

**ANIMAL BIOSCIENCES DEPARTMENT**  
**Dispensing Liquid Nitrogen (LN2) from the 230 Liter Tank**  
**Standard Operating Procedure**

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**Effective date:** Jan 28 2013 [revised Nov. 13 2015]

**Located in Room 180 the Diet Cooler Animal Wing first floor**

**NB.** New tanks are located in Room 176 in the same area.

**Sign out key and User log [Room 180 is kept padlocked]**

- Key is available from the Main Office - Please sign the clip board there when taking the key.
- Note all liquid nitrogen dispensed (or spilled) must be recorded on the clip board beside the cow scale down the main hall.

**NB.** - Remember not to lock the padlock key inside the cooler.

**Personal Protective Equipment required:**

- Lab coat, proper footwear (no open toed shoes or sandals), full face shield protection, & insulated gloves.
- Liquid Nitrogen contact with exposed skin or eyes may cause 3<sup>rd</sup> degree burns.

**Dispensing from the 230 Liter Tank**

- Each tank has 3 valves on top of the tank which connect with the centre of the tank and there is a small silver tag (may be covered in ice) labeled on each valve - vent (green), gas (grey) or liquid (blue valve handle).

**NB.** - Always connect the dispensing hose to the **“Liquid”** valve.

**Hazards:**

- Burns and other tissue damage - protect skin from frostbite.
- Containers cooled in LN2 will, as their temperature rises experience an increase in internal pressure (explosive capabilities) - reason for face protection.
- Avoid wearing jewelry (may become brittle or tarnished).
- Cooler door must be open when dispensing liquid nitrogen; otherwise an oxygen deficient atmosphere may develop.

<b>Dispensing Instructions</b>	<b>Hints on how to tell if the tank needs to be replaced with a new one</b>
<ul style="list-style-type: none"> <li>- Attach nozzle if necessary and tighten with a wrench, not too tight since it is brass, try not to strip the threads</li> <li>- Turn right to tighten, and turn left to loosen.</li> <li>- Ensure nozzle is attached to <b><u>liquid valve</u></b></li> <li>- Use only liquid nitrogen approved Dewar containers</li> </ul>	<ul style="list-style-type: none"> <li>- Do not turn on if hose nozzle has been removed from tank.</li> <li>- Praxair requires nozzle to be removed for pick up.</li> <li>- Regulator stays defrosted after use.</li> <li>- When the tank is blowing gas or you hear a high pitched noise, then it is empty</li> <li>- If the gauge is easily readable the tank has been dry</li> </ul>

<ul style="list-style-type: none"> <li>- Weigh your empty Dewar before filling it.</li> <li>- Use the insulated gloves to hold the nozzle down into the Dewar flask</li> <li>- Dispense liquid nitrogen by turning the valve on top of the nozzle <b>ON</b> (left turn) or <b>OFF</b> (right turn) <b>(all the way and then turn back to close slightly)</b></li> <li>- <b>If valve is all the way open, then it could freeze open</b></li> <li>- <b>If valve is not open enough, then it just blows gas</b></li> <li>- <b>COOLER DOOR OPEN SHOULD BE OPEN</b></li> <li>- Re-weigh your filled Dewar flask.</li> <li>- <b>SIGN THE LOG SHEET AND RECORD THE VOLUME OF LIQUID NITROGEN THAT YOU OBTAINED.</b></li> <li>- <b>THIS LOG IS BY THE SCALE</b></li> </ul>	<p>for a few days</p> <ul style="list-style-type: none"> <li>- The “swish” test - move tank back &amp; forth and listen for movement of liquid inside the tank.</li> <li>- tank much heavier to move full than empty</li> </ul> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>- Usually 1 or 2 new tanks are sitting in Room 176.</li> <li>- Move empty out of cooler and new tank into cooler</li> <li>- You may ask to borrow from someone (ONLY with their Permission) who has some extra Liquid Nitrogen to spare.</li> </ul>
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**NB.** If the valve freezes open while dispensing LN2, **“to defrost it”** use a hair dryer and extension cord located in Room 176, the gas cylinder room.

**Caution:** - If there are any electrical dangerous hazards present – Please do not proceed and call for assistance.

**NB.** Tuesday is the usual delivery date and Praxair generally keeps an eye on how many full tanks we have - if there is any doubt please contact Manfred about getting more tanks delivered.

## LIQUID NITROGEN

**Ordered From: PRAXAIR**

Normally ordered by Manfred ext. 53700 - if away see clerk (Main Office).

### **Standard Operating Procedures:**

- Posted next to 230 L tank in diet cooler Room 180 Animal Wing.

### **Record Keeping:**

- Clip board is located beside the cow scale near Room 185.
- Complete this each time liquid nitrogen taken from tank.
- Place any packing slips in the envelope provided in Room 180.

### **Price Charged To All Users:**

- Charges are per kilogram of liquid nitrogen,
- Dollar value set periodically to reflect cost recovery expenses.

