

LIQUID NITROGEN FILL PROCESS FOR DEWARS SOP

September 2020

NOTE: ALWAYS wear PPE when working with LN₂.

Before filling your vessel, you MUST do the following:

1. Wear long pants.
2. Have a buddy. No one is permitted to fill a vessel alone.
3. Scan your entry card for the number of vessels you are filling.
4. Remain with the vessel to be filled at all times during the fill process.
5. Wear the provided PPE before starting the fill process. PPE consists of a **face shield, hearing protection and blue cryogenic gloves**. These are provided in the box by the door of the LN₂ cage

FILLING PROCEDURE

1. Make sure you are familiar with the components on the top of your dewar.



2. Make sure the dewar pressure is below 50 psi before filling.
3. Remove the diffuser from the end of flex line and position it on the ground towards the brick wall away from the walkway.



4. Open half way the main valve on the LN2 tank.



5. Open the small valve one turn on the fill line to begin flow of LN2 in the fill line. It may take a few minutes for the LN2 to start flowing from the end of the line.



6. Close the small valve when LN2 begins to flow from the end of the fill line.
7. Position the dewar so that the vent port is directed to the brick wall of the cage.
8. Connect and tighten the fill line to the liquid fill port on the dewar.



9. Open the vent valve on the dewar. Make sure the vent is pointed to the brick wall.
10. Open the liquid fill valve on the dewar.
11. Open the small valve on the fill line one full turn to begin flowing LN2 into the dewar. There will be a hissing sound coming from the vent of the dewar.

12. Observe the pressure gauge on the dewar while filling and make sure the pressure does not exceed 50 psi. If the pressure goes above 50 psi, then make adjustments to the small valve on the fill line to slow down the fill rate to the dewar.
13. While filling the dewar make sure the liquid fill and vent valves do not become frozen in place by making small movements back and forth to the valve.
14. When the dewar is approaching to being full the gas escaping the vent will be a visible cloud or fog. There will also be an audible stutter in the hissing sound from the dewar.
15. When the dewar is full close the main valve on the LN2 tank.

DO NOT OVERTIGHTEN THIS VALVE.



16. Close the small valve on the fill line.
17. Close the liquid fill valve on the dewar.
18. Close the vent valve on the dewar.
19. Slowly crack open, but do not remove the connection of the fill line to the liquid fill port on the dewar and wait 30 seconds. This will alleviate any pressure built up in the fill line.
20. Remove the fill line from the dewar.
21. Replace the diffuser on the end of the fill line and position it towards the brick wall to avoid the walkway.
22. Open the small valve until you hear a high pitch whine on the fill line to bleed any remaining LN2 and pressure in the line.
23. Close, but do not overtighten the small valve on the fill line. Return the fill line to its holder on the post.
24. Place the PPE back into the provided box and close the lid on the box.