

APPENDIX IX: OPERATION OF THE PERKIN-ELMER 1600 FOURIER-TRANSFORM INFRARED SPECTROPHOTOMETER

Instrument Start-Up

1. If the instrument is turned off, use the switch on the left side to turn it on. Increase the screen brightness with the knob behind the monitor. Then wait for the start-up diagnostic software to run. All diagnostic tests must be passed for the instrument to function properly. After the start-up diagnostic evaluations are complete, the spectrophotometer must warm up for approximately twenty minutes. Plan ahead!
2. If the instrument is turned on, increase the screen brightness with the knob behind the monitor. Press the blue **Enter** key to activate the software.

Instrument Use

1. If the instrument has just been turned on, press the **BACKG** action key, with no sample in the laser beam's path. A one-scan background spectrum will be obtained and stored in memory. This measurement need be done only once, upon instrument start-up. The spectral data is stored in RAM until the instrument is turned off.
2. If the instrument was already turned on and the **BACKG** action key is not visible on the monitor, a background spectrum is stored in RAM already. No new background spectrum need be obtained.
3. Place the sample in the sample holder. The laser beam should pass directly through the sample. (Caution: Do not look into the laser beam!) Close the door. Then press the **Survey** action key. The instrument will collect one scan, perform a Fourier transform of the data and subtract the background spectrum. The resultant infrared spectrum will appear on the monitor.
4. Use the arrow keys to move the spectrum right, left, up or down and to expand or contract it horizontally or vertically.
5. To peak-pick, press **Shift Vcursor**. Use the <- and -> arrow keys to position the vertical cursor over the absorption of interest. The wavenumber position of the cursor is displayed to the left of the spectrum under the word, "peaks." Write down the value for the absorption of interest. Repeat this process for each peak of interest. Then press **Shift Vcursor** again to make the cursor disappear.

6. Turn the Hewlett-Packard 7475A plotter on, if it is not turned on already. If no paper is positioned in the plotter, raise the locking lever on the right side of the plotter and insert a sheet of 8 1/2 x 11" paper lengthwise, flush left to the white horizontal line. Then lower the locking lever to secure the paper in the plotter.
7. Press the green **Plot** key on the spectrophotometer to plot the spectrum.
8. After the plot is finished, raise the locking lever on the plotter and remove the spectrum. Insert a fresh sheet of 8 1/2 x 11" paper and lock it in place for the next user.

Standby

1. Remove the sample and clean the salt plates. To do so, first wipe the plates with a Kimwipe. Then wet a paper towel with several drops of methanol and polish the plates on this towel. Finally, return the salt plates to a desiccator.
2. Use the knob behind the monitor to decrease the screen brightness.
3. Always leave the instrument turned on.