

SOP - Scanning Electron Microscope (SEM)

Hitachi Tabletop SEM

1. Switch ON the power plug
2. Switch ON the UPS button by long pressing
3. Turn ON the table top SEM and CPU
4. Enter the password()
5. Press EVAC button to vent the chamber (yellow LED blinking takes 1-min to stabilize)
6. Now mount the sample on Aluminum stub in following steps:
7. Clean the spatula and stub by tissue paper using acetone
8. Adjust the height of stub according to metal rod for SEM and according to bead for EDX and adjust it using locking screw
9. Put the double sided carbon tape at the center of specimen, put some sample over and press properly (powder form or stick the corner of a film sample)
10. Slowly open the sample stage when air mode LED is stable and mount the sample holder
11. Adjust the position at center by external buttons
12. Slowly close the sample stage chamber
13. Press EVAC button to make the vacuum inside (using oil free Diaphragm pump and Turbo molecular pump)
14. Open TM3000 software when vacuum LED is stable
15. Start button will turn ON the beam and use stage movement and set area for measurement
16. Use 15kV observation condition and press auto focus/ auto brightness at selected area
17. When morphology is obtained do slow scan and save the image at user's file.
18. For EDS open SwiftED3000 software
19. Options-> detector control-> operate to cool-> green LED-> minimize
20. Upload the image by and image view->Run
21. Select point ID scan
22. To save the file->export to word-> save at user's file
23. Remove undesired elements by selecting from periodic table and remove
24. Again save the data to word file
25. For mapping press line ID and select elements present in sample.
26. Element map view mode, select the elements and after acquisition export the data to file
27. To exit the EDS press detector control-> standby -> close the SwiftED1000
28. Minimize the magnification and operational mode and stop the TM3000 software
29. Send the data to user
30. Press EVAC to vent the chamber and remove the sample
31. Always put SEM into vacuum before closing it
32. Shut down PC and long press the UPS button
33. Switch off both power supply