 2021_September_30_042628indata.cgm: Misc. Info:
MEOH:ASLAN, Sample: BLANK FOR TESTOSTERONE ACETATE EXT, User: N/A



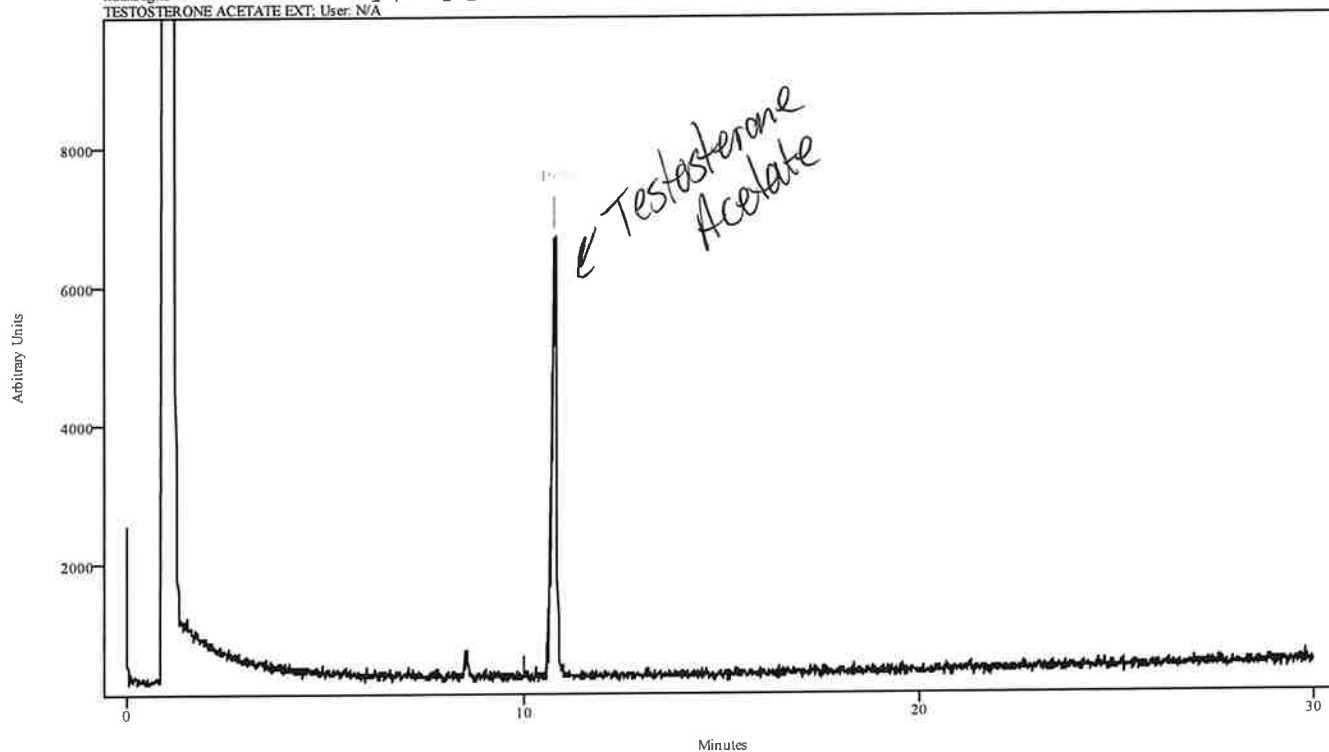
Peak Start	Peak End	Peak Width	Reference Start	Reference End
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9-30-21

IRD Data Analysis Report

Data Filename	TESTOST ACETATE EXT 2021_September_30_050143
Data Path	C:/ASAP DATA/Aslan 2021/RH/IRD3 EXTENDED METHOD STANDARDS
IRD Method	IRD3 EXT
GC Method	ISO270(30MIN)
GC Vial	110
Sample Name	TESTOSTERONE ACETATE EXT
Misc. Info	MEOH:ASLAN
User ID	N/A
Injection Time	Thu Sep 30 05:34:20 2021
Date Processed	Thu Sep 30 08:53:20 2021

