

Logger Pro (computer)

- a. Open the Colorimeter lid.
- b. Holding the cuvette by the upper edges, place it in the cuvette slot of the Colorimeter. Close the lid.

First Calibration Point

- c. Choose Calibrate ► CH1: Colorimeter (%T) from the Experiment menu and then click .
- d. Turn the wavelength knob on the Colorimeter to the “0% T” position.
- e. Type **0** in the edit box.
- f. When the displayed voltage reading for Reading 1 stabilizes, click .

Second Calibration Point

- g. Turn the knob of the Colorimeter to the desired wavelength.
- h. Type **100** in the edit box.
- i. When the displayed voltage reading for Reading 2 stabilizes, click , then click .

Data Pro (handheld)

- a. Place the blank in the cuvette slot of the Colorimeter and close the lid.
- b. On the Main screen, tap .
- c. On the Setup screen, tap , then choose COLORIMETER from the list of sensors.
- d. Tap , then tap .

First Calibration Point

- e. Turn the wavelength knob of the Colorimeter to the 0% T position. In the Value field enter **0** as the percent transmittance. You can enter this information using the onscreen keyboard (tap “123”), or by using the Graffiti writing area. When the voltage reading stabilizes, tap .

Second Calibration Point

- f. Turn the wavelength knob of the Colorimeter to the desired wavelength. Enter **100** as the percent transmittance. When the voltage reading stabilizes, tap .
- g. Tap two times to return to the Setup screen.

DataMate (calculator)

- a. Place the blank in the cuvette slot of the Colorimeter and close the lid.
- b. Select SETUP from the main screen.
- c. Press to select CH 1.
- d. Select COLORIMETER from the SELECT SENSOR menu.
- e. Select CALIBRATE from the SETUP menu.
- f. Select CALIBRATE NOW from the CALIBRATION menu.

First Calibration Point

- g. Turn the wavelength knob of the Colorimeter to the 0% T position. When the voltage reading stabilizes, press **ENTER**. Enter **0** as the percent transmittance.

Second Calibration Point

- h. Turn the wavelength knob of the Colorimeter to the desired wavelength. When the voltage reading stabilizes, press **ENTER**. Enter **100** as the percent transmittance.
- i. Select OK to return to the setup screen.

EasyData (calculator)

- a. Download the Colorimeter file (available from Vernier Software) to your calculator.
- b. Select **File** from the Main screen of EasyData, and then select **Open**.
- c. Use the arrows to highlight the Colorimeter file and select **OK** to open the file.
- d. Select **Setup** from the Main screen, and then select **Colorimeter**.
- e. Select **Calib** from the Sensor Setup screen.
- f. Select **Edit**, then select **Two Point Live...**

First Calibration Point

- g. Open the Colorimeter lid.
- h. Holding the cuvette by the upper edges, place it in the cuvette slot of the Colorimeter. Close the lid.
- i. Turn the wavelength knob on the Colorimeter to the “0% T” position.
- j. When the displayed reading stabilizes, select **Keep**.
- k. Enter **0** as the reference value and select **OK**.

Second Calibration Point

- l. Turn the knob of the Colorimeter to the desired wavelength.
- m. When the displayed reading stabilizes, select **Keep**.
- n. Enter **100** as the reference value and select **OK**.
- o. Select **OK** twice to return to the Main screen.

After collecting data, students will need to create a calculated column to get Absorbance values:

- a. Doing these calculations will require manipulating the data outside of EasyData. So select **Main**, then **Quit**, then **OK** to quit the application.
- b. Calculate Absorbance, A, using the equation, $A = \log(1/T)$, and store the data in L3. The transmittance data are stored in list L2. Press **LOG** 1 **÷** **2nd** [L2] **)** **STO** **2nd** [L3] **ENTER**.
- c. Start EasyData.
- d. Select **Graph** from the Main screen.
- e. Select **Adv** and then select **L3 vs L1**. A graph of absorbance vs. concentration will be displayed.
- f. Select **Anlyz** and continue with data analysis to perform a linear fit of the data.

LabQuest (LabQuest)

- a. Choose Sensor Setup from the Sensors menu.
- b. Select Colorimeter as the CH 1 sensor and select OK.
- c. Open the Colorimeter lid.
- d. Holding the cuvette by the upper edges, place it in the cuvette slot of the Colorimeter. Close the lid.

First Calibration Point

- e. Choose Calibrate from the Sensors menu.
- f. Select Calibrate Now.
- g. Turn the wavelength knob on the Colorimeter to the "0% T" position.
- h. When the displayed voltage reading for Reading 1 stabilizes, enter **0** as the Reading 1 value and tap Keep.

Second Calibration Point

- i. Turn the knob of the Colorimeter to the desired wavelength.
- j. When the displayed voltage reading for Reading 2 stabilizes, enter **100** as the Reading 2 value and tap Keep.
- k. Select OK.