Filling liquid nitrogen cell banks

PPE

- Cryo gloves – The tubes, valves, and cell bank will be very cold.
- Safety glasses and lab coat – Contact of liquid nitrogen with eyes or skin can cause serious injury, and vials can pop unexpectedly upon removal from nitrogen.

When to fill a cell bank

Cell banks will alarm when low. We want to keep the level above the minimum detectable level (~2 inches of LN2) at all times. The rate that liquid nitrogen is lost depends on how often the cell bank is used, but it typically needs to be filled about every two weeks. The level of liquid nitrogen can also be measured using a yardstick (stored by the Locator 6 tank). The level indicator on top of the cell bank is also useful, and the liquid nitrogen should be kept in the range of 2-3 bars.

Filling a cell bank

1. There are 2 Praxair liquid nitrogen tanks (located in B701) that we alternate between based on which one is full. The one with the hose attached is the one that should be used until it is empty.
2. Remove the lid of the cell bank and place the end of the hose inside the cell bank. Turn the knob attached to the hose (the blue one).
   - There will be a high-pitched noise when you turn the knob. This is normal.
3. Wait for the cell bank to fill up to the height of the first two boxes. This corresponds to about two bars as shown by the level indicator.
   - The cell bank shouldn’t be filled much more than this because cells should generally be stored in the vapor phase.
4. Carefully turn the knob to stop the flow of liquid nitrogen, and remove the hose from the cell bank. The hose and knob will both be very cold.
5. If a tank runs out of liquid nitrogen, close the valve, carefully unscrew the hose, and connect it to the other tank using a wrench. Continue from step 2. It is helpful to let Sara Adair (sjs7w@virginia.edu) know when a tank is empty so that she can order the next backup.

Other cell bank information

- Before removing the lid of a cell bank, the reset button on the lid should be pressed (causing the RESET light to illuminate). This tells the level monitor to stop sensing. If the button is not pressed again after 5 minutes, the alarm will go off to remind you to turn the monitor back on.
- Each time the cover is removed, the tank will need to equilibrate. This takes ~15 minutes, during which time the level monitor may not read the liquid nitrogen level accurately.
- For more complete information, please refer to the operating manual (located on the lab website under equipment manuals).
Pressure release valve – this should always be open to allow gaseous nitrogen to escape.

- Liquid knob
- Hose connection
- Tank level indicator