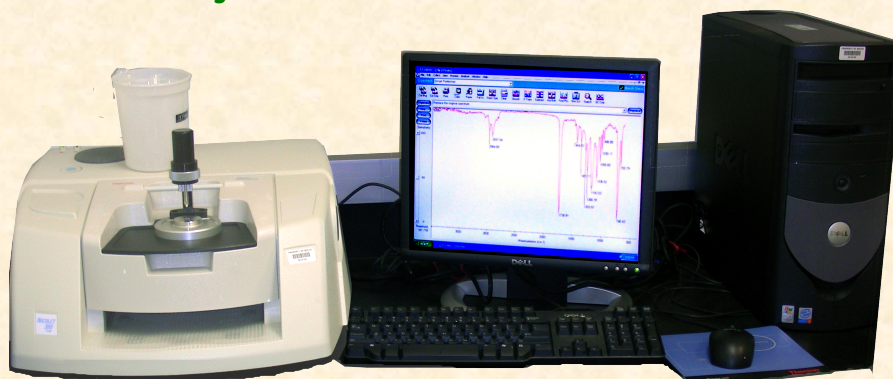


Standard Operation Procedures for Thermo Nicolet® FTIR-ATR

Chemistry Department
Miramar College



October 30, 2010

SOP for Thermo Nicolet® FTIR-ATR, (Dr. Fred O. Garces using the original SOP by Dr. Linda Woods)

1

Precautions

- Remove gloves when operating the computer keyboard and mouse
- Remove your sample from the ATR, by using a Kimwipe® that is damped with acetone.
- Don't forget to clean the plunger, if it made contact with your sample.
- **DONOT** squirt acetone directly on the platform **EVER!!!**

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2

Quick Overview

I. Running a sample

1. Turn on the computer. The spectrometer should be on the entire time line
2. Launch **EZ OMNIC** on the desktop.
3. Make sure the bench Status is \checkmark on the top right corner of the window. If it is not, please inform your instructor or the lab tech.
4. Make sure that there isn't anything left on the ZnSe crystal.
5. The Experiment: window should also read {Smart Performer}.
6. Do not change any of the parameters without instructor's permission.
7. Click on **Col Bkg** to take a background of air. When the confirmation window pops up, click **YES**.
The number of scan on the left bottom corner should increase as the spectrometer is recording your background.
8. When the confirmation window pops up to ask to add Window 1, click **NO**.
9. Place your sample on the ZnSe crystal-
Liquids - place a drop of sample on the ZnSe crystal with a medicine dropper.
Solids - place a small neat sample on the ZnSe crystal with a spatula. Dial the knob of the ATR until the pressure reads 12.
10. Click on **Col Smp**, Collect Sample Window pops up, type in "sample name" and enter, confirmation window pops up, click **YES**. The number of scan on the left bottom corner should increase as the spectrometer is recording your sample.
11. When the confirmation window pops up to add Window 1, click **YES**.

II. Working up the Data

12. To have peaks labeled, Click **Find Pks**. Adjust the threshold by clicking on the window with the left mouse button. When peaks are selected, Click on "**Replace**".
13. If for some reason some of the peaks are not labeled, extra peaks can be manually labeled by clicking on the "**T**" on the bottom left corner. Use the "**Text**" too to select and or write a label or description.
14. If satisfied with the information on the computer displaced spectrum, then **WYSIWYG** can be printed by clicking on Print icon and then print again in the print window.

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3

I. Running a Sample

1. Sign log book, turn on the computer.



Computer
on/off
switch is
found in
front of
computer

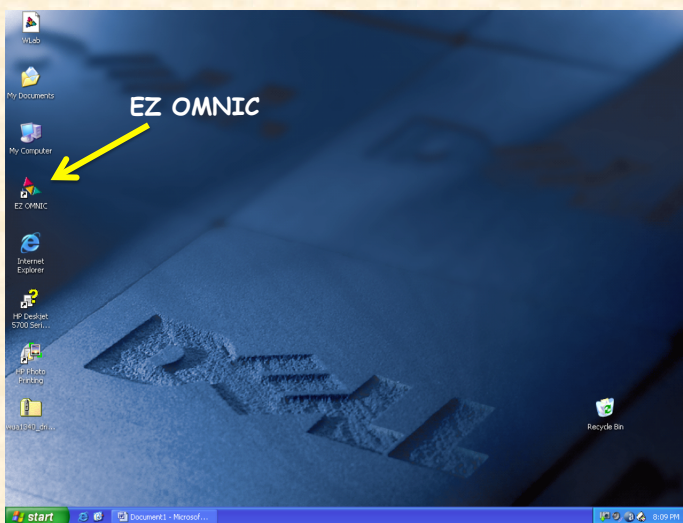
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4

