

Denton DV502A Evaporator

All valves are closed, all switches are off

1. Turn on Power and mechanical pump, thermocouple gauge to foreline position (TC1).
(system ready red light goes on)
2. When gauge rapidly reaches below 50 mTorr, open backing valve. When vacuum hits 50 mTorr, turn on diffusion pump water and diffusion pump. Wait 15 min. to warm-up.

Load Samples into Chamber (during warmup)

1. Open chamber vent valve, vent chamber and carefully lift bell jar (backing open, roughing closed)
2. With gloves on, load C string, or wire basket, or carbon rods w/ platinum wire, and adjust to proper heights etc.
3. Load samples, cold trap, and oil spot telltale on stage, clean off gasket and surface
4. Replace belljar and be sure both chamber and MP vent valves are closed
5. Close backing valve, then open roughing valve
6. TC select knob to chamber(TC2), turn high vacuum gauge on, let it warm up 1 min., then zero the gauge
7. When chamber is below 100 mTorr, close roughing valve completely
8. Open backing valve and then main valve by lifting handle on left
9. Add LN to cold trap funnel. Wait 10 min. after chamber is below 5 mTorr, then read high vacuum gauge by pressing meter read and advancing range select knob **only** if meter reads less than 1. (If offscale, select smaller exponential and push meter read)

To evaporate--SHIELD EYES WITH FILM!

Turn off high vacuum gauge. For carbon, the vacuum must be better than 5×10^{-6} Torr

1. Select appropriate filament holder(1 or 2), set switch to Filament, turn Filament Adjust knob counterclockwise to zero and turn on power switch
2. Adjust power to turn rod red and outgas filament, then raise power to complete evaporation (don't go over 40 mA!)
3. Select new filament position, and repeat coating with 2nd material (e.g., platinum, then carbon).

To vent Belljar Jar (to remove samples, then evacuate chamber)

1. Turn off high vacuum gauge and close main valve (backing open, roughing closed)
2. Open the chamber vent valve slowly and remove samples
3. Replace bell jar (check that gasket is clean) and close chamber vent valve
4. Close backing valve, then open roughing valve and pump to below 50 mTorr
5. Close roughing valve, open backing valve, then main valve.

SHUTDOWN

1. Bring belljar to high vacuum as described in **Load Samples** #4-8. Check high vacuum gauge, then turn gauge off. Close main valve (backing valve open, roughing closed), then turn off diffusion pump (let cool at least 20 min.)
2. After 20+ minutes, close backing valve, turn off mechanical pump, open m.p. vent valve till hissing stops (then close m.p. valve), turn off system power
3. Turn off cooling water and log usage.

AT SHUTDOWN

ALL VALVES ARE CLOSED

ALL SWITCHES ARE OFF

THE BELL JAR IS CLEAN AND UNDER HIGH VACUUM

Carbon electrode

Cut carbon yarn into 3 cm. piece and insert into left hand electrode holder.

Platinum electrode for shadowing

Use Dremel motor from drawer to turn carbon rods to proper diameter.

Insert rod into chuck and use orange lock switch to tighten rod in chuck

Insert rod into grinder 2, turn on motor, then turn smallest rod diameter till rod extends out of hole in grinder approximately half the height of the holder

Turn off the motor while the rod is still in the grinder

Carefully remove rod from grinder without snapping off tip

Using grinder 1 and inserting rod as noted above, turn rod until fine tip of rod reaches the top of the grinder

Turn off the motor and remove the rod from the grinder. Be careful not to snap off the tip.

Gently sand the tip on emery paper until it is flat, then polish flattened tip till shiny

Make a second rod simply by sanding the end till flat, then polish end on filter paper. The tip is VERY fragile and prone to break.

Wind 5 cm. of platinum wire on paper clip wire, then transfer platinum to fine tipped carbon rod

Load carbon rods into electrode holder.