Perkin Elemer 3110 Atomic Absorption Spectrometer
Standard Operating Procedure
Written 10-31-07

1) Make sure exhaust vent is open and operating
2) Turn on instrument
3) Check that drain loop contains DI
4) Plug in lamp for element you are running
5) Press: **Param Entry**
6) Set lamp current to recommended level listed on lamp label
7) Set integration time (normally 1 to 10 seconds)
8) Enter number of replicates to be run for each sample (normally 3)
9) Enter calibration type (normally non-linear)
10) Enter technique you are running (Flame)
11) Enter standard concentrations
12) Press: **Energy**
13) Set wavelength & slit width for element you are running
14) For flame, slit height is always set to “high”
15) Peak in wavelength by maximizing energy reading
16) Adjust horizontal position of burner head-use card to see light path-to center light beam over the burner slot
17) Press: **Cont**
18) Press: A/Z to auto zero instrument (should read ABS = 0.000)
19) Raise burner head by turning vertical adjustment counter clockwise until you obtain a slight positive absorbance (should read ABS = 0.003)
20) Slowly rotate vertical adjustment clockwise until the absorbance returns to zero. Rotate knob an additional 1/4 turn clockwise.
21) Compressed Air line pressure should be ~ 51 to 65 psi
22) Open Acetylene gas tank
23) Check that tank pressure is above 100 psi. If not change out tank
24) Check that line pressure is ~10-13 psi, but NOT above 15 psi.
25) Turn gas on to “air”
26) On pressure gauge, gas should be ~2 and air ~4 psi
27) Press ignite switch to light flame
28) Aspirate DI and let flame stabilize for about 60 seconds
29) Aspirate a standard
30) Peak out burner head position, lamp position, wavelength, and nebulizer rate to maximum energy.
31) Turn nebulizer locking ring clockwise to loosen
32) Slowly turn nebulizer adjustment knob counter-clockwise until bubbles appear in the standard solution.
33) Slowly turn nebulizer adjustment know clockwise to the maximum absorbance reading
34) Lock the nebulizer adjustment knob
35) Aspirate Blank (1% HNO3), then press: A/Z
36) Aspirate first standard, then press: Calib
37) Run all standards in curve
38) Always wipe nebulizer tubing with a kimwipe between every standard and sample to prevent cross contamination
39) Aspirate sample, then press: Read
40) After run – aspirate DI for ~ 15 min to clean out any remaining sample in chamber and burner head
41) Turn gas to “off” to extinguish flame
42) Close Acetylene tank valve-but leave line open
43) Turn gas to “air” to bleed lines until regulator reads zero psi
44) Turn gas to “off”
45) Repeat steps 31 & 32 until there is no gas left in the lines
46) Close line valve
47) Turn of voltage to lamp
48) Turn off instrument