

WARNING: Never put your body over the sample stick, over pressure situations are dangerous and can be harmful.

Using the 3-way valve

1. Pause or stop data acquisition
2. Close Secondary Shutter
3. Wait until sample stick temperature is between 100K and 300K
4. Wait a minimum of 20 minutes for sample activity to decay
5. Loosen the three clamps, not remove, from sample stick flange
6. Open Helium supply valve
7. Turn 3-way valve toward the helium valve to purge with helium
8. When vacuum gauge reads atmospheric pressure wiggle/rotate the flange. Once it has been verified that the flange is free to move then remove the clamps. Carefully pull the sample stick out. Leave O-ring in place. Leave helium gas flowing.
9. Put the sample stick on the sample area holder and clamp in place
10. **DO NOT TOUCH SAMPLE UNTIL IT HAS REACHED ROOM TEMPERATURE**
11. Put cap on CCR
9. Turn 3-way valve in the opposite direction to start pumping
10. Survey the sample in the sample area, if **ALARMS** call RCT to get them to survey it
11. Once sample can be handled remove sample, place in bag with ITEMS tag and store in cage.
15. If necessary, warm sample stick with hair dryer. **BE CAREFUL** of wires and thermometry. Use a hair dryer with a sweeping motion. Don't leave it in one place.
16. Blot the stick dry with a wipe
17. Attach new sample - make sure it is secure
18. Turn 3-way valve toward the helium valve to purge with helium
19. Once it is at atmosphere the cap will come off. Leave helium flowing.
20. Carefully insert sample stick into CCR
21. Once sample stick is firmly in place on top of the o-ring turn 3-way valve to pump
22. Attach clamps. **DO NOT** over tighten
23. Pump/purge three times the sample space:
 1. When the vacuum gauge reads ~0 turn 3-way valve toward the helium valve
 2. When the vacuum gauge reads atmosphere turn 3-way valve back to pumping
 3. Repeat steps 1. and 2. two more times
24. For sample temperature greater than 500K leave 3-way valve turned to pumping and close helium supply valve. **DO NOT ADD GAS.**
25. For sample temperatures less than or equal to 500K use 3-way valve to slowly backfill sample space until vacuum gauge reads 100 – 200mbar with helium. When complete turn the 3-way valve to the neutral position.
26. Monitor pressure to ensure constant pressure (no leak and not pumping on sample space).

NOTES:

- When pumping, purging or monitoring pressure tap vacuum gauge face lightly with finger occasionally to ensure that the needle isn't stuck.
- Review proper sample survey and handling procedure with beam line staff prior to starting experiment.

Using the Helium Pump Purge (HPP)

1. Pause or stop data acquisition
2. Close Secondary Shutter
3. Wait until sample stick temperature is between 100K and 300K
4. Wait a minimum of 20 minutes for sample activity to decay
5. Loosen the three clamps, not remove, from sample stick flange
6. The 3-way valve should already be toward the helium valve to use the Helium Pump Purge (HPP) system.
7. Click Flow. When vacuum gauge reads atmospheric pressure wiggle/rotate the flange. Once it has been verified that the flange is free to move then remove the clamps. Carefully pull the sample stick out. Leave O-ring in place. Leave helium gas flowing.
8. Put the sample stick on the sample area holder and clamp in place
9. **DO NOT TOUCH SAMPLE UNTIL IT HAS REACHED ROOM TEMPERATURE**
10. Put cap on CCR
11. Click Pump
12. Survey the sample in the sample area, if ALARMS call RCT to get them to survey it
13. Once sample can be handled remove sample, place in bag with ITEMS tag and store in cage.
14. If necessary, warm sample stick with hair dryer. BE CAREFUL of wires and thermometry. Use a hair dryer with a sweeping motion. Don't leave it in one place.
15. Blot the stick dry with a wipe
16. Attach new sample - make sure it is secure
17. Click Flow
18. Once it is at atmosphere the cap will come off. Leave helium flowing.
19. Carefully insert sample stick into CCR
20. Once sample stick is firmly in place on top of the o-ring click Pump
21. Attach clamps. **DO NOT** over tighten
22. Click the Pump/Purge/Backfill button to cycle a series of pump downs and helium purges. At the end it will backfill the sample space with the appropriate amount of exchange gas
23. For sample temperature greater than 500K click Pump and leave it that way. **DO NOT ADD GAS.**
24. Monitor pressure to ensure constant pressure (no leak and not pumping on sample space).

NOTES:

- When pumping, purging or monitoring pressure tap vacuum gauge face lightly with finger occasionally to ensure that the needle isn't stuck.
- Review proper sample survey and handling procedure with beam line staff prior to starting experiment.