

Filling 160 Liters Liquid Nitrogen Dewars

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Potential Hazards

- Extreme Cold Exposure
- Loud Noise Exposure
- Asphyxiation
- Pressure Build Up and Explosion

PPE

- Eye Protection
- Face Shield
- Hearing Protection
- Cryogenic Apron
- Cryogenic Gloves
- Closed-toe Shoes
- Lab Coat

Materials Required

- Dewar
- Tank Dolly
- N3892 Key

Steps for Filling Dewars

1. Unlock and open gate.
2. Fill out logbook.
3. Don (put on) personal protective equipment.
4. Position 160-L dewar with vent facing away from pedestrian sidewalk and away from 5,700-L stationary tank. Vent should face towards the DBH building.
5. Make sure the by-pass valve near T-bar connection on transfer line is closed.
6. Connect fill hose to the liquid inlet on 160-L dewar. Using the T-bar connection (not too tight!).
7. Open vent valve on 160-L dewar



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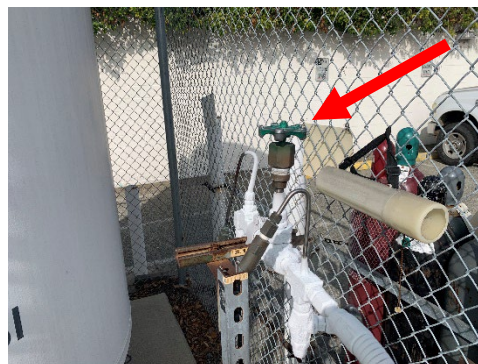
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8. Inlet on 160-L dewar:

- **Round knob-type valve:** open liquid inlet *all the way*, **then back a little**, to keep valve from freezing open.

9. Identify the **green** outlet valve **located just before the flexible metal** tubing on the 5,700-L stationary tank. Open the **green** valve all the way, **then back a little**.



10. 160-L dewar fill time: 5-15 minutes.

11. Shake 160-L dewar when near full to get accurate gauge reading and not waste liquid nitrogen.

12. When some liquid squirts out of the vent valve, the 160-L dewar is filled.

When Finished Filling

1. Close the **green** outlet valve on 5,700-L stationary tank.
2. Open the by-pass valve on the transfer line to release pressure. **(make sure no one is standing behind valve!)**
3. Close liquid inlet valve on 160-L dewar.
 - Wait until the gauge reads under 20 psi
4. Close vent valve on 160-L dewar.
5. Slightly open the T-bar connection at the liquid inlet on 160-L dewar. (Use warm water to thaw connecting nut on rainy days)
6. Allow to slightly thaw, then disconnect fill hose while holding on tightly to fill hose. **(do not allow hose to twist)**
7. Fill out logbook.
8. Doff (remove) personal protective equipment and place it back neatly in the cabinet.
9. Lock the gate.

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EMERGENCY SHUT-OFF SECTION

If the green outlet valve, located next to flexible metal tubing, fails to shut-off the flow of liquid nitrogen, **immediately** close the second green valve located underneath the stationary tank that is labeled “EMERGENCY SHUT-OFF”.

