

XAS chamber: samples loading & unloading procedure

Loading:

1. With the load-lock section up-to-air, load the sample on the sample holding ladder. Lower the ladder, close the viewport door.
2. Pump down to vacuum the Load-lock chamber:
 - a. SLOWLY open the manual “speedy” valve to the scroll pump monitoring at the same time the pressure in the load-lock section.
 - b. Start the Turbo pump (pushing the start/stop button).
3. Wait till the Turbo pump reaches NORMAL OPERATION and the pressure in the load-lock chamber is better than **6.7 mTorr** (i.e. 6.5 mTorr).
4. Open the manual gate valve between the load-lock and the main chamber; the pressure in the main chamber should stay better than **2×10^{-6} Torr** (i.e. 1.8×10^{-6} Torr).
5. Using the transfer arm, grab the sample. Push the transfer arm into the main chamber and gently slide the sample into the holder. Use the in-vacuum screwdriver to secure the sample onto the holder.
6. Fully retract the transfer arm back into the load-lock. Close the manual gate valve.
7. Align the sample with the help of the two lasers.
8. If the pressure in the main chamber is reasonable (better than **5×10^{-7} Torr**; i.e. 4.8×10^{-7} Torr) **FROM THE PGM CONTROL PANEL** switch **OPEN** the End-Station gate valve between the main chamber and the upstream of the beamline and turn **ON** the FL negative high voltage (-1450 V).

Unloading:

1. Make sure **FROM THE PGM CONTROL PANEL** (VLS-PGM Manual):
 - the negative high voltage (-1450 V) on the fluorescence (FL) detector is **OFF** (ramped down and off);
 - the End-Station gate valve (connecting to the upstream of the beamline) is **CLOSE**.
2. Position the manipulator on the marks (x~**10**, z~**32**, and θ ~**19**°).
3. Open the manual gate valve connecting the load-lock to the main chamber.
4. Push the transfer arm into the main chamber. Lock onto your sample; use the in-vacuum screwdriver to unscrew the sample from the holder.
5. Smoothly fully retract the transfer arm back into the load-lock, **CAREFUL** not to open the jaws. Place the sample onto the sample holding ladder.
6. **Close the manual gate valve.**
7. Vent the load-lock chamber:
 - a. Close the manual “speedy” valve to the scroll pump.
 - b. Switch off the turbo pump of the load-lock chamber (pushing the start/stop button), bring the load-lock up-to-air (~700 Torr) using the Nitrogen gas-line.
8. Open the viewport door in the glove box. Raise the ladder and remove the sample.