I. Running a Sample ...continue

2. Launch **EZ OMNIC** on the desktop.
The spectrum should be on the entire timeline



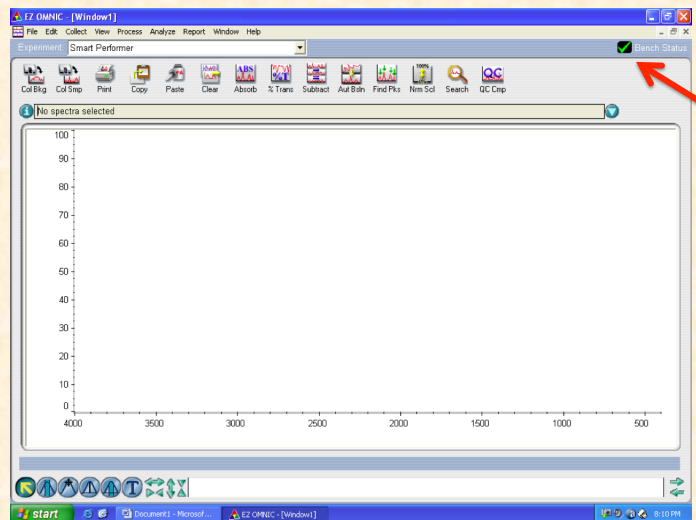
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5

I. Running a Sample ...continue

3. Make sure the bench Status is \checkmark on the top right corner of the window.
If it is not, please inform your instructor or the lab tech.

Status
indicator

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6

I. Running a Sample ...continue

4. Make sure that there isn't anything left on the ZnSe crystal.



ZnSe crystal sample holder, should be clean and empty

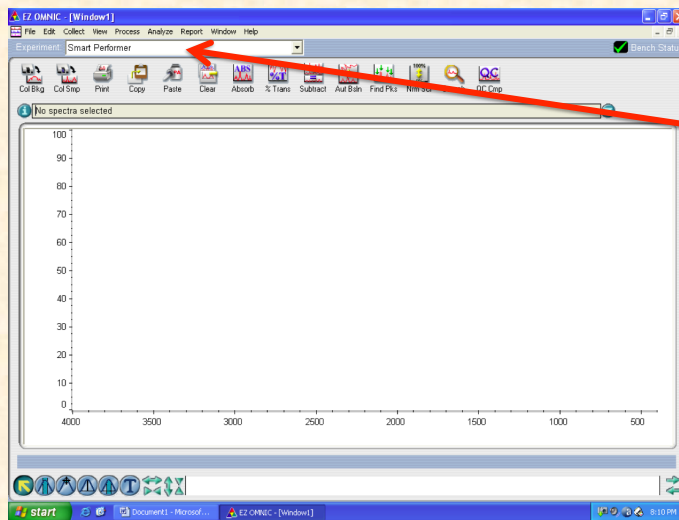
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7

I. Running a Sample ...continue

5. The Experiment: window should also read {Smart Performer}.



Window reading {Smart Performer}

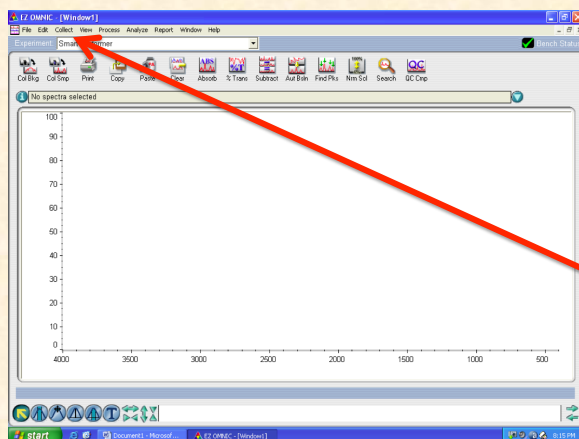
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8

I. Running a Sample ...continue

- 6 Do not change any of the parameters without instructor's permission. In general, parameters that may be varied to optimize spectrum are-
[Collection] this parameter determines how many scans are collected.
[Experimental Setup] this parameter changes the resolution.



