

OOIChem Software for Ocean Optics UV-VIS Spectrometers

We will use OOIChem Software to collect UV-Vis spectra and kinetics information (i.e., Absorbance vs. Time). This software can be found on the lab machines under the Chemistry/Ocean Optics folder. The following notes will help you properly set up the software for use in the lab.

1. The software sometimes has problems recognizing the hardware. The lab instructors or TAs can help troubleshoot or you can try the following.
 - a. Go to the Control Panel to Add Hardware. Step through each dialog box as they come up. When prompted, choose "I've already installed".
 - b. Once you've added the hardware, you need to tell the software it is there. Open OOIChem, go to Configure/Hardware and choose USB under A/D convertor type. Click OK.
 - c. Check that the software has recognized the hardware. Go to Configure/Spectrometer. Under "Serial #" there should be a recognizable value such as USB#### (not greek letters).
 - d. Once the software and hardware are communication, continue on to #2.
2. Prior to obtaining data on your samples, you need to take a reference and dark sample to calibrate the spectrometer.
 - a. Dark sample: Turn off the lamp (or unplug if there is no off switch). Click on "Dark" toggle button (bottom right hand side of screen). Turn lamp back on and let it warm up for 5-10 minutes.
 - b. Reference: The reference is generally your solvent for the experiment. Prepare the reference in a cuvette for most experiments and in a large test tube for kinetics experiments (test tube must be large enough for probe). If using the probe, change your integration period to 5000 ms and your boxcar smooth to 10. When lamp is warm, put cuvette in holder (or put probe in test tube) and click on "Reference" toggle button (bottom right hand side of the screen).
3. Switch to Absorbance mode (using drop down menu on top left of screen). Change your axes (by clicking on the first and/or last value on axes) so you have a y-axis range of -0.2 to 1 and a x-axis range of 250-700 nm (or other appropriate values). Your baseline should be present and be nearly flat.
4. Collecting data...
 - a. UV-Vis spectra: Fill cuvette and put in holder (alternatively, put probe into a test tube filled with sample). Use the "scan/stop" toggle button (bottom right) to collect spectra. Save spectra.
 - b. Kinetic samples: First, configure the software properly, and then collect data:
 - i. Go to Configure/Kinetics. In box, change Preset Duration (total collection time) to appropriate time limit (~15-20 min). Change Sampling Interval (time between data points) to ~10 s. Set wavelength(s) of interest in right hand boxes. Click OK.
 - ii. Go to Configure/Spectrometer. Choose the Display tab. Choose "Spectrum and kinetics" from bottom drop box.

- iii. Choose “Chart Active” and “Continuous” at bottom right. Use “Scan/Stop” Toggle button to collect data. (Note: Time counts down under the plots.)
5. Saving data: Save the kinetics values to get data as wavelength vs. time. Save spectral values to save spectra. Both types will be saved as an ASCII (or text) file that can be opened and manipulated in Excel. See lab instructors or TAs if you have questions – not saving the data correctly can cause you to repeat part of the experiment!