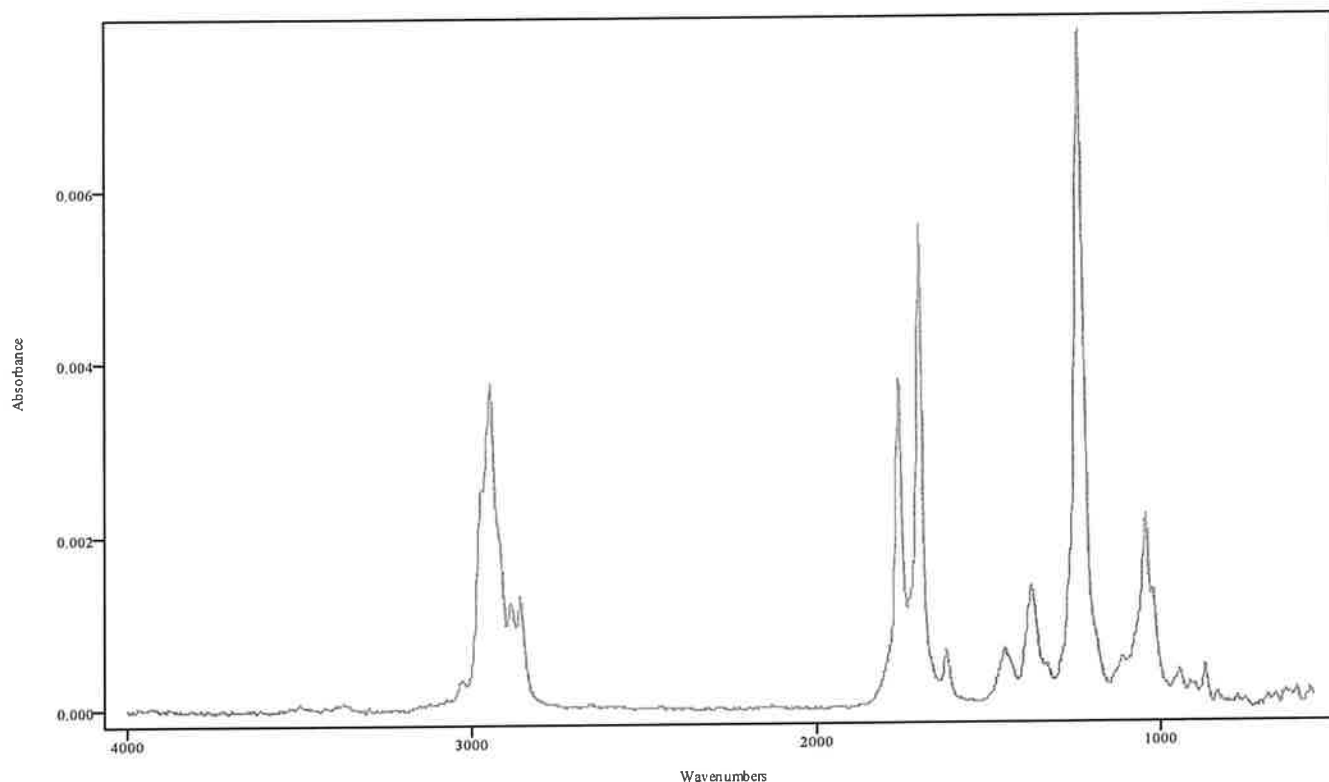
indata.cgm: TESTOST ACETATE EXT 2021_September_30_050143\indata.cgm : Misc. Info: MEOH:ASLAN; Sample: TESTOSTERONE ACETATE EXT; User: N/A



Peak Start	Peak End	Peak Width	Reference Start	Reference End
10.715	10.848	0.132	9.998	10.572

9-30-21

Data Filename	TESTOST ACETATE EXT 2021_September_30_050143
Data Path	C:/ASAP DATA/Aslan 2021/RH/IRD3 EXTENDED METHOD STANDARDS
IRD Method	IRD3 EXT
GC Method	ISO270(30MIN)
GC Vial	110
Sample Name	TESTOSTERONE ACETATE EXT
Misc. Info	MEOH:ASLAN
User ID	N/A
Injection Time	Thu Sep 30 05:34:20 2021
Date Processed	Thu Sep 30 08:53:20 2021



IRDATA.SPC: 10.80 minutes: AVE (10.72: 10.85) Ref. (10.00: 10.57) of TESTOST ACETATE EXT 2021_September_30_050143.cgm

Testosterone Acetate

UH 9-30-21

