

Standard Operating Procedure: Photoelectrochemical Setup

Last Updated: 10/31/2016 by C.Tichnell

General Operation Description:

The photoelectrochemical setup is typically powered off and unplugged until ready for use. Station components include potentiostat, lamp, monochromator, optics, powermeter, light mask, electrochemical clips, and computer. To use, plug the electrical cord into the back of the lamp. Then, without looking directly at the lamp flip the two switches located above the plug on the lamp (bottom, large switch first followed by top, small switch). Wait between 30-60 minutes for the lamp to stabilize. During stabilization, ensure that either the slits are closed or the powermeter is in the line of emitted light. After stabilization, put the powermeter in place if it is not already. Then open the slits if they are not opened already. Measure the power and adjust power by twisting the slit knobs or using neutral density filters. Use caution when adjusting optics and adding/removing pieces in the light beam to not bounce light into the eyes of primary user or others in room. After power is measured, remove powermeter from light beam and place device in line. Position/align device for optimal light absorption and hook up device to electrochemical clips. Finally perform necessary experiments (not covered in this document).

When experiments are complete, save data, close the slits, unclip device, remove device from station. Turn off potentiostat (after electrochemical program has been exited on computer), flip power switch on back of lamp to off position, and remove power cord from back of lamp.

Personal Protective Equipment:

Safety glasses and gloves (gloves should not touch computer) when handling devices or optics

Hazards:

Solar cells contain electrolytes, dyes and other materials that can be dangerous and/or toxic.

High power lamp could blind you and/or cause eye discomfort.

Plugging and unplugging equipment could shock users.

Waste Disposal:

Solar cells and cell components should be thrown into appropriate waste container(s)

Material Safety Data Sheets:

Call the ORCBS (355-0153) or see lab copy for sample in question if available