

Instructions for Use of the Ozone Generator

1. User: Turn on the condenser cooling water to a gentle flow. *Caution:* excessive flow rate can lead to a popped hose connection and a flood.

TAs: Make sure the flow meter is visible and functioning. Make sure all condenser water tubing is secured with a metal hose clamp.
2. User: Turn on the oxygen tank at the main cylinder valve.

TAs: Make sure the reducing pressure valve is adjusted to *ca.* 5 psi.
3. User: Turn on the master switch on the front of the generator. This opens a solenoid valve that allows gas to flow. Open the flow needle valve (small black knob on the downstream side of the gas regulator on the O₂ tank) \geq one full turn. This will start oxygen flow through the generator. You will observe flow in the air gauge (flowmeter) on the front of the ozone generator. The floating ball should read ~1 LPM (liters per minute). If the flow rate is not close to this value, do not adjust it yourself. Rather, ask a TA for assistance.

TAs: Make sure the flow rate is adjusted with the control on the front of the generator to be 1 LPM with the regulator needle valve on the tank regulator open \geq one full turn and the oxygen pressure on the tank regulator reduced to 5 psi.
4. User: Connect the outlet hose (~1/4" O.D. Tygon tubing) from the generator (which is plumbed into the hood just to the left and adjacent to the ozone generator) to the glass inlet stem on the reaction vessel (a gas drying tower). This has a glass frit at the bottom that produces tiny bubbles. Attach a several foot piece of condenser tubing to the outlet stem from the reactor and direct it to the very bottom back of the hood. Do not otherwise restrict the outlet flow of gas.
5. User: Slowly increase the voltage on the front of the generator until the ammeter reads ~2.5 amps. This is the current that begins to create the ozone.
6. User: When your reaction is complete, turn the voltage back down to zero and allow the oxygen to continue flowing for 10 minutes. This will flush excess ozone both from your reaction vessel and, importantly, from the interior lines of the ozone generator itself. Remove the reaction vessel from the cold bath. *Caution:* it will be very cold; wear a glove.
7. User: Once the purge time is over, a) disconnect the tygon inlet and outlet tubing you connected in step 4, b) lift the glass frit out of the reaction solution (careful, it is a fragile piece of glass), c) turn off the master switch on the generator, d) turn off the main valve of the oxygen tank, e) turn off the black needle valve on the gas regulator, and f) turn off the condenser water.

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