

## OPT4 Operating Procedure for Spectrum Acquisition Shimadzu UV-3600 UV-Vis-NIR Spectrophotometer

1. Create or Start a Reservation for OPT4 in CoreResearch
2. Load the appropriate sample holder in the sample compartment
  - a. Film holder for solid samples
  - b. Cuvette holder for liquid samples
3. Turn on the green power switch located on the side of the UV instrument. Wait 20 minutes for instrument to warm up.
4. Open the “Lab Solutions UV-vis” on the computer.
5. Click “spectrum”.
  - a. Environment settings is where the number of sig figs can be changed. Click number of digits and set values to change this.
6. Click “instrument control”.
  - a. Load your previously saved method file. If you do not have a saved method file, load the “spectrum default method”.
7. To create or edit a method file, click “edit”.
  - a. Enter starting and ending wavelength.
  - b. Set desired data interval (typical value is 1 nm).
  - c. Set desired scan speed (typical is medium).
  - d. Set the value type and measurement type to transmission or absorbance.
8. Click on “Advanced”.
  - a. Set the desired slit width between 2-5 nm (typical is 5 nm).
  - b. Slit program should be “standard”.
  - c. Light source should be “automatic”.
  - d. Detector unit, sample side should be “direct receiving of light”.
  - e. S/R switch should be “standard”.
  - f. Ensure that “perform stair correction” is checked.
  - g. Click “OK”.
9. Click on “close after creating new parameter file”.
  - a. Enter filename of new parameter file and save in parameter folder.
  - b. Click “close”.
10. Set file and sample name.
11. Make sure that no samples are present in the sample chamber and that the sample chamber cover is closed
12. Click on the “Connect” button. The system will go through several initialization checks that will take 10 minutes. When completed, click the OK button.
13. Perform a baseline correction
  - a. A baseline correction should be performed at start-up, and anytime you change the parameter settings.
  - b. Make sure that no samples are present in the sample chamber and that the sample chamber cover is closed.
    - i. If using the film holder with beam masks, the beam masks should be in place for the baseline correction
  - c. Click “baseline”. Confirm wavelength range. Click “OK”.

14. Load the sample into the sample compartment and if desired, load a reference into the reference compartment.
15. Click the “Start” button to initiate the measurement.
16. Adjust the overlay graph Y axis values as desired (the X axis will scale automatically)
17. When the scan is complete *the data is only stored in temporary memory, but not to the computer disk.*
18. To save the data to the computer disk:
  - a. On “data print table”, there is an excel button. Open a blank excel book and then click the “excel” button. Your data should populate the open excel book. Save this file to your folder in the user data folder.
  - b. Click “text out” to save data as a .txt file.
19. To workup your data, click the “active tab” in the top left corner of graph.
  - a. “Peak” will peak pick for you. Click “execute” on the right side.
  - b. “Peak area” will give a peak area for you when you select a desired wavelength range.
  - c. “Peak pick” will let you select a peak and it will read its absorbance.
20. Shut down the system
  - a. Unload your sample and close sample chamber cover
    - i. If the film holder was used, remove any beam masks that were used
  - b. Click “disconnect” in the top right of the software.
  - c. Close the “Lab Solutions UV vis” software.
  - d. Turn off the green power switch on the side of the UV-3600 instrument
21. Stop or Update Actual Usage for your OPT4 reservation in CoreResearch