Electron Microprobe Analysis

Specification and accessories
Electron microprobe analysis (EPMA) is a fully qualitative and quantitative method of non-destructive elemental analysis of microsized volumes at the surface of materials. It basically works by bombarding a microvolume of a sample with a focused electron beam (typically energy = 5–30 keV) and collecting the X-rays thereby induced and emitted by the various elements. Because the wavelengths of these X-rays are characteristic of the emitting species, the sample composition can be easily identified by WDS spectra. The analysis can be extremely sensitive: atomic concentration measured down to the ppm level. It is the most precise microanalysis technique and all elements from Boron can be analyzed.

- Qualitative and quantitative analysis, linescans, element maps
- Using standards for quantitative analysis
- Light elements can be determined
- For all kind of materials, insulating materials can be measured

Typical samples

W- and Ti-Map of a WC+TiN laserdispersed line

Qualitative linescan for light elements of a TiC-CrN-layer

<table>
<thead>
<tr>
<th>W%</th>
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<tbody>
<tr>
<td>Label</td>
</tr>
<tr>
<td>1.00</td>
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<tr>
<td>2.00</td>
</tr>
<tr>
<td>3.00</td>
</tr>
<tr>
<td>Average</td>
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<tr>
<td>Sigma</td>
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Quantitative analysis of a TiAlN-layer