

**Perkin Elmer AA800 Operation Guide for Flame Atomization, updated 31 Oct 2011**  
**Ca Analysis for Chem 105**

1. Just before your lab starts, turn on the instrument and warm up the lamp (the lamp must warm up for a minimum of 30 minutes before use).

- Turn on computer if it is off
  - User-name and password are “aouser,” all lower-case
  - Turn on the Flame AA. Power switch is at the front of the instrument, on the lower left
  - Open WinLab32 software (icon is on the desk top). This will take several minutes to open
- Set up the lamp
  - Click on the lamp icon in the WinLab32 toolbar
  - Make sure the current is set to 15 mA (click under “Desired Current” and type in 15—then hit the “Apply” button)
  - Choose correct lamp for Ca analysis—click on the “Lamp 2” box to turn on the lamp. It will set up and optimize itself. A message will show “Lamp Setup Complete.” Note energy level (value should be in mid 70's)
  - Close Lamp Setup window

The lamp should be turned on and allowed to warm up for 30 minutes prior to using it, or you may not get linear data.

2. A few minutes before the first group of students is ready with their samples, finish setting up the instrument

- Set up the correct method (two different ways)
  - *Either* click on the Method icon, then choose Ca\_Flame\_Chem 105
  - OR go to File > Open > Method > Ca\_Flame\_Chem 105
  - Then close this window
- Set up the sample info file (this tells the instrument where your samples will be in the autosampler tray). Again, two different ways:
  - *Either* click on the Sample Info icon, then choose Ca\_Flame\_Chem 105
  - OR go to File > Open > Sample Info File > Ca\_Flame\_Chem 105.sif
  - Then close this window
- Then you will need to set up the sample info file. This may need to wait until your students are ready with their samples:
  - Click on SamInfo icon on WinLab32 toolbar (the Sample Information Editor)
  - Edit as needed for each group. Type in locations of the samples and their names (names should be unique for each group). Make sure that the autosampler locations are correct for each groups' samples.
- Prep the acetylene for the flame (do not turn on the flame until the first group has entered their data into the sample info editor).
  - Make sure the Acetylene Tank is turned ALL THE WAY on (only touch the handle on the very top of the tank). The acetylene pressure needs to be between 13 and 15 PSI when the flame is lit. Be sure there is at least 85 psi in the tank before you start

3. When the first group is ready, light the flame. A few things to remember:

Never leave the flame running unless someone is standing there to watch it  
Be sure the pump on the side of the autosampler is running at all times when the flame is on  
Acetylene is limited—do not leave the flame running if you are not running samples  
Keep an eye out for clogs in the aspirator tube

- Turn on the pump on the side of the autosampler
  - Go to Options > Autosampler
  - Under the Rinse heading, click on Pump always on, then click OK
  - The pump on the side of the autosampler should start running
- Select the Flame Icon in the WinLab32 software toolbar
- Light the flame by clicking the on the toggle switch icon and wait for the flame to light automatically. This process may need to be repeated to get flame ignition.
  - Keep an eye on the drainage tube leading away from the burner head—make sure liquid drips slowly out. **MAKE SURE WATER IS ASPIRATING AT ALL TIMES!**

4. Have your students run their samples

- Click on the “Auto” icon on the toolbar
- Click on the “Setup” tab (type in a filename to save data to file if desired—*we won't for Chem 105, since their data will print automatically*)
- Click on the “Analyze” tab
- Hit “Rebuild List” to update the sample information and location for your students
- Click on “Analyze All” button (automated analysis will proceed to completion)
- Click on the “Results” icon on the toolbar to see the results as they appear
- If a group comes in while other samples are running, you can open the SamInfo icon and type in the sample location/ID to prep their samples. In the Auto icon under the Analyze All tab, hit Rebuild List and the samples will be populated.
- When a group has finished, and there isn't another group ready to run
  - TURN OFF the flame
- When all groups have finished and you're done for the lab period
  - TURN OFF the flame
  - Turn off the autosampler pump—go to Options > Autosampler > Pump always off
  - TURN OFF the acetylene and Bleed Gases. Check to see that the regulator has zeroed
  - Close the software. Be sure to turn the lamp off.
  - Turn off the instrument
  - Be sure to remove all of your samples from the autosampler tray.

Things to remember:

- Acetylene:
  - Be sure the acetylene tank has at least 75 psi of pressure in the tank. When it gets below 100, let Emily AND Jacy know
  - Turn off the acetylene when everyone is finished. Be sure to bleed the lines (click on the Flame icon to do this)
- Flame:
  - Make sure the autosampler pump is running before you light the flame.
  - Make sure the autosampler pump is running whenever the flame is lit.
  - Make sure the RO water for the autosampler pump is at least half full.
  - Do not leave the flame running if someone is not there to watch the instrument
- Samples
  - Be sure samples are all labeled (they all look the same)
  - Be sure students remove their test tubes/samples when their run is over. Or make sure you do this
- Printing
  - There is more paper in the top drawer under the printer. If you run out, please let Emily or Jacy know
- Fill in the log book