

Polarimeter Standard Operating Procedure

1. Place the sample into a polarimeter cell using the black sample loader, which can be found in the right drawer.
 - It is recommended that you use a temperature-controlled cell, which should be available in each lab. Cells are also available in the CBIC and can be signed out.
 - i. Make sure the cell is very clean of all dirt and dust before you load your sample.
 - ii. Put the sample into solution and then place the solution into a syringe holding a volume somewhat larger than the volume of the cell. Also make sure that the sample won't precipitate out of solution, which would interfere with data collection.
 - iii. Turn on the switch of the cell-filling implement (the light will turn off automatically), and position the clean, empty cell with clear filling ports pointing up and the metal part of the cell flat against the wall closest to you of the cell-filling implement. The light to the left should be a bright circle.
 - iv. Fill the cell with the syringe through one of the clear filling ports. Keep an eye on the light to the left—the circle will darken if there are bubbles or other obstructions in the optical path.
 - v. Keep filling until sample is pushed through the other port, making sure not to spill and cleaning up if spilling occurs.
 - vi. Leave the syringe in its port and close the other port with a plug to avoid spills and evaporation.
2. Wake up the polarimeter if it is in sleep mode, and (with the door closed) press "Zero" to re-zero the machine.
3. Open the door and place the sample in the machine.
 - The metal plate on the cell should be flat against the metal plate in the machine. This provides temperature control.
 - The cell should be as far right as possible.
 - If the cell is temperature-controlled, place the temperature probe into the hole in the middle of the cell.
4. Close the door.
5. The easiest way to collect data is to use a pre-defined method, found by pressing the "Method" button on the bottom-left. For more accurate data, select "Warm Up" and let the instrument warm up for 15 minutes before collecting data. Select "Exit Method" and then choose your data collection method.
 - The most common methods are "589nm OR@20C" (temperature-controlled at 20°C) and "589nm OR@ambient" (not temperature-controlled). Which one you use depends on whether or not your cell is temperature-controlled.
 - There are other methods with various wavelengths available.
6. The machine shouldn't need to be re-zeroed, but if it does, take the sample out of the machine, close the door, and re-zero it.
7. Press "Start" to begin data collection.
8. A screen will pop up that says "Sample Identifier." Write your NetID here.
9. You will be prompted for other information, but you can skip this if you want.
10. The machine will now begin collecting data, with realtime readings in the top-left corner.
11. Once the machine finishes, you can write the data by hand or plug a USB drive into the USB port on the bottom left of the machine to transfer the data.
 - For electronic transfer, plug in your USB drive and press the Excel icon on the top-right of the table, then "File" → "Save As"

12. After data collection is done, open the door, return the temperature probe to its holder, and remove the polarimeter cell.
13. Clean the polarimeter cell thoroughly and return it to storage.
 - Use a syringe filled with sample-appropriate solvent to flush out the cell. Do not use highly corrosive or oxidizing solvents.
 - Remove solvent from the cell by purging with nitrogen until completely dry.