

# STANDARD OPERATING PROCEDURE

Updated: July 14, 2015

## Nitrogen Glove Boxes

### Mini antechamber operation

Step 1: Ensure large antechamber is not currently in use.

Step 2: Check pressure gauge (attached on the top of the small antechamber) The pressure should be always at -30 in Hg when the antechamber is not in use. Make sure that inside door of the mini antechamber is not open.

Step 3: Break vacuum by turning the valve from the “Close” position to the “Refill” position. Wait until the pressure gauge reading becomes zero. Turn the valve from “Refill” back to “Close.”

Step 4: Open the outside door > load the sample, make sure that every container is slightly open > close the door by rotating the door handle until you feel it become tight, then go a quarter turn further. Make sure the locating tabs on the door are rotated from the entrance slots.

**Note: Over tightening of the door may damage the door.**

Step 5: Turn the valve slowly (VERY SLOWLY if powder is being transferred inside the glovebox) from the “Close” position to “Evacuate” position. Wait until the pressure gauge reading become -30 in Hg. (at least 3 minutes at pressure - 30 in Hg) Then turn the valve from “Evacuate” back to “Close.”

**Note: For POROUS materials, it requires OVERNIGHT pumping, at least 12 hours, to remove the oxygen; otherwise, it will release oxygen continuously inside the box.**

Step 6: Repeat step 5 at least two more times to ensure complete O<sub>2</sub> removal.

Note: Three evacuation cycles is the minimum. If pressure gauge does not pull to -30 in Hg, check: if the door is properly closed, o-ring on a door clean or pump is not working.

Step 7: After three evacuate/refill cycles, bring the valve back to the close position. (Now the pressure should be zero). Open the inside door. Unload your samples. Close the inside door. Bring the small antechamber back to vacuum.

**Note: Do not close the door handle too hard.**

## **BOX OPERATION GUIDELINES:**

- 1. Wear a pair of additional gloves over the gloves in the glovebox to protect the gloves on the box, carefully clean the oil, powders left on the gloves!**
- 2. Keep eyes on the oxygen level and the pressure of the glove box.**
- 3. Be careful when using the sharp objects inside of the glove box. Do not poke holes in the gloves.**
- 3. Keep highly reactive materials tightly closed and sealed with the tape inside the glove box.?**