

AA Barebones Guide

SAFETY INFORMATION:

- SAFETY GOGGLES SHOULD BE WORN AT ALL TIMES!!
- DO NOT LEAVE FLAMMABLE/COMBUSTIBLE MATERIALS NEAR THE AA!!
- DO NOT LET ACETYLENE TANK LEVEL DROP BELOW 70 PSI!!
- DO NOT STARE INTO THE LAMP!!

Installing and Aligning a Hollow Cathode Lamp

- Choose a lamp of your interest and carefully insert it all the way into the lamp compartment, then pull it back about 2-5mm.
- Connect the lamp plug to the appropriate socket.
- Set the wavelength and the slit width (refer to the AA cookbook).
- Turn on the instrument (switch on the bottom of right side). Wait a few seconds until the screen shows "PERKIN-ELMER MODEL 3100".
- Press [Param Entry]. Enter the operating lamp current (found on box or lamp). Press [Enter]. (AUTOMATIC GAIN APPLIED flashes).
- Enter the integration time. This is how long the instrument waits before taking an absorbance reading. Typical times are .1-.5 seconds. Press [Enter].
- Press [Energy]. A horizontal bar will show on the screen, press [Gain] to bring the bar on scale if necessary.
- Rotate the Wavelength Control Dial back or forth until you obtain maximum energy as shown by the bar and the number of counts (CTS).
- Adjust the knobs on top of the lamp housing until you get maximum energy.
- Wait at least 10-15 min. before taking data so the lamp can warm up.

Igniting and Optimizing the Flame (Air/Acetylene operation)

- Adjust the burner height by turning the horizontal adjustment knob until the light beam (which can be seen by placing a piece of white paper perpendicular to the burner head) is centered over the burner slot.
- Adjust the vertical positioning of the burner head by rotating the knob until the light is near but not hitting the top of the burner head.
- Open the acetylene tank and check the flow to be from 85-100 kPa.
- Open the air valve (on the wall) and check the flow to be from 50-65 psi.
- Turn on the oxidant switch to Air.
- Press the Ignite button.
- Aspirate the blank (water) for 60-90 seconds. Press [A/Z].
- Aspirate a mid-concentration standard. Rotate the horizontal and vertical adjusts to obtain maximum absorbance.
- Aspirate a blank. Leave the aspiration hose in the water or blank unless you are running samples.

Measurement of Atomic Absorption

- Aspirate a blank, press [Cont], [A/Z].
- Aspirate the standards and record the absorbance for each one.
- Aspirate the samples and record the absorbance for each one.

Shut Down Procedure

- Aspirate water for a few minutes to clean the burner head.
- Turn the gas control switch on the Pneumatics Control Panel to Off.
- Close all gas source valves.
- Turn the gas control switch to Air to allow the gasses to bleed. Then turn the gas control switch to Off.
- Turn the instrument off.

****Note:** If you wish, Atomic Emission (AE) can be set up. Please contact Sara or the UIC TA for assistance.