

Scanning Electron Microscope

Make: ZEISS
Model: EVO 18

Purpose: For morphological studies. Elemental analysis of materials

This instrument is used for:

- Morphological imaging of materials
- Elemental and compositional analysis using EDS
- Elemental mapping



Working Principle:

In SEM, a finely focused beam of energetic (5-30 keV) electrons is scanned across the surface of the specimen to create its magnified image. The incident electrons undergo several different types of interactions with the specimen. These interactions are either emissive or transmissive in nature. SEM utilizes the emissive electron-specimen interactions to provide information on the morphology. Secondary and backscattered electrons are utilised for microstructural investigations.

During the interaction of energetic electrons with the specimen, characteristic x-rays are generated. These characteristic x-rays are used for elemental identification and quantitative analysis.

Major Applications

Materials Science (Powder/Thin films)
Pharmaceuticals
Minerals
Polymers

Metals
Forensics
Rocks
Zeolites