

This document is to clarify the handling procedures for gas cylinders and liquid nitrogen tanks and the use of the gas cylinder storage area located outside of FLEX.

Compressed gas cylinder receiving and storage cages are located outside, adjacent to the loading dock area. The compressed gas cylinders are segregated (according to the signs in the storage area) into four categories (see Figure 1).

1. Flammables gases.
2. Empty cylinders.
3. Non-flammables gases.
4. Special Gases¹

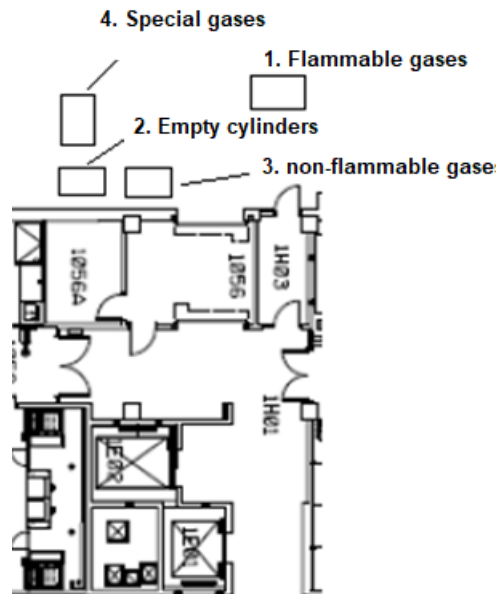


Figure 1. Location of cages for gas cylinders at FLEX.

Receiving procedures:

1. The individual who ordered the cylinder will be notified by email when the cylinder arrives.
2. The cylinder cart will be available at the FLEX loading dock.
3. Make sure you have the appropriate PPE – safety glasses, closed toed shoes, long pants.
4. Sign on the invoice that is associated with the cylinders that you pick up. All the invoices are located in the Non-flammable incoming cage.
5. Before leaving, make sure that the cage is locked and the padlock is closed in place.
6. Transport cylinders in the service elevator and through lab areas only. Gas cylinders should not be pushed through the work café or other common/office areas.
7. After securing the cylinder in your lab, return the cart to the loading dock.

Returning empty cylinder procedure:

1. Make sure you have the appropriate PPE – safety glasses, closed toed shoes and long pants

¹ Check with FLEX Building Deputy before placing a cylinder in the “special gases” cage.

2. Check out the cart from the loading dock.
3. Get the cylinders that you need to return from your lab.
4. Make sure that you place them in the empty cylinder storage area according to the signs and to be secured.
5. Before leaving, make sure that the cage is locked and the padding lock is closed in place.
6. Return the cart to loading dock.

General notes:

- A cylinder should be picked up or moved from the incoming cage within 2 days of notification.
- If you received a cylinder that will not be used, you should move it from the incoming cage to the storage cage and sign on the associated invoice located in the non-flammable incoming cage.

Cylinder Storage:

- Oxidizing gases are considered non-flammable. Do not store/return oxidizing gases along with flammable gases!
- If your cylinder is obstructed by other cylinders, gain access to it by moving these cylinders and securing them with chains available in each cage. Do not leave any cylinders unsecured at any time.
- Be careful not to pinch your fingers while moving cylinders within the cage. Move the cylinders by gripping them near the upper tapering section. NEVER grip the cylinder by its cap.
- Be aware of inclement weather conditions that could affect the easy movement of gas cylinders. E.g.: do not attempt to move cylinders when there is a snow storm or when the walkways are not cleared.
- Plan ahead for bad weather, holidays or weekends for use of cylinder storage area.
- Before attempting to move/transport any gas cylinders or liquid nitrogen tanks, visually inspect the cart used for integrity, and make sure the cylinder is safely secured to the cart. Do not use defective carts!
- Always check the pressure and release excess pressure when moving liquid nitrogen tanks or Dewars, empty or full. Carry cryogenic gloves with you to help you release the excess pressure safely.
- It is recommended that other people don't use the elevators while gas cylinders and Dewars are being transported in them. Make sure you communicate this, when necessary.
- Liquid nitrogen tanks should always be handled by two people during transportation. If you don't feel comfortable handling the cart, STOP and ask your supervisor or colleagues for assistance.
- When transporting liquid nitrogen tanks with the elevator, follow the procedure:
 1. Send the tank unaccompanied to the upper/lower floors.
 2. One person is loading the tank in the elevator, while the second person is waiting for it at the destination floor.
 3. The freight elevator has a barrier to prevent people from boarding the elevator when liquid nitrogen is present should it stop at intermediate floors. The person loading the tank in the elevator secures the belt barrier in place, exits the elevator and sends the tank to its destination floor.
 4. Upon arrival, the person waiting on the destination floor releases the belt barrier and removes the tank from the elevator.
 5. Transport the tank to your lab (both persons needed).
- Make sure the liquid nitrogen tank and gas cylinders come to room temperature before using them. Very cold/hot weather outside will cause pressure changes in the cylinder.