Collect
button

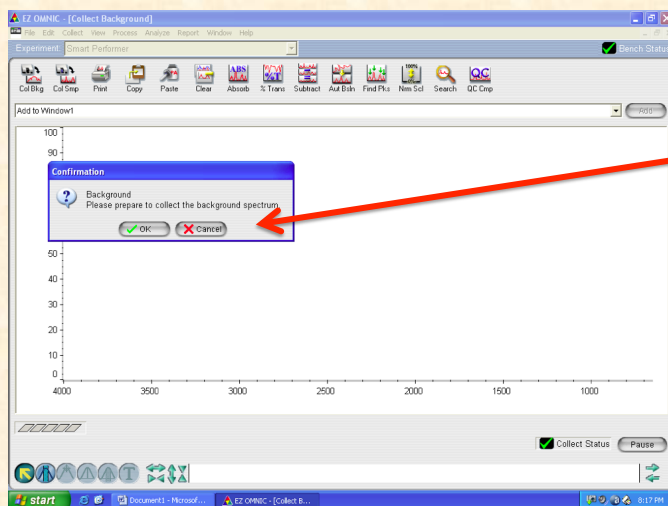
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9

I. Running a Sample ...continue

7. Click on **Col Bkg** to take a background of air. When the confirmation window pops up, click **YES**.



Confirmation
window, to
collect
background,
Click on
YES.

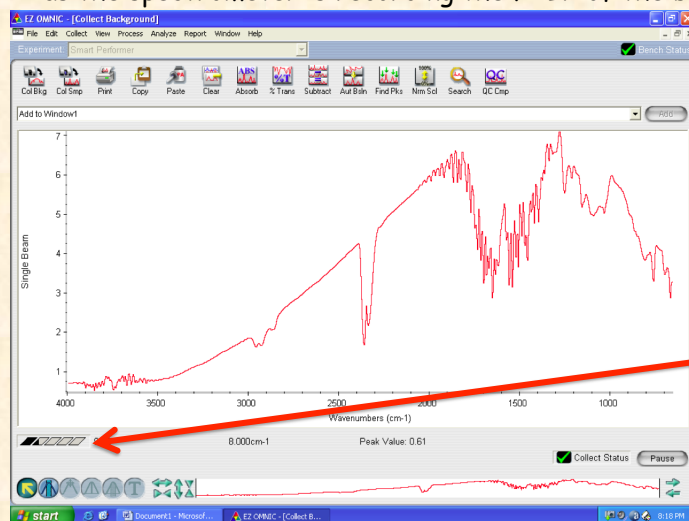
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10

I. Running a Sample ...continue

7b. The number of scan on the left bottom corner should increase as the spectrometer is recording the FTIR of the background.



Number of scan increase.

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11

I. Running a Sample ...continue

8. When the confirmation window pops up to ask to add Window 1, click **NO**.



Confirmation window, to add new window, Click on **NO**.

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12

I. Running a Sample (Liquid)...continue

9a. Place liquid sample directly on the ZnSe crystal-
Liquids -place a drop of sample on the ZnSe crystal with a medicine dropper.



Place drop of neat liquid sample directly on ZnSe crystal.

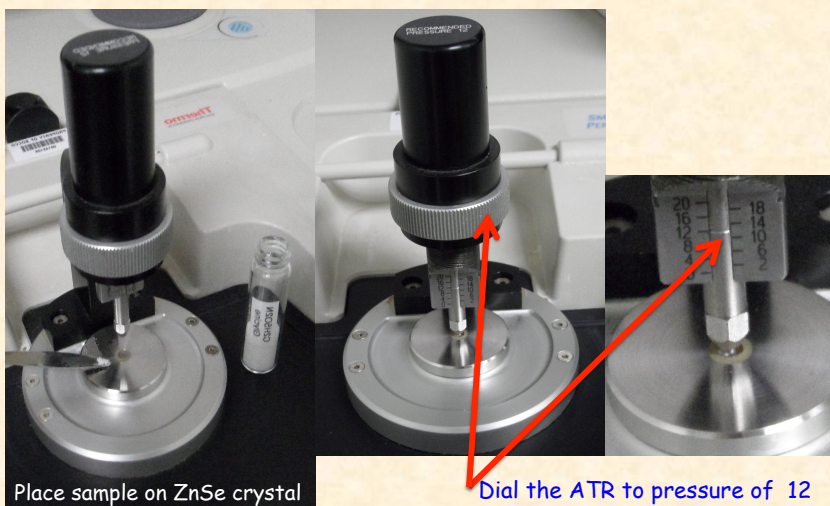
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13

I. Running a Sample (solid) ...continue

9b. Place solid sample directly on the ZnSe crystal-
Solids - place a small neat sample on the ZnSe crystal with a spatula.
Dial the knob of the ATR to the solid sample until the pressure reads 12.



