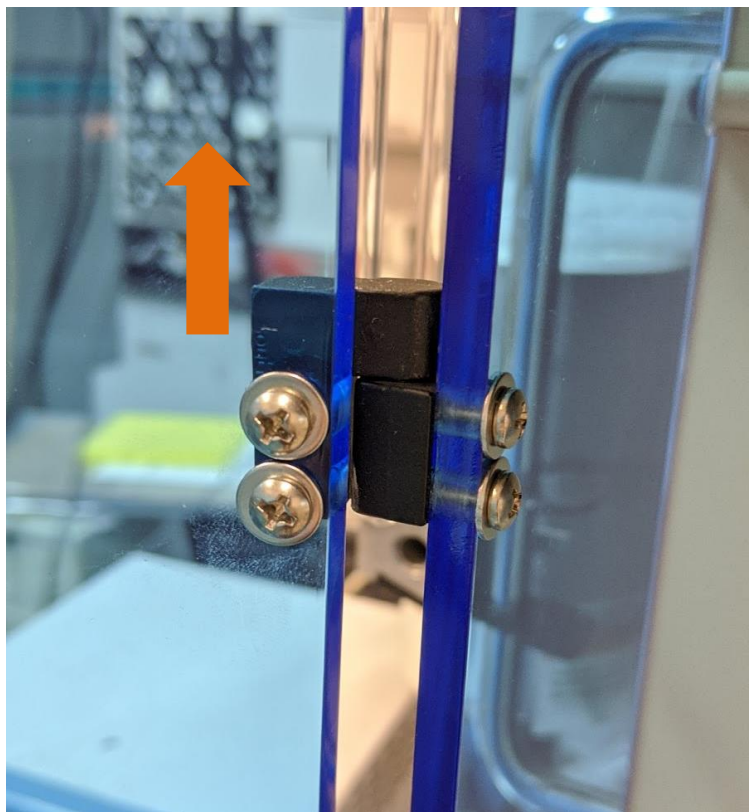
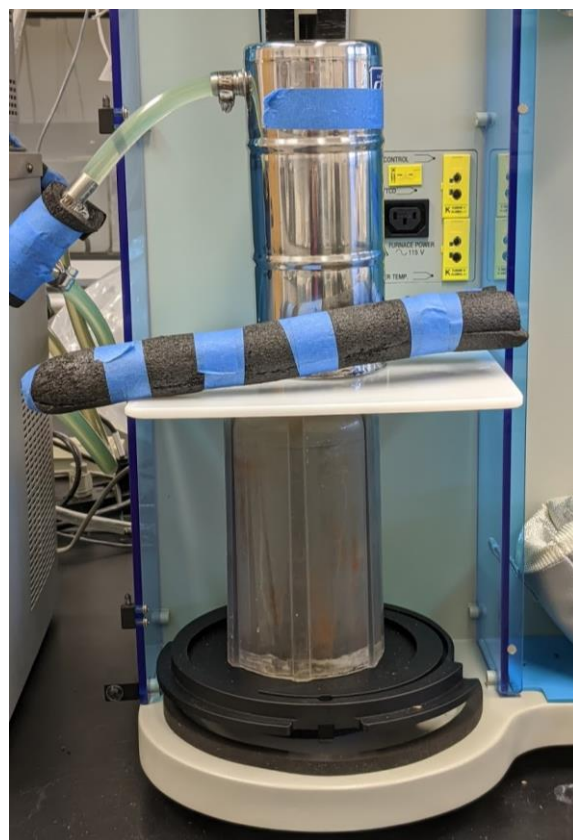


Physisorption with CO₂ adsorbate: Follow these steps prior to weighing and setting up your sample cells. It takes 60+ minutes for the system to cool before analysis should begin.



The Routine for CO₂ is very similar to the routine demonstrated during training, however because of the low liquid nitrogen temperatures, it is not suitable as a coolant for CO₂ routines. Instead we will use cold water, and the recirculating coolant to keep the solution in the dewar at a consistent temperature. This requires the removal of the blue door. With the door open $\frac{3}{4}$ of the way, gently lift the door off the hinge and set aside in a safe place (in the corner near the H₂ tank is a good out of the way place).

The dewar we will use should be placed on the clear plastic spacer as shown. There is assembly has raised features to ensure proper alignment. Be sure the clear plastic base is securely around the inner ring in the base, and the dewar is securely around the raised feature on the white plate.

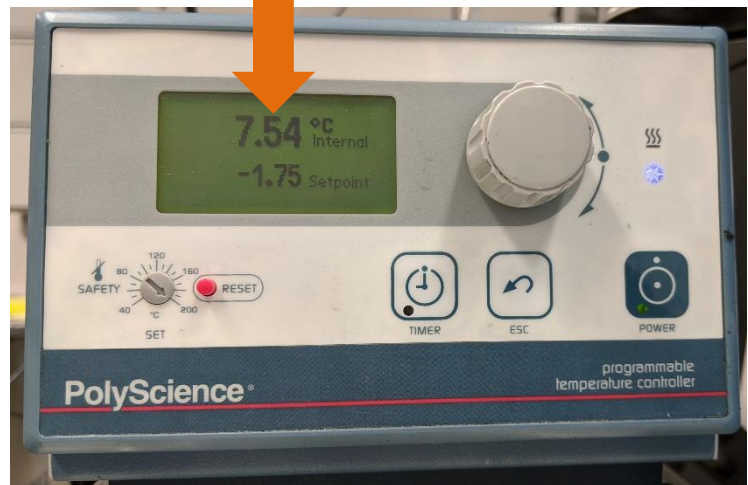




With this configuration we will not use the thermometer, but will instead use the float sensor, the float sensor should be placed on the same connection that you would typically place the thermometer. This will ensure the cells are submerged in the cooled water during the experiment and should keep the dewar from lifting far enough to contact and damage the cells.

The internal temperature should be 0°C before you begin your analysis to ensure constant conditions.

The chiller will need to be turned on and allowed to cool prior to beginning your analysis to ensure constant temperature during analysis. You should fill the dewar to the blue line with the CO₂ analysis solution (~500mL), and turn on the chiller. The setpoint for CO₂ analysis should be -1.75°C. It will take approximately 60 minutes for the coolant to reach 0°C. You can begin this process prior to setting up your analysis parameters.



**Be sure you set CO₂ as your adsorbate in the software. The Po cell is not used during CO₂ analysis, be sure to remove this if it is installed, and plug the port with a metal dowel.

Checklist:

- 1) Float sensor in place
- 2) Po Cell removed, and port plugged
- 3) Dewar filled to fill line with CO₂ Coolant Solution
- 4) Chiller near 0°C prior to beginning analysis
- 5) Samples loaded, unused ports and outgassing stations plugged
- 6) Correct adsorbate selected in program routine

When analysis is complete, place float sensor back in sensor drawer, turn off chiller, return coolant solution in dewar to storage container. The empty dewar can be stored on top of the chiller once it is dry. Return door to the machine.