

Most of SEM Sample preparations are the same as that you learned from LM and TEM, which include sample cutting, embedding (especially for composition analysis), polishing, cleaning, drying and final mounting.

Sample preparation for sensitive samples

For SEM diffraction contrast investigations, a normal specimen preparation would result in a damaged surface layer, which could seriously hinder diffraction contrast emerging from the specimen surface. The appropriate methods should give the damage-free surfaces, which could be obtained by chemical etching or electropolishing or together with ion sputter.

For non-conducting specimens, it has to use a suitable conductive coating (carbon or different metals). N.B. an inadequate coating would cause a reduction in X-ray intensity and consequently bad analytical results.

For uncoated non-conducting specimens to examine directly in the SEM, a careful consideration must be done for charge balance with the specimens, either in LVSEM or VPESEM modes, which will be discussed in details in the next sections.