ED-XRF Fluorescence Spectrometer

Non-destructive analysis of hazardous substances in electrical and electronic equipment

Testing and verifying conformity to RoHS, WEEE and ELV

Verifying the reliability of electronics through materials analysis and coating thickness measurements

Analysis of multi-layer electronic components

General materials testing
Analysis of Plating Bath Solutions

A printed circuit board scanned with a FISCHERSCOPE® X-RAY XDAL®

The lead content of solder pads and components can be accurately quantified. It is easy to distinguish an elevated lead content at critical locations (red areas).
Quick, reliable, non-destructive measurements

Legal Regulations
The EU Directives WEEE*, RoHS* and ELV*, which affect broad industrial sectors, are generally known. The use of certain materials in electrical and electronic equipment is banned or restricted below specified limits.

The limit for lead (Pb), mercury (Hg), hexavalent chromium (Cr VI), polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBE) is 100 ppm, for Cadmium (Cd) it is 100 ppm.

*Effective beginning July 1, 2006: WEEE: Waste of Electrical and Electronic Equipment; RoHS: Restriction of Hazardous Substances; ELV (since July 1, 2003): End of Life Vehicles Directive

The Measuring Instrument Manufacturer
HELmut Fischer with nearly 25 years of experience develops, manufactures and distributes X-ray fluorescence instruments for coating thickness measurement and materials analysis. Thousands of these instruments are used at customer’s sites worldwide. They are capable of meeting even the most difficult measurement challenges.

Advantages of Measurements Using X-ray fluorescence
No elaborate sample preparation
Specimens are simply placed in the measuring chamber.

Operation without particular previous knowledge
Prepared measurement applications start at the push of a button.

Short Measuring Times
Depending on the respective samples, the measuring times for the specified detection limits are 50 – 200 sec.

Screening
The frequent question “Has the limit value been exceeded?” can be answered very quickly and reliably. A measurement provides direct results of the concentrations for Pb, Hg and Cd. If the total content of Cr or Br is measured and the respective limit value is not violated, it is safe to say that Cr VI or PBB and PBE are under the permitted limit value as well. Additional analysis methods to determine the Cr VI, PBB or PBE content are required only if the limit value is violated.

Video Microscope for the Measurement of Very Fine Surface Structures
An integrated video camera with a very high-resolution optics offers a perfect overview of the measurement location. Thus, it is possible to position and analyze the measurement spot even on very finely structured specimen surfaces with targeted accuracy. The size of the measurement spot can be adapted using the software.

Calibrated Measurements
Very reliable quantitative analyses are also possible. This requires a calibration with suitable reference materials. By calibrating the instrument with suitable reference materials, it is possible to make reliable quantitative and traceable analyses.

Detection Limits
FISCHERSCOPE® X-RAY:
Pb, Hg, Br < 10 ppm
Cd, Cr < 20 ppm

Br and Cd determination in synthetic components