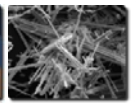


SAFE CONTROL
MATERIALTEKNIK

Scanning Electron Microscopy – when you need a closer look

Safe Control can offer a wider and deeper range of services. With our scanning electron microscope, our laboratory gets an increased flexibility and can perform more and better examinations/analyses for our customers.

A scanning electron microscope (SEM) is used for, among other things, to make enlarged representations of smaller objects and particles. The benefit of an SEM is the possibility to examine surfaces in a very high magnification, with a maximum magnification up to 300 000x. Compared to an optical microscope the depth of field is much greater, which makes it suitable for examining surfaces of breaks, for instance. The greatest difference between SEM and an optical microscope is that a SEM uses electrons instead of light. With our instrument, analyses can be performed in both high and low vacuum. If the examination is performed in high vacuum the sample must be conductive. In cases where the sample is non conductive it can be coated with a conductive layer of gold or alternately carbon. In low vacuum practically any samples can be examined and analysed.

Our SEM is also equipped with an energy-dispersive X-ray spectroscope (EDS/EDX). It gives us the ability to analyse the chemical composition of the examined surface, from a both qualitative and quantitative perspective. We can perform a survey analysis of an area (area analysis) and/or analyse a specific small stretch, a so called spot check. Examples of fields of applications can be analyses of particles, coatings, corrosion products and asbestos fibres. Through a lineanalysis we can show variations in the chemical composition along a chosen line, which favourably can be used to analyse surface layers. We can also perform a mapping of the composing chemical elements, and show their distribution and concentration. The result of the aforementioned analyses can be presented as spectrums, in tables, graphs and picture form.

Examination and analysis of:

Fracture surfaces

Coatings/deposits

Corrosion products

Material identification
(metal particulates, powders etc.)

Distribution of composing
elements (x-ray mapping)

Phases in microstructure
(brittle phases among other things)

Slag inclusions in
macro/micro samples

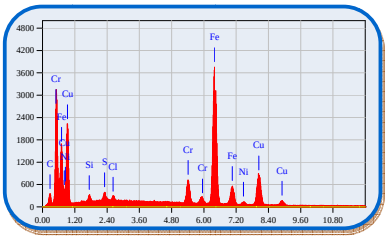
Asbestos (dust, air and
water samples)

Environmental samples
(for heavy metals for instance)

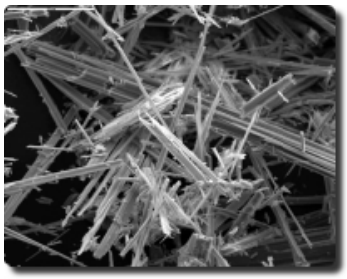
Paint (for copper and leadfor instance)

Surface layers

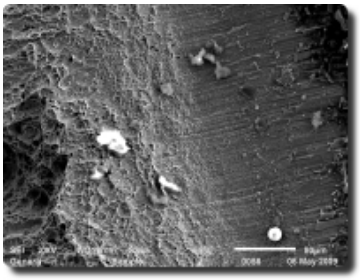
Cracks



Equipment: JEOL-6510A/JSM-6510LA



Asbestos fibres



Fracture surface

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