

Vacuum Oven SOP, 2/2018

Coral Name: Vac-Oven

Model Number: T-MVAC Products SS806NS-14

What it does: Up to 600C in 10mT vacuum or N2 purge.

Starting: You **MUST** clear sample composition and temperature with staff. No hazardous or dirty by products will be allowed into the chamber, as it is a shared tool. If chamber is dirty when starting, notify staff before starting! It must be clean when you leave.

Safety: In an emergency, turn off the heat and vacuum pump buttons, or simply unplug electric cord.

Engage in Coral. Machine will not pump down if not engaged! Pump (Orange Button above chamber) if not already on.



Turn on the Vacuum

Samples Must sit on a dummy wafer, and usually the dummy wafer sits on a quartz boat

Venting to load sample:

Close the vacuum pump valve, by lowering the black toggle switch, left side, below (but leave the pump "ON")

Open the "Vent" valve, Horizontally, the back yellow valve, as left



Open chamber. Ok to clean chamber with fab wipes if necessary, but let staff know if it's dirty. Load samples, remembering not to let samples touch oven directly.

Pump down the chamber, as below, by Opening Vacuum Valve (Black Toggle Switch is vertical) and Closing Vent Valve (Back Yellow Valve is vertical). Note Purge N2 is ON (Front Yellow valve is Horizontal). Purge N2 Flow is adjustable with the silver needle valve.



Black Toggle switch is Pump valve. Above pump is CLOSED, right, pump is OPEN

Yellow valve *back* is Vent. Parallel is OPEN, Perpendicular is CLOSED

Yellow valve front is Purge N2.

Now look at pressure gauges.



Here the coarse gauge shows 15" Hg, or half an atmosphere, and the fine (Pirani) gauge is above display range. The base pressure should be about 10mTorr if no purge gas is flowing. If the N2 purge is open to continuously sweep the chamber during heating and pumping, the pressure will move up or down, depending on the needle valve setting.

Turn on the Heat Button as displayed on the min more for every 100



when pressure is below 1 Torr, about 2 min pump time, Pirani gauge. Ramp rate: about 20 min to reach 100C, 10 C additional.

To set temperature on Temperature Controller point), then arrow up or down to desired temp.



Press Setup, which shows SP (set

Note the Yellow wall valves near the lab entrance, pictured, right, in the OFF state. The Top and bottom valves are cooling water In and Out, respectively, to the Vacuum Oven and the middle valve isn't used. The Bottom valve is ALWAYS left partially open when not in use or not to prevent boiling steam ruptures in the lines. Rotate the top valve open until you hear the water flow interlock when ready to use the furnace. It will be approximately the same angle as the bottom valve.



Always close the top valve when not in use, as the cooling water temperature is below the dew point, and the machine will get cold, then wet, and will rust. Wait until temp is below 200 before closing the top valve. Always return Temp Controller to below 20C before leaving.

When done, Vent the chamber as, remove your samples, then briefly pump down the chamber and close the vacuum toggle switch and both N2 valves.



Venting, Left, and standby state, Right, with all valves Closed



Disengage in Coral. Kurt Broderick