

Quick Guide to Taking FTIR Samples

May 20, 2010 Fred Nytko III

The spectrometers should always be on, along with their respective workstations.

Click on the icon for **Omnice ESP**. Be sure to consult the Help menu in Omnic ESP for more detailed information beyond the scope of this quick guide.

There should be a green check mark and the words **Bench Status**, which shows that the interferometer and the computer are connected and the optics are working properly. If there is no icon, there is no communication between the computer and interferometer. Sometimes there is a short delay while the system initializes.

Go to **Collect >> Experimental Setup** to set the number of scans, default 32, resolution default 4, whether you'll be analyzing absorbance or transmission, correction for CO₂, and other options. The system is usually set up for a simple transmission experiment.

Background:

Before collecting your sample, you must collect a background spectrum first, which will subtract any unwanted residual peaks from your sample spectrum. Place your sample cell filled with **ONLY** your solvent, most likely carbon tetrachloride, in the sample holder. Choose **Collect Background** from the **Collect Menu**, or click on the **Collect Background** button on the toolbar.

When the collection is completed, you can save the background to a window if you want it available later for a background handling option, or simply close the Collect Background window. The spectrum will not be saved then, but will be subtracted from your sample spectrum.

Sample:

Remove the "blank" cell and install your sample cell in the light path, taking care not to spill your sample or solvent inside the sample chamber. The red laser spot will serve to locate the measurement path.

* * Avoid looking at reflections from this and the invisible infrared beam. * *

Select **Collect Sample** in the **Collect Menu**, or click on the **Collect Sample** button on the toolbar to collect the spectrum of your sample. You can follow the progress of your experiment using the progress indicator bar on the lower left-hand side of the screen. Once complete, the spectrum of your sample will be displayed, with the background spectrum already subtracted. This eliminates the background characteristics of the spectrometer, sample cell, and solvent, so that the peaks in your final spectrum are due solely to your sample. You can use the **Analyze** section to analyze your spectrum or compare it to several libraries of spectra stored on the hard drive. See the longer instructions in the spectrometers binder or use the Omnic Help Menu for further information.

Write your name and other information in the Logbook located in the IR room.

Contact Fred Nytko (x 51889, room 2109) for help with general sample collection, and please notify Scott Taylor (x 51806) of malfunctions with the instruments or workstations promptly.