

DEPARTMENT OF ELECTRONIC AND ELECTRICAL ENGINEERING

SOP FOR MOVEMENT OF CYROGENICS USING THE ROBERTS LIFT

Purpose:

To provide standard operating procedures for the safe movement of liquid nitrogen and other cryogenics within the Roberts building when using the goods lift.

Background:

Liquid Nitrogen (LN₂) 77K, -196 °C is inert, colourless, and odourless.

It's volume expands 1:700 when going from liquid to gas at room temperature therefore carrying the risk of producing oxygen deficient atmospheres and asphyxiation. Always use in well-ventilated areas. The transition from liquid to gas can generate pressure quickly so correct Dewars and containers must be used, no sealed containers. The cold temperature carries a risk of freeze burn or frostbite injuries, appropriate PPE and clothing must be worn when handling.

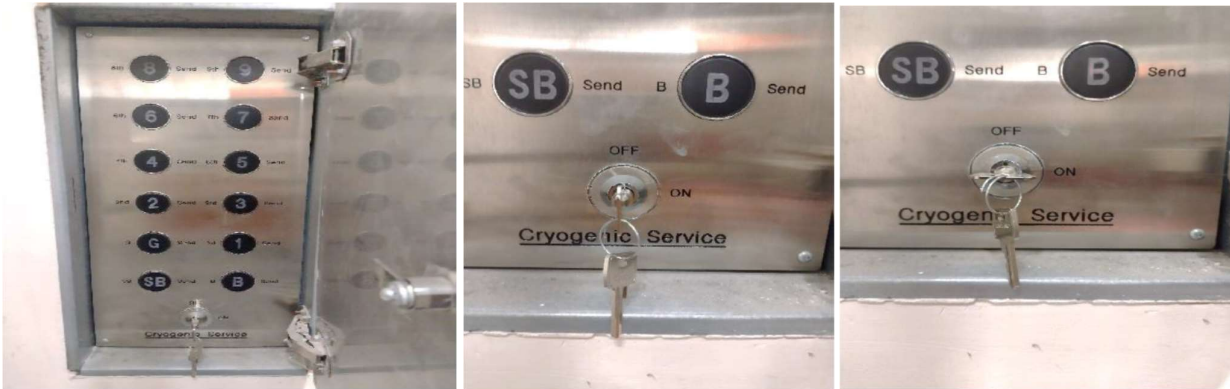
NOTES: If decanting in an area that is not well ventilated, please take the Dewar to ground floor and use the covered area outside the building, outside the goods lift lobby to use the LiqN₂.

Standard Operating Procedure:

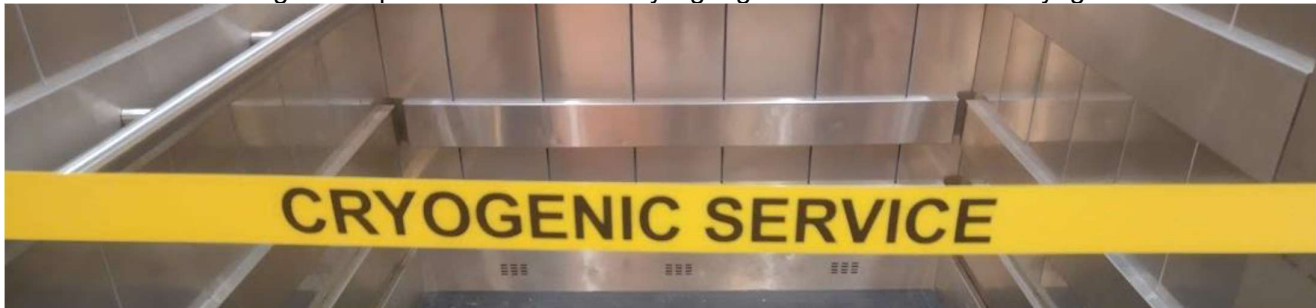
- Dewars must only be transported if correctly and clearly labelled.
 - Always keep vessel upright except when pouring from specifically designed Dewars.
 - You will need two trained people for the process.
 - The control panel key is in room 912 (only authorised users have access to the room).
 - Person A will be at the floor on which you are loading the lift, Person B will be at the ground floor at which you will be receiving the Dewar.
 - Person A and Person B will need a way to communicate when on different floors e.g via personal devices.
1. Person B at ground floor will use the first key lift in the cryogenic panel to the left of the lift to open the panel.



2. Person B will call the lift to ground and ensure there are no passengers in the lift. While the empty lift is at ground floor level, insert the second key and twist right.



3. This now enables Priority Service, and it can be sent to any floor.
4. Person B will press the button for the floor where the Dewar is to be loaded.
5. Once the lift is at the loading floor, Person A will load the Dewar using correct manual handling techniques and use the safety signage in the lift to indicate cryogenic service.



6. Once loaded safely Person A will let Person B know via their chosen communication platform. Person B will then press the button for ground floor. Both Persons will keep an eye at the floor level on the screens above the lift to ensure it doesn't stop at any other floors than the intended floor.
7. Once at ground level Person B will unload the Dewar using correct techniques. Person B to remove keys and lock the cryogenic panel.

After filling by BOC please note the Dewar will be a lot heavier and difficult to handle, please take care and take the manual handling training linked below.

For the return of the Dewar to its floor please follow the reverse of these instructions:

- A) Person A go to the offloading floor.
- B) Person B load Dewar into lift while on priority service and send to desired floor.
- C) When lift reaches desired floor Person A to remove dewar from lift and let Person B know.
- D) Person B to remove keys and lock the cryogenic panel – **KEYS MUST BE RETURNED TO 912**

TRAINING:

Manual handling training can be taken here: <https://www.ucl.ac.uk/safety-services/policies/2020/aug/manual-handling-and-lifting-training>

Liquid Nitrogen in the workplace: <https://www.ucl.ac.uk/safety-services/policies/2022/dec/liquid-nitrogen-workplace>

Safe decanting of liquid nitrogen: <https://www.ucl.ac.uk/safety-services/policies/2022/dec/safe-decanting-liquid-nitrogen-training>