

## **XRF Machine Switch On Procedure**

1. Turn ON the P10 (90 % Argon + 10 % Methane) gas cylinder and check/adjust the output pressure to 0.7 bar.
2. Switch ON the chiller (main switch + MCB) and check the water temperature (to be 17° C or 18° C) and pressure (to be approximately 5.0 bar).
3. Switch ON the air compressor, remove the moisture by pressing switch in the compressor and check the output pressure to be approximately 5.0 bar
4. Check if inverter on the wall is ON and then switch ON UPS.
5. Switch ON the mains power to the XRF.
6. Switch ON the XRF by pressing power ON (standby) switch.
7. Switch ON the computer and go to SUPERQ software (Manager) and System Set up.
8. It will ask “Do you want to compress it now?” Say yes. (Spectrometer Status Screen)
9. Monitor gas flow (1.0-1.1 ltr/hr).
10. Wait till the cabinet temperature reaches 29.5° C, before switching ON HT (High Tension) X-Ray tube.
11. Set the vacuum medium from outside, through SUPERQ software.
12. Wait till it reaches 2.89 Pa.
13. Switch ON HT (by turning key clockwise) and wait till it attains 20 kV and 10 mA.
14. Check if the input flow, output flow and primary temperature are within the range.
15. If the X-Ray tube was switched off for more than two days, then carry out ‘Tube Breeding’.
16. Otherwise, raise the kV and mA settings in steps of 5 each, up to 40/40. Wait for it to be 50/20.

## **XRF Machine Switch Off Procedure**

1. After lowering the kV and mA settings to 20/10 in steps of 5 each, switch OFF the HT (by turning key anticlockwise).
2. Remove the sample from the sample cup.
3. Set the vacuum path to air through SUPERQ.
4. Close the cap of XRF through SUPERQ.
5. Exit SUPERQ software.
6. Switch OFF the computer, printer and monitor.
7. Switch OFF the XRF by pressing stand by (power ON) switch.
8. Switch OFF the mains power of XRF.
9. Switch OFF the compressor.
10. Switch OFF the chiller (main switch + MCB).
11. Turn OFF the P10 gas cylinder.

## **UPS Switch On Procedure**

1. Switch ON main MCB on the wall.
2. Switch ON input MCB at the back of UPS.
3. Wait till it produces click sound.
4. Switch ON battery MCB.
5. Switch ON red switch in the box on the wall followed by black switches.
6. If buzzer produces sound, then press speaker-cross button.

## **UPS Switch Off Procedure**

1. Switch OFF input MCB at the back of UPS followed by battery MCB.
2. Switch OFF black switches in the box on the wall followed by red switch.
3. Switch OFF main MCB.

## Points to Remember

1. Keep the sample loading area clean. Use tissue paper for cleaning purpose.
2. Wipe off the extra sample or dust particles from the pressed pellet before loading the sample inside XRF.
3. Increase or decrease the HT power, i.e., kV and mA settings in steps of 5 each always.
4. Remove the moisture from the compressor daily.
5. Keep the settings constant for P10 gas output pressure (0.7 bar), compressed air (5.0 bar) and water chiller (5.0 bar).
6. Change the gas cylinder if the pressure reaches below 20 bar.
7. On installing new gas cylinder, flush little gas before connecting copper tube.
8. Keep the same power source, including earth, for XRF, computer and peripherals.
9. Remove samples from XRF before switching OFF.
10. Replace X-Ray ON indication lamps with original ones.
11. Store the standard samples in dessicator.