Place sample on ZnSe crystal

Dial the ATR to pressure of 12

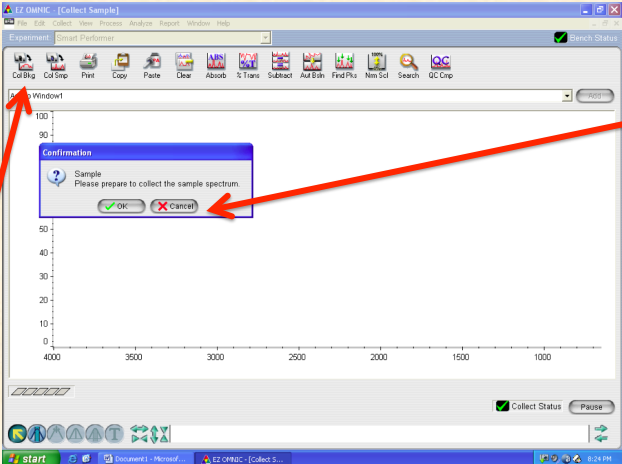
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14

I. Running a Sample ...continue

9c. After placing sample on ZnSe crystal, Click on **Col Smp**, Click on **OK** in confirmation window to proceed to record spectrum.



Click on **Col Smp**

After preparing sample and placing on ZnSe crystal, collect spectrum window, Click on **Yes**

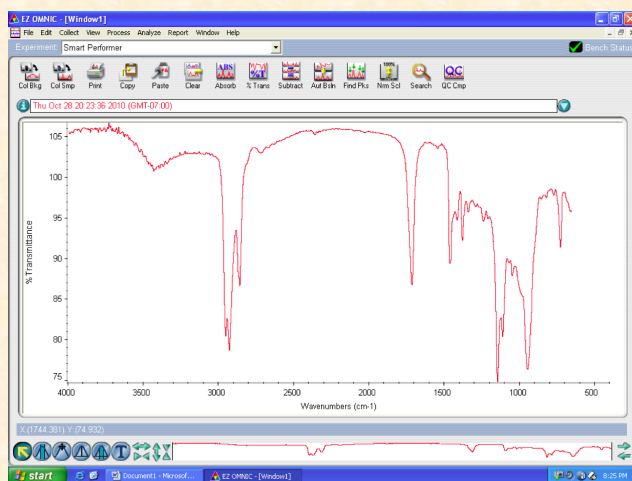
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15

I. Running a Sample ...continue

9d Spectrometer records IR spectrum of sample. As spectrum collects, the number of scan on the left bottom corner should increase as the spectrometer is recording your sample.



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16

I. Running a Sample ...continue

10. After spectrum collection complete, Collect Sample Window pops up, type in "sample name" and enter. Confirmation window pops up next, click **YES**.

11. When the confirmation window pops up to add Window 1, click **YES**.

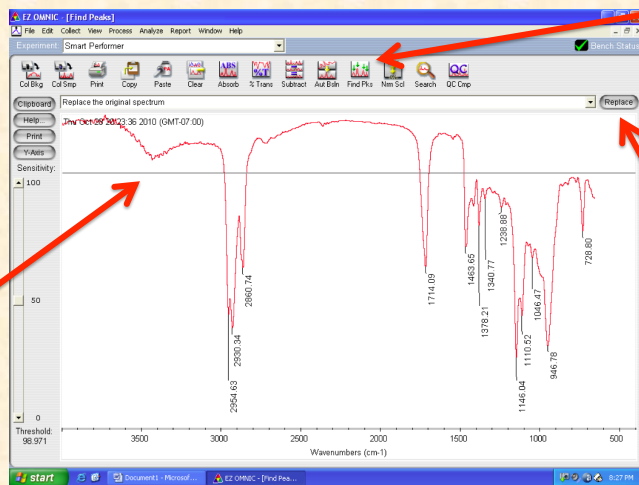


Data collection has stopped, Open a new window.

Click "OK"

II. Working up the Data

12. To have peaks labeled, Click **Find Pks**. Adjust the threshold by clicking on the window with the left mouse button. When peaks are selected, Click on "**Replace**".



