

Freeze Dryer SOP

Pre-treatment of samples

- Place the samples in the collector (standing up or tilted)
- Use Manual Mode- Press Collector – Press Start
- The collector will reach a -40 C temperature
- Once samples are frozen to the desired length of time, Press Collector-Press Stop & remove from collector

Testing the samples

- Mount vacuum chamber on top of collector. Make sure it is seated properly
- Make sure the latch in the drying chamber is locked
- Place a filter on the black rubber cap and insert the metal connector
- Attach cap/connector to the sample container
- Connect **ONE** sample to the sample port. Make sure you don't do a lot of pushing & pulling while performing this step to avoid leaking issues
- Place the flat knob of the sample port in the VACUUM position= facing DOWN
- Unused ports should be in the VENT position= Facing UP
- Start the vacuum pump. Wait for the vacuum pressure to go down to the set point.
- Once the set point is reached, add another sample and turn the flat knob of the sample port in the VACUUM position= facing DOWN. Wait for the vacuum pressure to stabilize.
- Repeat this step for the number of samples to test.
- **Make sure the collector drain tube is disconnected before you start the run.**
- **For Manual start-up**
 - ✓ Press COLLECTOR then press START
 - ✓ When collector temperature reaches -40 C (or colder), Press VACUUM then Press START

Note: Vacuum must not be started before you ensure that the collector temp has reached -40 C

- **For Auto start-up**
 - ✓ Press AUTO then press START
 - ✓ Vacuum will start when collector temperature reaches -40 C

Stopping the test

- When the designated time has passed or when all the frost has disappeared from the outer surface of the sample container and no spots can be detected when handling the container run the sample several more hours to ensure complete drying. When ready, stop collector & pump MANUALLY
 - ✓ Press VACUUM then STOP
 - ✓ Press COLLECTOR then STOP

To remove samples after drying is complete

- Turn the white knob to the VENT positing (facing UP)
- The sample container may now be removed. Please hold the vent ports tight while removing the sample containers to avoid leaking problems.
- To lift the chamber, release the pressure by turning ANY knob into the Vacuum position (Facing DOWN). Make sure no beaker is attached.

Defrosting the Collector

- Attach the drain hose to the drain port. Place a drain container under it if necessary
- Press COLLECTOR – DEFROST- Press START
- To turn off the defrosting, on home screen, press DEFROST the STOP (the defrost function will turn off automatically if the collector temperature reaches +60 C or if defrost has been running for 2 hours)
- Clean the collector chamber with water or 70% ethanol using a smooth towel or cloth then wipe chamber dry

To change the Operating Vacuum Level

- Press VACUUM
 - ✓ Enter new vacuum set point value
 - ✓ Press APPLY (Or START if vacuum pump is not already running)

Data Logging

- Before the start of the run, go to the data logging screen (Open folder icon), press NEW
- Change the name if desired by pressing on the name showing on the screen
- Once test is finished, view the data in the same folder under Data View.

- You can stop the data logging anytime by pressing STOP in the data logging screen
- Temperature and vacuum values will be collected throughout the run

Create a NEW program

- In the PROGRAM screen, press NEW. Pressing on the name field to edit the program name
- Shelf temp, Time and Vacuum can be inserted/edited by pressing on these cells
- Press ADD button to add a new step or REMOVE to delete a selected step in the program
- Press SAVE to save the program
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How to Start a Program

- Press on the 2nd icon (next to the Home Screen Icon) Go to the Program screen
- Select the program then press START

