AA Instrument Management

Faculty Supervisor: Dan Larsen (dlarsen@memphis.edu) ext: -4358
Richard Petersen (RLPETRSN@memphis.edu) ext: -4416
Student Supervisors: Cynthia Choo (yinchoo@memphis.edu) ext: -1311

Student supervisor responsibilities

The student supervisor will notify Dr. Petersen and Dr. Larsen of any malfunctions or irregularities.

1. First Monday of month: Visit the instrument and make sure it is working.
2. Check the gas cylinders and record pressure in the monthly maintenance notebook. Assist users in changing any gas cylinder when necessary.
3. Assist users in changing element lamps.
4. Check the notebook to verify users' entries and enforce user sign-ups.
5. Make sure printer paper is available.

Student supervisor training

The student supervisor will know how to tune the instrument, how to run samples, and how to operate the basic software. Also, the student supervisor will know how to change and optimize lamps, how to replace gas cylinders, and how to empty waste container.

Faculty-in-charge responsibilities

1. Supervise and arrange training of student supervisor
2. Arrange training class for routine experiments.
3. Troubleshoot and fix problems consulting with instrument documentation, student supervisor and vendor engineer
4. Advise Department Chair and Facilities Committee on the necessity of instrument replacement or repair by vendor

User Training on Instrument

1. Because many groups use the AA instruments, most users should obtain training for routine use while observing members of their group.
2. Routine training will be offered to potential users as necessary.

User Guidelines and Scheduling

1. Sign in the log book **before** you begin using the instrument.
2. If you are using the AA and have not signed the log book, anyone can sign in, stop your experiment and log you out.
3. Do not use the instrument unless you have been trained and checked-out as qualified.
4. Make a note in the log book and report to the student supervisor and/or the Faculty in-charge of any unusual behavior of the instrument.
5. Instructional courses have priority; no other user may use the instrument during the class period; The lab instructor should notify the student supervisor and/or the Faculty-in-charge of reserving the time-slot needed for the lab period in advance.
6. Repeated failure to conform to these procedures will result in loss of user privileges.

Instructions on how to use SpectrAA Varian 220FS (manual analysis)

Please report problems with this instrument to Cynthia Choo (yinchoo@memphis.edu) ext: -1311 and/or Dan Larsen (dlarsen@memphis.edu) ext: -4358 and/or Richard Petersen (rlpetrsn@memphis.edu) ext: -4416.

1. Log name, date, time, and use in log book.
2. Check gas cylinders to see that all fittings are attached.
3. Check that the ventilation system is drawing air.
4. Turn on the gases you will be using. If you are using N_2O, turn on heater at the power strip. Check for leaks.
5. Turn on the SpectrAA 220 FS instrument. (Rocker switch on front of instrument.)
6. Turn on the computer and the peripherals.
7. Select and start Spectra FS application.
8. Click on Worksheet (choose new from existing).
9. Determine elements of interest and choose develop to edit methods.
10. Click on Add methods or edit existing methods.
11. Change parameters as needed, follow the cookbook values if you are unsure.
12. Click "OK" to save.
13. Choose sample labels and enter your information.
14. Choose instrument and adjust view so that worksheet calibration graph, and signal graphics panels are showing.
15. Click on the element of interest on the worksheet panel.
16. Choose optimize and click on the element.
17. Insert appropriate lamp into correct position.
18. Wait until green bar shows on lamp meter, then adjust screws at base of lamp holder to maximize the output; rescale as necessary.
19. Go through "lighting the flame" checklist and follow lighting instructions. If flame does not light in 10 seconds of holding down the button, then seek assistance. After the flame is lit, insert tubing in deionized water. (Water or the sample solvent must always be introduced when the flame is on.)
20. Click optimize signal
21. Adjust horizontal position of burner and angle of burner to optimize the signal.
22. Click "OK" and cancel optimize screen.
23. Go to calibration under the instrument drop down menu.
24. Follow the instructions and make sure the calibration yields a reasonable fit.
25. Return to the worksheet and start analyzing samples by introducing samples, then pressing read. Record the absorbance readings.
26. Click on STOP
27. When finished, go to filing tab and save the worksheet.
28. Exit worksheet and go to reports.
29. Follow the report instructions to get a printout of results.
30. Exit SpectrAA software.
31. Turn off the computer and peripherals.
32. Shut off all gas cylinders and regulators.
33. Empty waste container (if needed.)
34. Clean up work area and all glassware.
35. Log out in the log book.

AA Monthly Maintenance Record

Date 2010	Air (zero) Pressure	Acetylene Pressure	Nitrous Oxide Pressure	Argon Pressure	Date checked	Comments
January						
February						
March						
April						
May						
June						
July						
August						
September						
October						
November						
December						