

Standard Operating Procedure Vacuum Oven POWER Laboratory

John Hodul, February 2019

Description of Process

The vacuum oven is used to dry and anneal material under vacuum.

Personal Protective Equipment

EYE PROTECTION: Safety glasses

PROTECTIVE CLOTHING: Nitrile gloves, lab coat

Vacuum Oven Procedure

Sample Loading:

1. Place sample inside of the oven. Make sure that the sample is mostly dry (*i.e.*, there is no visible solvent present). If there are other samples in the oven place your samples away from them to prevent any contamination.
2. Close the vacuum oven door.
3. Check that the vacuum oven line valve is closed, if not close it.
4. Check that the vent line is closed, if not close it.
5. Turn the pump on; the switch is in the back of the pump.
 - a. The pressure on the pressure gauge should go below 0.5 torr.
6. Fill the trap with liquid nitrogen.
 - a. The pressure on the pressure gauge should go below 0.3 torr.
7. Open the vacuum oven line slowly. If the pressure gauge in front of the vacuum oven does not show the pressure going down hold the vacuum oven door closed.
8. After vacuum is being pulled open the vacuum oven valve fully.
 - a. Continue to check to ensure the pressure goes below 0.7 torr.
9. Use the logbook to note the material in the vacuum oven, the pressure, and the time at which the liquid nitrogen was added.
 - a. The liquid nitrogen last 24 hours, if you need to dry samples for longer than 24 hours be sure to fill the dewar accordingly.

Sample Removing:

1. Close the vacuum oven line valve.
2. *SLOWLY* open the vent line.
3. Take out your samples from the vacuum oven.
4. Turn off the pump while simultaneously opening the vacuum oven line. This will refill the line up to the pump. Be sure to do this within several seconds. Failure to do so could result in vacuum pump oil being sucked into the trap.
5. Take down the liquid nitrogen dewar and let the trap reach room temperature.
6. Empty the trap from any solvent and clean the trap and tubing with a Kimwipe and acetone or any other appropriate solvent.

- a. Make a note in the logbook of any unusual color or odors coming from the trap.

APPENDIX



Figure A1. Vacuum oven, temperature controller, vacuum oven door latch, vacuum oven pressure gauge, line digital pressure gauge, vent valve, and vacuum oven valve.



Figure A2. Liquid nitrogen dewar, vacuum pump, and power button located behind the pump.