AALTO UNIVERSITY School of Chemical Engineering EHa

Sample requirements for Tescan SEM with EDS

Tescan SEM is a high-vacuum instrument that directs a beam of electrons to the specimen. Because of the small primary beam spot size, power density can be considerable. There is also high electric and magnetic fields inside the instrument. Consequently, specimen size, shape, state, and electrical properties need to be considered before putting it into the specimen chamber of the microscope. Unsuitable samples are difficult or impossible to study, they may be destroyed during the examination, and importantly, they may be harmful for the instrument.

Basic requirements for suitable samples are:

- Solid state material
- Small enough
- Dry
- No other volatile components in vacuum conditions either
- Stable under electron beam
- No loose particles, especially magnetic
- Preferably non-magnetic
- Electrically conductive as the main rule (after specimen preparation)

If you have any doubts about suitability of your samples, consult your supervisor for further advise.