AALTO UNIVERSITY 15.11.2018
School of Chemical Engineering
SEM Training
EHa

BASIC IMAGING WITH TESCAN SEM IN BRIEF

Preliminary operation
- Check that electronic is on
- Check nitrogen pressure
- Log-in to the software

Specimen loading
- Remember cautions on specimen preparation and materials
- Open specimen chamber by venting it
- Exchange specimen
- Start pumping and wait until proper vacuum is achieved
- Start chamber camera

Getting an image
- Select appropriate detector from list box
- Set acceleration voltage. There are four factory presets for the accelerating voltage (3, 5, 10, 20 kV), one for each HV index.
- Turn electron beam on by removing beam blanker
- Select beam intensity (BI 10 recommended) if neccessary
- Select wide field mode
- Select minimum magnification
- Select Auto signal function to set brightness and contrast

Image adjustment
- Bring the sample to correct Z distance with Stage Control (depends on sample, different from WD!, analytical WD is 20 mm)
- Select imaging mode
- Redo minimum magnification as well as auto signal function.
- Focus with WD adjustment knob (or software)
- Set sample position from Stage Control
- Degaus
- Choose magnification
- Focus and correct astigmatism
- Select appropriate scanning speed.

Save image
- Use icon in the toolbar and fill in descriptions

Optimising the electron beam
- Optimal column condition may require column alignment in high magnification work

Ending the session
- Turn electron beam off (beam blanker by pushing beam on again)
- Put sample stage in home position
- Take the sample out and pump vacuum into the chamber
- Log off, Go to stand by mode
- LEAVE THE MICROSCOPE ALWAYS IN STAND BY MODE AND DON'T CLOSE THE PROGRAM!
- Document your session in log-book and exel log-file