**Changing the argon tanks (Rev. 11 June 2019)**

The argon tanks on the glove boxes should be changed when pressure drops below 500 psi.

This operation requires the following:

* New argon tank (Airgas High Purity)
* Wrench
* Teflon thread tape
1. Turn off the recirculation purifier
2. Close the old tank and close the flow valve
3. Remove the regulator and clean of used thread tape
4. Retape the threads
5. Replace the argon tank with the new tank and secure
6. Attach the regulator to the new tank and open tank
7. Set second stage to approx. 110 psi and open flow valve
8. Purge the glove box for 300 psi
9. Turn on recirculation purifier
10. Log tank change in box book

**Regenerating the glove box catalyst (Rev. 11 June 2019)**

The glove boxes should be regenerated **annually**.

This operation requires the following:

* Full tank of forming gas (94% N2/6% H2)
* Regen trap assembly
* Fresh VWR vacuum pump oil
* HyVac flushing oil
* 2 new MBraun fine HEPA filters (MBraun MB BF-L-03)
* 2 new North 8B15 butyl goves (1 left + 1 right)
* Gloveport cover
* Funnels (1 large + 1 small)
* Long tweezers
* Hexanes
* Wrench
* Flat head screwdriver
* Lots of gloves
* Lots of paper towels
1. Close both antechambers to vacuum and argon
2. Connect forming gas line to forming gas inlet and secure
3. Connect regen trap assembly to the forming gas outlet and place in an ice bath with the sidearm venting off into the hood (this is important because excess forming gas contains flammable H2)
4. Open the forming gas tank, set second regular stage to 5-6 psi and open flow valve
5. Turn **off**  the recirculation purifier
6. Select “Regeneration purifier”
7. When prompted “Do you want to regenerate?” select “Yes”
8. When asked to prove the flow of regeneration gas physically ensure that the gas is flowing out of the sidearm. If not, turn up the second stage pressure until gas can be felt leaving the vent. If so, select yes.
9. Allow regeneration to proceed uninterrupted for 16h. Inspect periodically for water formation at the outlet. Depending on use typical collection is approx. 50 mL.
10. Close the forming gas tank
11. Change the pump oil
12. Check argon tank level, if needed change tank
13. Pump down antechambers
14. Purge the glove box for 500 psi
15. Turn on the recirculation purifier
16. Transfer into the box two MBraun HEPA filters and the gloveport cover. Pump down overnight.
17. Change gloves and filters, remove from box.
18. Sweep the box floor, remove from box.

**Changing the box pump oil (Rev. 21 Oct 2019)**

The pump oil should be changed every **three months**.

This operation requires the following:

* Fresh VWR vacuum pump oil
* HyVac flushing oil
* Large septum
* Large and small funnel
* Long tweezers
* Wrench
* Flat head screwdriver
* Hexanes
* Lots of gloves
* Lots of paper towels
1. Turn **off**  the recirculation purifier.
2. Turn **off** the vacuum pump.
3. Disconnect vacuum pump from box. Do not lose any O-rings or filters.
4. Move pump to bench and drain old oil.
5. If excessively dirty, flush with a small amount of vacuum oil.
6. Refill oil chamber with vacuum oil.
7. Run pump open for 15 min and closed with large septum for 15 min.
8. Drain pump oil. Refill with flushing oil.
9. Run pump open for 15 min and closed with large septum for 15 min.
10. Drain flushing oil. Refill with pump oil.
11. Run pump open for 15 min and closed with large septum for 15 min.
12. Drain pump oil. Refill with pump oil.
13. Clean pump exterior of oil and dirt with hexanes.
14. Move pump back to box and reconnect.
15. Turn **on** the vacuum pump.
16. Purge box for 200 psi.
17. Turn **on**  the recirculation purifier.