

# Operating Instructions for the Agilent 8453 UV-Visible Spectrophotometer

*A brief set of instructions for students in instrumental analysis laboratory*

## Background and Additional Information

The Agilent 8453 is a diode-array UV-visible spectrophotometer that can be used to obtain UV-visible absorption spectra. The complete operator's manual is available online from the Chem 4243 Home Page. <http://www.d.umn.edu/~dpoe/chem4243/index.htm>. The unit has an optional temperature-controlled sample holder. Information about this option is also available at the Chem 4243 website.

## Startup and Recording a Spectrum

This startup sequence assumes that you will record an absorption spectrum.

1. Switch ON the PC and monitor
2. Log on to the PC operating system. Check to see that the **CAG Bootp Server** icon appears in the bottom system tray of the monitor.
3. Switch the Agilent 8453 spectrophotometer and wait until the spectrophotometer's indicator light turns to green. This process includes the spectrophotometer's self test and takes about one minute.
4. Launch your measurement session by pressing your operating system's **Start** button and select Programs, UV-Visible ChemStations, spectrophotometer 1 online.
5. You are ready to use your system, if the blue *busy* status display on the system's bottom message line turns off.
6. Check to see that the tungsten lamp is ON. For measurements in the UV region below 370 nm, also switch ON the deuterium lamp.
7. For maximum stability, allow the instrument to warm up for 45 minutes.
8. Select the wavelength range and record the reference spectrum. Typically the solvent used with your samples is used as a reference. Note the cell orientation and maintain the same orientation for all blank and sample measurements. To start this measurement, click the **Blank** button on the Instrument Panel screen.
9. Fill the cell with sample and record the sample spectrum. Use the same cell that you used for the reference. To start this measurement, click the Instrument Panel's **Sample** button.

## Shutdown

1. Switch the lamps to OFF. This is especially important the deuterium lamp, which has a limited lifetime and is expensive to replace.
2. If the instrument will not be used for more than a few days, also close the ChemStation software and shutdown the PC.