

FT-IR Manual

I. Sign Up

Log on FOM system.

II. Transmission, ATR, and DRIFT measurement

1. Cool MCT detector with liquid N2 for 30 min if you use ATR or DRIFT.
2. Start the "OMNIC" software.
3. Watch the bench status indicator on the upper right of "OMNIC" window.
4. If the indicator is a green check mark " Bench Status", the spectrometer has passed all the diagnostic tests. If the indicator is a red "X", the spectrometer has failed a diagnostic test. Try to recycle the power of the instrument.
5. Select an experimental file from the drop-down list box of  so that you can quickly set all the software parameters for different types of data collection.
For example,
"Transmission E.S.P. (Enhanced Synchronous Protocol)" for regular transmission spectroscopy
"MCT 4cm-1 ARK (Attenuated Reflectance Kit)" for ATR spectroscopy
"DRIFTS-Nexus Smart Collector" for Diffuse Reflectance Infrared Fourier Transform Spectroscopy (DRIFT)
6. Make sure the base plate in the sample compartment of the spectrometer is correct. The default base plate is for transmission. The ATR accessory is in the box next to the monitor. When installing the ATR kit, don't forget to connect the purge tube. The DRIFT kit is the lower cabinet.
7. Open the "experiment set-up" window under the "collect" menu. And set up the parameters as shown in the following table.

	Experimental parameters	Transmission	ATR	DRIFT
In "collect" page	No. of scan	64	64	64
	Resolution	8	8	8
	Final format	Absorbance or %transmittance	Log(1/R) or %Reflectance	Absorbance or %transmittance
	Correction	None	None	None
	Background handling	Collect background after 0 min	Collect background after 0 minutes	Collect background after 0 minutes
In "bench" page	Gain 1	Auto gain	Auto gain	Auto gain
	Sample compartment	Main	Main	Main
	Detector	DTGS TEC	MCT/A	MCT/A
	Accessory	Transmission E.S.P.	ATR	DRIFT

8. Under the tab of "Bench". If the interferogram shows a flat line, click the " Reset Bench" button under the tab of "diagnostic" page. If the interferogram becomes fine, go to next step.
9. Under the "window" menu, choose "new window".
10. Click the "collect background" button to collect the background. For transmission and ATR, collect background of air; for DRIFT, collect background of KBr. And then a single beam preview will appear. Subsequently click the  button on the upper right of window to start the acquisition of background.

11. Load your sample
12. Click the "collect sample" button  for data collection
13. The collect-sample window appears and then a dialogue box shows the default title for the sample spectrum. You can type a desired title, too. This title is not a file name.
14. When all the sample data have been collected, a message window will pop up. You can click  to add the acquired spectrum to the spectral window.
15. Choose "**save as**" under the "**file**" menu to save the spectrum to the folder in C:\FT-IT-users. Please select ".SPA" format to save all the information of raw data.

III. Data Analysis

1. Function of some buttons:

Click the  button to review the collection and processing information of your spectrum data

Click  to convert the spectrum to %transmittance units.

Click  to convert the spectrum to absorbance units.

Click  to normalize the Y scale.

Click  to zoom in the spectrum.

Click  to zoom out the spectrum.

Click  or  to shift the spectrum

2. Automatic Baseline Correct

"**Automatic Baseline Correct**" in the "**Process**" menu lets you automatically correct the tilted baselines of the selected spectra (see the example below), with the baseline points selected by the software.

3. If the baseline is severely tilted, this means that a KBr pellet was made with coarsely ground KBr powder, or the KBr pellet was improperly pressed. Make the pellet again using adequately fine powder.

4. Automatically label peaks

In the "**Analyze**" menu, select "**find peaks**" to find peaks.

5. Unit conversion

If you want to change the X-axis unit to "nanometer" from " cm^{-1} ", firstly click the desired spectrum curve to make it active, and then click "**other conversions**" under the "**process**" menu, subsequently select "**nanometer**".

6. ATR correction

In the "**process**" menu, click "**other correction**". Then a small window will pop up. Select "**ATR**" in the drop-down menu, and subsequently click the "**OK**" button.

7. Export data

Select the spectrum by clicking it (The spectrum will become red after you have selected it).

Choose "**save as**" under the "**file**" menu, then save as your file to the ".CSV" format, which can be opened by Microsoft EXCEL or ORIGIN. If you save as your file to the ".tif" format, you can export the spectrum as an image.

IV. Ending Experiments

1. Exit the " OMNIC" software.
2. Take your sample out of the sample compartment.
3. Clean up the Press kit, ATR crystal, or DRIFT sample holder if you have used it.
4. Put all the stuff to the original location.
5. Log off on FOM

Note: Don't shut down the power of the spectrometer.