**Freezer-dryer- Auto mode instructions**

*[For specialty applications of manual mode- consult the instrument user manual]*

**Start-up Procedure**

1. Place samples in -80 oC freezer in desired vessel. The sample container should be 2 – 3 times larger than the samples. Seal top of vessel with perforated parafilm to allow solvent to be removed from sample during freeze-drying
2. Meanwhile, get the freeze dryer ready for operation.
3. Check that the collector chamber is clean and dry. Replace lid
4. Make sure that the sample valves are positioned to the vent position (Bevel points upwards)
5. Power up the freeze dryer, the power switch is on the left-hand side of the cabinet
6. To run in auto mode, press the panel switch labeled REFRIDGERATION AUTO (see fig 1). This will initiate refrigeration and once -40oC is reached the vacuum will start.

**Operating Procedure**

1. When the system vacuum level is at <0.133 mBar, samples can be added
2. Connect the pre-frozen sample to a sample valve on the manifold using an adapter
3. Turn the plastic knob to the vacuum position. The bevel points towards the sample port (facing down)
4. Before adding a second sample, allow the vacuum level to return to <0.133 mBar
5. To remove a sample, turn the plastic knob on the sample valve to the vent position (Bevel points up). This will close the valve and vent the sample container

**Shut-down Procedure**

1. Release system vacuum by turning the plastic knob to the vacuum position (this is the open position with bevel facing down)
2. Press the vacuum switch (see Fig 1) on the control panel to turn the vacuum off
3. Press the refrigeration button (see fig 1) next to the illuminated LED to turn off the refrigeration system
4. Turn off the Main power switch on the left-hand side of the cabinet
5. Clean the collector chamber
6. Pull the collector chamber drain hose out from the cabinet and remove the drain plug. Place hose in suitable container to catch liquids from the chamber
7. Add a small amount of warm water to melt ice around coils. Once it has melted enough, the ice can be manually removed. [*Important Note: The water should not cover more than the bottom 2 coils otherwise water may drain into vacuum pump*]
8. Flush collector chamber with water (see note above) and wipe dry



**Figure 1. Front display of Freeze-dryer**