LABCONCO FREEZE DRYER INSTRUCTIONS

Updated November 14, 2017
Celeste Morin, x3756, Druckenmiller 243

Before using the Freeze Dryer, please do the following:

- Wipe the interior of the collector chamber with a paper towel to remove any accumulated moisture.
- Check the collector chamber drain hose to ensure that the hose is free of moisture and that the drain plug is securely installed.
- Using a soft, lint-free cloth or paper towel, wipe the collector chamber lid gasket to remove any dirt and contaminants that could cause a vacuum leak. Vacuum grease is NOT required on the lid gasket.
- Remove the drying chamber from the connection port and using a soft, lint-free cloth or paper towel, wipe the port gasket and sealing surfaces of the drying chamber to remove any dirt and contaminants that could cause a vacuum leak. Reinstall the drying chamber on the connection port. Vacuum grease is NOT required on the port gasket.
- **Check that each sample valve is closed, or in the "Vent" position. Beveled edge is up and away from the sample flask.**

Configuring the Freeze Dryer:

- To configure the Freeze Dryer, turn the power switch ON, and press "Menu." Press the "Select" button on the control panel until the desired function or unit is flashing, then press "Menu" to save the selection and to move to the next option for configuration. For "Vacuum Pump Start Up," select MANUAL or AUTO. For "Vacuum Units," select mBar, Pa, or Torr. For "Collect Temp Units," select °C or °F.

Automatic Start-Up:

- Turn the Main Power switch ON. The refrigeration system will start and the LCD display will read: "Auto Vacuum HI mBar" and "Wait Collector: XX°C"
- If the Freeze Dryer was configured to run AUTO, the vacuum pump will automatically start when the collector temperature reaches -40°C.
- The LCD display will show the actual temp. of the collector, and it will read: "Run Collector: -40°C"
- The LCD display will read: "HI" if the vacuum in the system is above 5 mBar. Below 5 mBar, the display will show the actual vacuum value.

Manual Start-Up:

- Turn the Main Power switch ON. The refrigeration system will start and the LCD display will read: “Manu Vac HI mBar” and “Wait Collector: XXX”
- When the collector temp. reaches -40°C, the display will read: “Manu Vac HI mBar” and “Ready Collector: -40°C”
- Press the vacuum switch. The vacuum pump will start and a typical display reading will be: “Manu Vac 0.050 mBar” and “Run Collector: -50°C”
- The LCD display will show the actual temperature of the collector, and will indicate “HI” if the vacuum in the system is above 5 mBar. Below 5 mBar, the display will show the actual vacuum value.

Adding and Removing Samples to the Manifold:

- Pre-freeze samples. Shell freezing of samples is recommended for wide mouth freeze drying flasks. Smaller samples in ampules and serum bottles may be frozen in a freezer or in the center of the collector chamber. **The sample container size should always be at least two to three times the sample size.**
- **At this point, the refrigeration system and vacuum are ON.** Connect a pre-frozen sample to a sample valve on the manifold using an adaptor. Be careful not to crack the glass adaptor when connecting to the port. Be sure you are using the correct diameter adaptor for the flask top and valve. Turn the plastic valve knob to the “VACUUM” position to open the valve, which connects the attached sample to system vacuum. The bevel edge on the knob should be positioned down toward the sample port to apply vacuum to the sample. This is the “Open” position.
- Before adding another sample, allow the system vacuum to return to 0.133 mBar or lower. Any combination of valves and sample sizes may be utilized at one time provided that the system vacuum and collector temperature remain sufficiently low to prevent melting of the frozen sample. Once you are finished adding samples, leave samples to dry.
- When all the frost has disappeared from the outer surface of the sample container and no cold spots can be detected by handling the container, the sample is nearly dry. To be certain of low final moisture content, dry the sample for several hours past this point.
- To remove a container after drying is complete, turn the plastic knob on the valve to the “VENT” position, which closes the valve and vents the container. Bevel edge is in the up position away from the sample which is the “Closed” position. (Should backfilling with an inert gas be required, connect the gas supply line to the vent port on the valve before turning the plastic knob on the valve to vent position). The sample container may now be removed from the adaptor. Ampules

may be flamed sealed while connected to a valve by using a sealing torch. Care must be taken not to burn the valve. An insulation material should be placed between the valve and the torch.

Shut Down Procedure:

- At the end of a run, or when a sufficient amount of condensate accumulates on the collector coil to obstruct the flow of vapor to the collector chamber, the Freeze Dryer **MUST** be defrosted.
    - All samples should have been removed at this point. Release system vacuum by turning the plastic knob on a valve to the open or "VACUUM" position.
    - Press the Vacuum Switch on the control panel to turn the vacuum pump OFF. Turn OFF the Main Power Switch on the right side of the cabinet.

Defrosting Procedure:

- Pull the collector chamber drain hose out from the left hand side of the Freeze Dryer and remove the drain plug. Place the drain hose in a suitable container to collect the condensate that will melt off the collector coil. There is a white bucket labeled "Freeze Dryer Drain Water" on the shelf above the freeze dryer. Please use this bucket.
- Remove the collector chamber lid and allow ambient room air to melt the ice. Dispose of the liquid appropriately (down the drain).
- Flush the collector chamber with water and wipe chamber dry. Use a soft cloth and soapy water if necessary to thoroughly clean and dry the chamber.
- Reinstall the drain hose plug and slide drain hose back into the side of the cabinet.