Howard Materials Group

University College London

MBraun Gloveboxes

Please get training before using either of the gloveboxes. This guide applies to the solvent glovebox but most aspects also apply to the non-solvent glovebox. Take notes in training for specific differences.

Preparing Items To Be Brought Into the Glovebox

Equipment

Glassware, stirbars, needles, spatulas and pretty much anything that can go in the oven: should be washed (following washing routine) and dried in the oven for at least 30 minutes prior to being brought into the glovebox.

Plastics, syringes and other stuff that cannot go in the oven: should be pumped down on in the large anti-chamber or in the small anti-chamber (if no one needs to use the glovebox) overnight (for a lot of items or items which pockets of air are likely to get caught in, e.g. gloves or tissues) or an hour (for small amounts).

Commercial Chemicals

Inorganic salts: should be dried according to standard procedures, typically this entails heating under vacuum on a turbo line.

Non-volatile chemicals packed under argon: New chemicals that arrive packed under argon can be brought directly into the glovebox. Do not open them until they are under inert atmosphere!

Non-volatile chemicals not packed under argon: should be dried under high-vacuum by loosening the cap of vial prior to bringing them inside. Generally avoid these!

Sure-seal bottles: Chemicals in Sure-seal bottles can be brought directly into the glovebox, provided they are completely unopened (the cap has not been untwisted and/or the seal punctured). Once opened in the glovebox, these chemicals should be transferred to schlenk tubes, or stored in a secondary container.

Homemade Chemicals

Nonvolatile solids and liquids: should be dried under high-vacuum by loosening the cap of vial prior to bringing them inside. If these materials have been sealed under inert atmosphere then they are safe to bring in, ideally evacuate on a turbo line if possible.

Volatile solids: should be sublimed, transferred to a vial and brought in via a sealed vacuum chamber.

Other Items

Kimwipes should be oven dried for 6-8 hours (be sure to cut off the plastic part of the Kimwipes package or it will melt in the oven) and then placed in the antechamber while hot and left in the chamber under vacuum overnight before being brought in.

Using the small antechamber

1. The small antechamber should generally kept under dynamic vacuum.
2. To load items 'refill' the anti-chamber to box pressure.
3. Close the refill valve by turning the stopcock up. Note: if you fail to close the valve before opening the outer door, then the interior of the box will be directly exposed to the outside atmosphere!

4. Open the antechamber door and load the required equipment into the antechamber .

5. Evacuate the antechamber.

6. After approximately wait approximately 1 minute when fully evacuated. Repeat four times.

7. On last cycle, refill completely to box pressure and then close the refill valve by turning the stopcock up. Open inner door and take your things into the box, however reclose the inner down while working in the box. Evacuate the antechamber.

8. When you are done working in the box, refill the chamber by turning the stopcock to the right and close the valve. Place your items in the chamber and close the inner door. Again, make sure that the refill valve is closed before opening the outer door.

9. Close the outer door and place the chamber under dynamic vacuum when finished.

Using the large antechamber

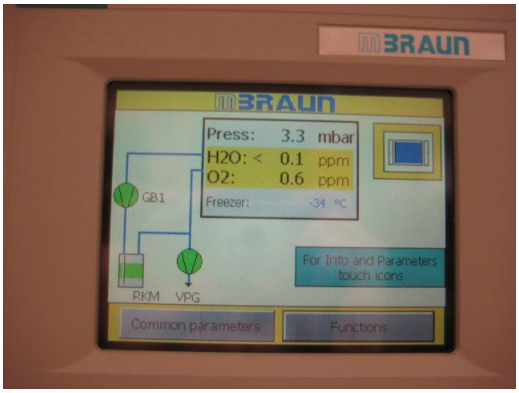
1. The large antechamber is generally kept under static vacuum and is controlled in a similar way to the small chamber. The key difference is that the door is operated in a different manner. When closing the door turn to finger tight (meaning the maximum force you can apply to the knob without bending your index finger backwards) and then turn an extra ¼ turn.
2. Be sure to evacuate for a longer period of time once at maximum vacuum compared to the small chamber, typically 5 mintues each time.
3. When you are done working in the box, place your items in the chamber and

close the inner door. Again, make sure that the refill valve is closed before opening the outer door.

Do not overtighten the doors!

Turning off the circulation

1. From the main menu tap the grey FUNCTIONS button on the lower right side of the screen. A new screen will appear.
2. Tap the green CIRCULATION and ANALYZER buttons. They will turn grey and the circulation will audibly cease.



Turning on and off the light

1. From the main menu tap the grey functions button on the lower right side of the screen. A new screen will appear.
2. Tap the box light button
3. The light should be turned off at the end of each working day.

Other things to know about working in the glovebox

- Please keep the box clean and organized! There is a rolling tape stick for cleaning up powders.
- Try to avoid spilling solvents on the gloves as it will wear them out faster. Clean up spills with parafilm/tissues for larger spills (evacuate properly!!)
- Be cautious with sharp pointy things around the gloves (needles, copper wire, broken glass) so as you run the risk of poking a whole in one of the gloves. If you do poke a hole (or find a hole) in a glove, cover it with electrical tape on both sides and let somebody know.

- If supplies in the box are running low let Kashim know so he can refill them.