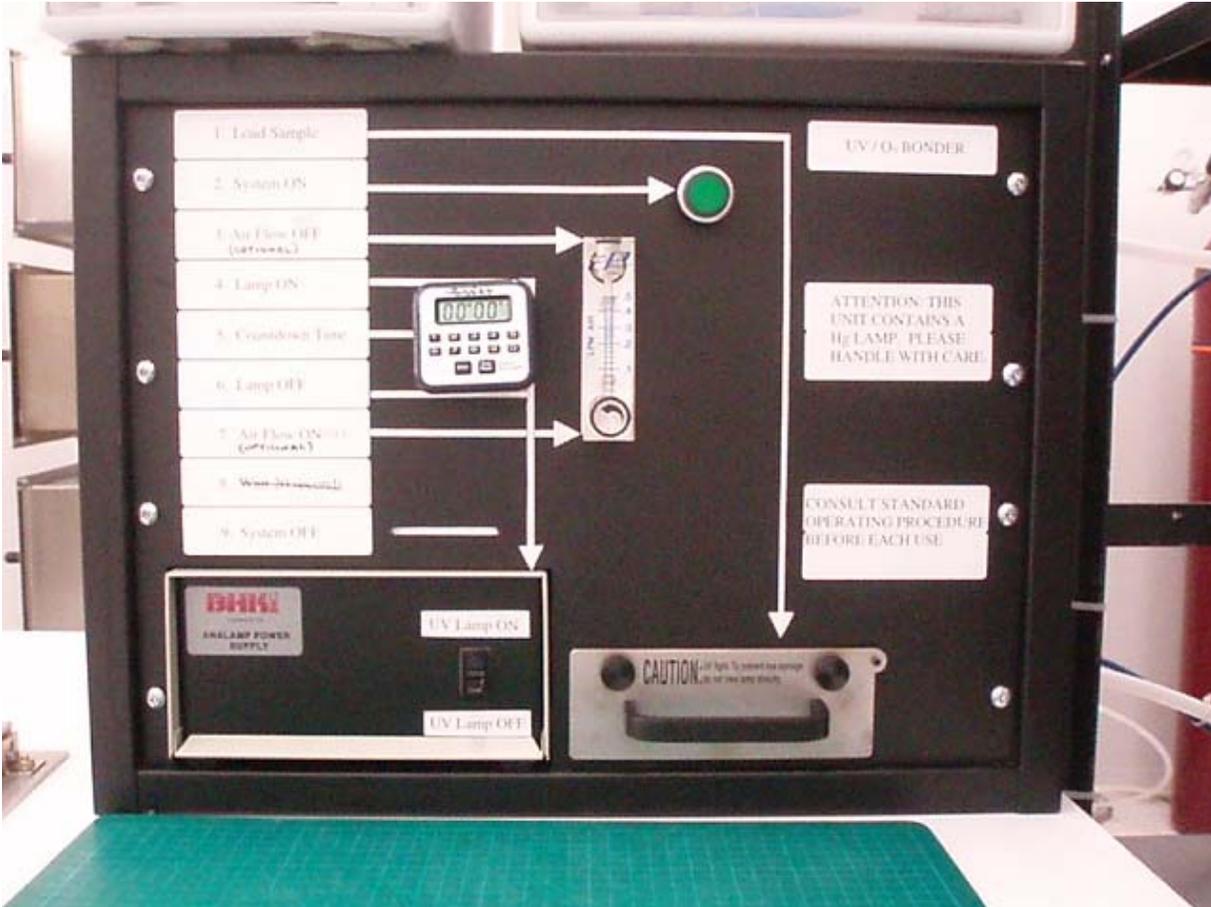




UV OZONE BONDER



LOCATION: Plasma Etch Area

PRIMARY TRAINER: Scott Munro (2-4826, email@address.com)

1. OVERVIEW

This tool is typically used for surface modification of glass and polymer material (PDMS, PMMA etc) for the purpose of bonding. This equipment is currently set up for use with PDMS and glass, please consult a staff member if you wish to process other materials.

2. SAFETY PRECAUTIONS

This system may generate hazardous amounts of ozone. Under normal operation, this ozone is used to activate the surface of your samples and is later vented into a destruct unit for conversion to oxygen gas. According to the MSDS sheet, ozone has a pungent smell, and can normally be detected well within the safe concentration limit. If you do smell ozone, however, please notify a Nanofab



staff member immediately. As an added precaution, an ozone sensor is available and should be used during the bonding operation.

UV light is generated using an Hg bulb. If glass is present within the sample chamber, the bulb may be broken. Please notify a Nanofab staff member immediately.

The UV light is produced within the sample chamber. The unit is equipped with a safety interlock switch to prevent exposure if the sample drawer is accidentally opened while the UV lamp is on.

Some metals may present safety hazards in an ozone-rich environment. Such hazards include uncontrolled oxidation (i.e. fire or explosion) or the formation of a toxic metal oxide. If you wish to process a sample containing metal, please seek approval from a Nanofab staff member before proceeding.

If you are bringing any new materials into the NanoFab for use in your process, it is necessary to fill out a chemical import form (available on our website, <http://www.nanofab.ualberta.ca>) and supply an MSDS data sheet to Stephanie Bozic.

3. PROCESS COMPONENTS OR FEATURES

Glass samples should be cleaned using other standard procedures. Please contact the appropriate trainers for cleaning training or for polymer casting of PDMS and PMMA.

4. OPERATING INSTRUCTIONS

- 4.1 Unscrew the sample tray knobs and remove the sample tray. Load your samples. The lamp is as large as the tray, and may be loaded full if desired.
- 4.2 Slide the tray back into the unit. There is a small setscrew on the top right corner of the tray which acts as an interlock and that will allow the lamp to be powered. Ensure that the setscrew is engaged; you should hear a single “click” sound. Tighten the knobs.
- 4.3 Turn the system on by pressing the green button. It should light up
- 4.4 If desired, set the desired air flow value. While no process data has been collected at this time, it is expected that the optimal value will introduce enough oxygen to allow for maximum ozone production, but not enough to dilute it.
- 4.5 Turn the UV lamp on; a red light just below the lamp switch should be on, indicating the lamp is on. Press start on a manual timer.
- 4.6 Once the desired time is reached, turn the UV lamp off. Turn on the air flow by rotating the needle valve until maximum flow is reached. Wait for ~30 seconds to vent any residual ozone that may be present in the chamber.
- 4.7 Remove the sample tray and unload your samples. Replace the tray, tighten the knobs, and power off the system.



5. TROUBLESHOOTING

If you encounter an unexpected error or require assistance please contact the primary or secondary trainer listed above. Should they not be available, please contact any staff member for assistance.

6. APPROVAL

QUALIFIED TRAINER: Scott Munro
TRAINING COORDINATOR: Stephanie Bozic