**Use of the Agilent UV-Vis Multicell Peltier for UV Melt and Scan**

Updated by KL 6/2/21

Starting the Instrument:

1. Turn on the computer and log in.
2. Turn on the instrument by flipping the switch on the back. Turn on the temperature control mechanism by flipping the switch on the right side of the instrument.
3. If your Scan or Melt requires samples to be below 20 C, turn on the brown nitrogen flow knob located on the fume hood to the right.
4. Open the software called “Cary UV Workstation”.
5. Ensure that the icon on the top right displaying two plugs is green. If not, click the icon, and click the “Cary 3500 UV-Vis” instrument under “Available Instruments”. The green icon means the computer is connected to the instrument.
6. Now that you are connected, load your samples into the instrument. Push open the top black cover and place cuvettes into their holders. Ensure that the clear sides of the cuvette are facing the arrows. Close the cover and remember which cuvettes went into which slot number.
7. You are now ready to set up your UV-Melt/Scan

UV-Scan:

8) Click on “Scan” on the Workstation homepage.

9) Go to the “Sequence” tab on the left. Set your number of samples under “Sequence Preferences” on the right. Input your sample names based on their position in the instrument.

10) Click on the “Setup” tab on the left.

11) Set the temperature that you are measuring the scan at and click “Apply Temperature” below. The instrument will begin climbing to the desired temperature

12) Set the Scan range from 330 nm (start) to 220 nm (stop). Press enter after inputting each value. Use the default parameters (“Y mode” is Absorbance, “Averaging Time” is 0.02 s, “Data Interval” is 1.00 nm, “Spectral Bandwidth” is 2.00 nm). Change the values accordingly if they are different from above.

13) Once the instrument reaches the desired temperature, press the start button at the top to begin the experiment. Enter the filename of your scan (be sure to include the date of the run).

14) Ensure that the loading guide displays your samples in the correct positions and click ok.

15) From the “Results and Analysis” page, export your file by clicking the icon with three vertical dots, and then “Export to CSV”. Your file can now be transferred to a USB for further processing.

UV-Melt:

8) Click on “Thermal” on the Workstation homepage.

9) Go to the “Sequence” tab on the left. Set your number of samples under “Sequence Preferences” on the right. Input your sample names based on their position in the instrument.

10) Click on the “Setup” tab to the left.

11). Input 260, 295 and 335 under “Wavelengths”. After inputting each wavelength, press enter.

12) Set the rest of the parameters as follows:

 Averaging Time (s): 2 sec

 Spectral Bandwidth (nm): 2.00

 Start (°C): 20.0

 Return (°C): 20.0

 Number of stages: 2

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Stage** | **Collect Data** | **Data Interval (°C)** | **Rate (°C/min)** | **End (°C)** | **Hold (min)** |
| Stage 1 | ✓ | 1.0 | **X** | 95.0 | 0 |
| Stage 2 | ✓ | 1.0 | **X** | 20.0 | 0 |

**X**: The rate you pick will control how long the run takes. Since the run above goes up 75 °C and down 75 °C, a rate of 0.5 °C/min would take about 5 hours.

Here are common rates we use:

0.5 °C/min => 5 hours

0.4 °C/min => 6.25 hours

0.2 °C/min => 12.5 hours

13) Press the start button at the top. Enter the filename of your melt (be sure to include the date of the run).

14) When the temperature reaches the desired starting point, confirm that the loading guide displays your samples in the correct position and begin your experiment.

15) From the “Results and Analysis” page, export your file by clicking the icon with three vertical dots, and then “Export to CSV”. Your file can now be transferred to a USB for further processing.

Turning off the machine:

16) After finishing your experiment and transferring your data to USB, remember to shut down the computer, turn off the nitrogen knob, and turn off the instrument power and temperature control switches.

Processing UV-Melt Data with Origin Script:

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