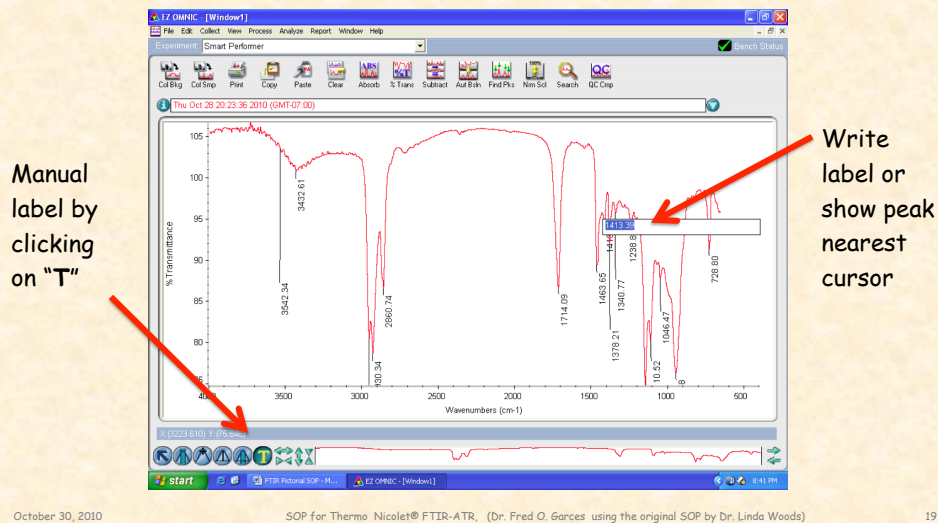
1. Click Find Pks

2. Adjust threshold for peak labeling

3. When peaks are selected, click on "Replace"

II. Working up the Data ...continue

13. If some of the peaks are not labeled, extra peaks can be manually labeled by clicking on the "T" on the bottom left corner. Use the "Text" too to select and or write a label or description.



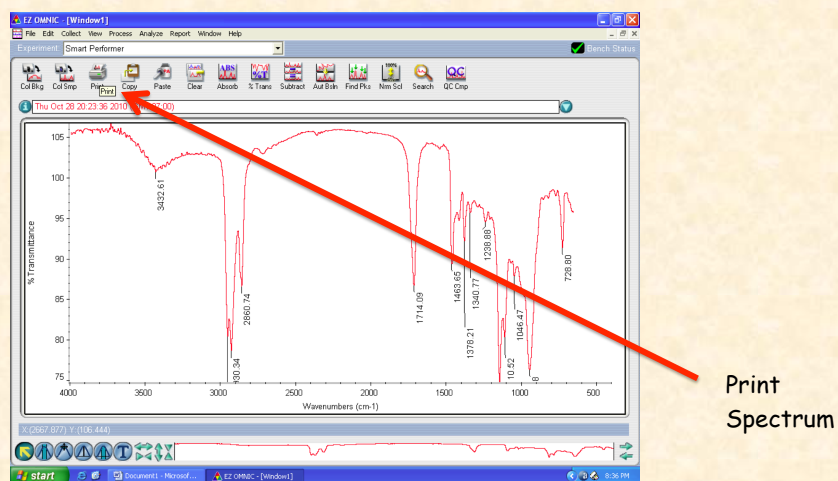
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19

II. Working up the Data ...continue

14. If satisfied with the information on the computer displaced spectrum, then WYSIWYG can be printed by clicking on Print icon and then print again in the print window.



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20

III. Clean up spectrometer

15 Remove your sample from the ATR, by using a Kimwipe® that is damped with acetone.

DO NOT squirt acetone directly on the platform EVER!!!

Don't forget to clean the plunger, if it made contact with your sample.



Clean ZnSe crystal and plunger with acetone damped Kimwipe.



Place spent Kimwipe in designated waste container

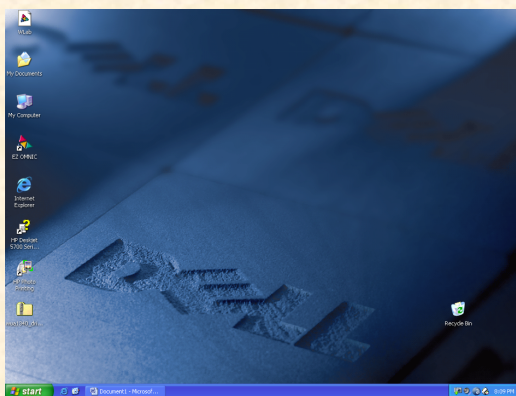
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21

III. Shut down

- Turn off EZ OMNIC program if no one else will be using instrument.
- Signoff log book.
- Do not turn off computer however, your instructor will do this.



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22