

UV/VIS Spectroscopy

Warning: This instrument may only be operated by those who have been trained by AAF staff and have read and signed the AAF laboratory policies.

- 1) Computer on password uvvisaaf
- 2) Start program: **Spectra Suite** Check spectrometer connected to computer (USB ports)
- 3) On left side spectra suite opening window, find “ADC1000-USB” with [+] and [+] Acquisition and [+] properties
- 4) Click on Acquisition [+], [+] channel 0 (UV spectrometer) and [+] channel 1 (VIS spectrometer) pops up
- 5) Click on “channel 0” (once) and [+] Int. time, Aver., Boxcar ICON become active (top of window)
- 6) Connect “correct” optical cables from light source - sample compartment - spectrometer (uv or VIS or both)
- 7) Turn on light source UV (deuterium lamp) or VIS (halogen lamp)
- 8) With reference sample in analysis position, adjust Int. (Integration) time so that measured intensity is <4000 counts maximum for all wavelengths. 4000 counts is maximum the CCD can read.
- 9) Adjust Aver. (# of spectra to average) so that data collection time is ok (maybe 5 seconds, but longer if better noise statistics is needed)
- 10) Boxcar average adjusted as needed (this averaged wavelength [energy] channels) 2 is good place to start. Change and see results
- 11) Repeat for channel 1 (VIS) as needed.
- 12) After reference intensity, averaging... set,
- 13) Record Dark (“dark bulb” ICON) current of spectrometers by ensuring NO light is entering detector(s)
- 14) Click remove (subtract) dark current (-“dark bulb” ICON)
- 15) Place reference sample back in position (same experimental conditions, time...) and click “Reference” (yellow bulb) ICON. This saves reference spectrum.
- 16) Now click R (reflection) or T (transmission) ICON and y axis output changes to % transmission ($I_{\text{sam}}/I_{\text{ref}}$). A ICON is for Absorption (log of Transmission)
- 17) Make sure [+] Acquisition is highlighted (blue usually), measurement should be live and continuous. If not click right arrow ICON. When happy with results, click = ICON to pause data collection.
- 18) Adjust x,y scales has needed....

Saving Data

- i) Go FILE -> SAVE (or click “save” ICON above spectrum graph). New window pops up
- ii) Click browse to find correct Folder (desktop – UV/VIS data – PI name – users name) Add file name
- iii) Data can be saved as a xy text file (“Tab Delimited”) or Binary OOI (ocean optics) formats.
- iv) Save in both formats. Check folder contents to ensure correct saving of data.
- v) Also check that data is from the correct spectrometer (0 UV or 1 VIS). If both are needed, one must save separately in 2 files. **THIS IS IMPORTANT**