

Instruction for the VirTis BT6KEL-85 freeze dryer

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Start

1. flip the POWER switch on the back of the machine to ON
2. install the baffle plate in the chamber and keep the handle away from the condenser coil



baffle plate and condenser coil inside the chamber

3. place the lucite manifold adapter plate on top of the chamber



manifold adapter plate

4. control panel: press the yellow Condenser button, the temperature will start at about +20 °C; the LCD displays "on" after the Condenser Temp reading



control panel with LCD display

5. the condenser temperature should reach -80 °C in about 3 min, wait a few min until the coil is frosted over



freeze dryer with the manifold and tray installed

6. if you use the chamber, load the samples on the baffle plate; otherwise skip to the next step
7. if you use the tray, place it on the manifold adapter plate and then load the samples; otherwise skip to the next step
8. place the manifold on the manifold adapter plate, make sure all the valves are closed with the long white wings pointing up
9. control panel: press the red Vacuum button, the LCD displays "On" after the vacuum reading
10. after about 15 minutes the Vacuum should reach 200 mtorr; if pressure is not coming down there could be a leak somewhere e.g., a valve is left open, or your samples are outgassing
11. if you use the flask with the manifold, load the samples in the flask; otherwise skip to the next step

Note: We only have one 600-mL flask (in the drawer) to use with the manifold.



adjustable tray

12. continue until the samples are dried

Note: To hold the Vacuum at a specific setpoint, press Vac Control button to enable, and press the Up or Down buttons to adjust the vacuum level. The LCD displays VacSet ON. Press Vac Control again to disable. Vac Control can be set at any time, e.g., before evacuation or during the freeze drying process.



a flask attached to the manifold

Finish

1. open one or two valves slowly to release the vacuum
2. press the red Vacuum button, the LCD displays "off" next to the vacuum reading
3. press the yellow Condenser button, the LCD displays "off" next to the temperature reading
4. if you use the flask, take out the sample and return it to the drawer; cleaning may be needed
5. remove the manifold and place it on the stand (cardboard box)
6. if you use the tray, take out the samples and then return the tray to the bench
7. remove the manifold adapter plate and place it on the stand (cardboard box)
8. if you use the chamber and the baffle plate, take out the samples and return the baffle plate to the bench
9. flip the POWER switch to OFF
10. the frost built up on the condenser coil will thaw in 30 min or so
 - if there is just a small amount of water, a wipe down with paper towel will be sufficient
 - if there is a large amount of water, it will drain through a hole in the bottom of the chamber; connect the plastic hose with a quick-connect plug to the quick release receptacle below the control panel to drain the water into a bucket
11. clean up the work area
12. submit your usage using the online form

Appendix

some tips for working with wet samples

- make sure the sample container is only about 1/5 full to avoid boil over e.g., 10 mL for a 50 mL tube
- remove the cap, keep, and label, as needed
- cover the container with parafilm and poke holes to allow gaseous exchange
- put the container(s), in a beaker if needed, into a -80 °C freezer for a few hours (dry ice bath or liquid nitrogen will work too)
- if you use the flask, you can freeze the flask as well