

Please, do not use flammable solvents inside the Glove Box. e.g. Acetone, Ethanol, Methanol, Isopropyl Alcohol-IPA

Using the glovebox

Bad Things

There are several Bad Things that you want to avoid when using a glovebox:

- **Bringing water or air into the box.** All flasks brought in must be nitrogen-filled or evacuated. Make sure all empty containers are open when the antechamber is being pumped down. Remember to open packets containing syringes etc. before bringing them in.
- Pulling solvents into the pump. When you pump in a flask containing a [volatile solvent](#) such as [diethyl ether](#), the stopper will blow out unless it is properly secured (even an "evacuated" flask of ether has about 400 [torr](#) of [vapor pressure](#)). DO NOT rely on simple plastic clips to retain a stopper. Ask your instructor for the proper way to deal with this. If you suck solvent into the pump you must change the pump oil immediately.
- Sucking the gloves into the box. If you leave the inner antechamber door open and evacuate the antechamber, you evacuate the inside of the box. The gloves will suck in, balloon up and then burst. Bad News.
- Having both the inner and outer door to the [antechamber](#) open at the same time.
- Putting holes in the gloves (see above under [Gloves](#)).
- For "real" boxes that have a catalyst [drytrain](#): the drytrain catalyst can be irreversibly damaged by thiols, [amines](#), [phosphines](#), [halides](#) etc. If you need to use any of these materials, you must first shut off the drytrain. Afterwards, you will need to purge the box atmosphere before re-opening the drytrain.

To bring something into the glovebox:

1. Close the antechamber valve leading to the vacuum pump.
2. Slowly open the antechamber nitrogen valve until the antechamber is at atmospheric pressure then close the valve.
3. **Double check** that the inner door is not open!
4. Open the outer door, place your stuff inside and close the outer door.
5. **Double check** that the nitrogen valve is closed, then slowly open the antechamber vacuum valve.
6. After 10 minutes of pumping, close the antechamber pump valve and partially backfill the antechamber with nitrogen. Then evacuate the antechamber again.
7. Repeat the above process after an additional 5 minute interval (why??)
8. After another 5 minutes, close the antechamber pump valve, then backfill the antechamber to atmospheric pressure with nitrogen. Close the nitrogen valve.
9. Open the inner door and bring in your stuff.

To bring something out of the glovebox:

10. Follow the above instructions to get the antechamber under nitrogen.

11. Put your stuff in the antechamber and close the inner door.
12. **Double check** that the inner door is closed and that both antechamber valves are closed.
13. Open the outer door, remove your stuff and close the outer door.
14. **Double check** that the nitrogen valve is closed, then slowly open the antechamber vacuum valve.

General Notes

- If you aren't sure if the antechamber is under air or nitrogen, remember this simple rule:

When in doubt, pump it out

- Of course, before pumping down the antechamber, always open the outer door (carefully) to make sure there are not any materials in there such as open bottles of solvent.
- If you are going to open a bottle of deuterated NMR solvent, make sure that the box is free from "regular" solvent vapors. Otherwise, you'll contaminate the NMR solvent and have large spurious contaminant peaks in your spectra.
 - As with any piece of equipment, when you are done with the box, **CLEAN IT UP**. Leave it in equal or better condition compared to when you started your work.
 - If the gloves are dripping with sweat when you are done, please be courteous and wipe them off!