Damage and material analysis
Scanning Electron Microscopy

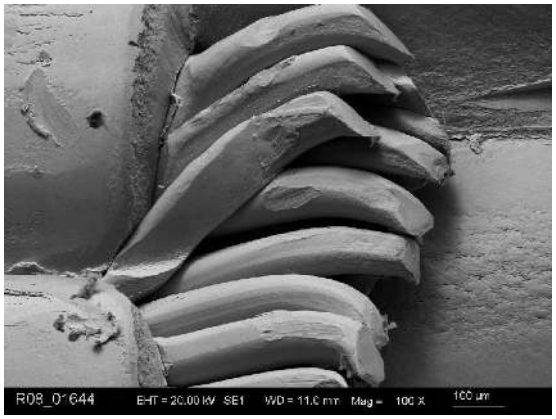
Scanning electron microscopy is a universally applicable technique for research, development, quality control and damage investigations. Parts, components and newly developed materials can be examined and characterized with regard to their material and surface properties.

Zeiss EVO 60 microscope
The large sample chamber allows the examination of samples and components up to a maximum of approx. 250 x 250 x 100 mm. The equipment includes an EDX detector for the determination of chemical compositions.

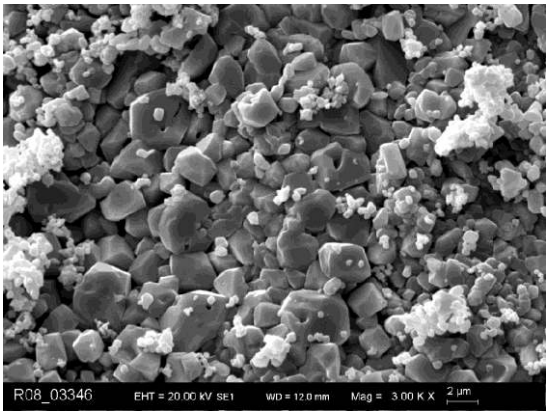
How the scanning electron microscope (SEM) works
A finely bundled electron beam is guided in a line over the surface of the object under investigation. The electron flow backscattered by the sample is detected and displayed on the screen.

Advantages of this method
The main advantage of scanning electron microscopy is the high resolution and at the same time the great depth of focus. Magnifications of up to approx. 50'000x can be achieved. In addition to the exact representation of the surface topography, local differences in the sample composition can also be made visible. Elements from atomic number 6 (incl. O, C and N) can be detected qualitatively to semi-quantitatively.

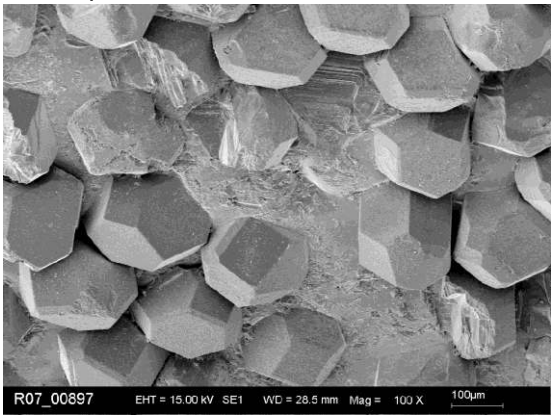
Some fields of application
- Characterization of materials and surfaces
- Investigation of fractured areas from damage events
- Quality control of components and parts
- Determination of the chemical composition of very small samples



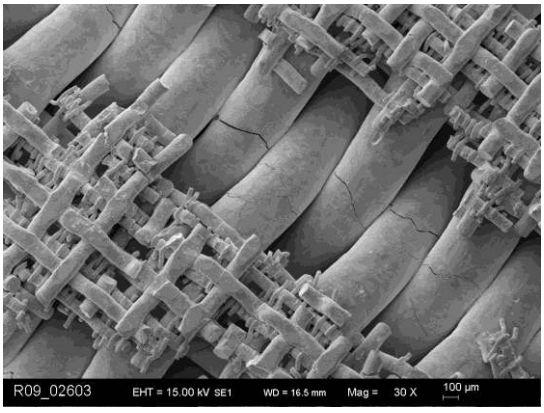
Wires of a printed circuit board connector



Magnetite layer



Diamond coated forming tool



Intercrystalline corrosion on metal mesh

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