

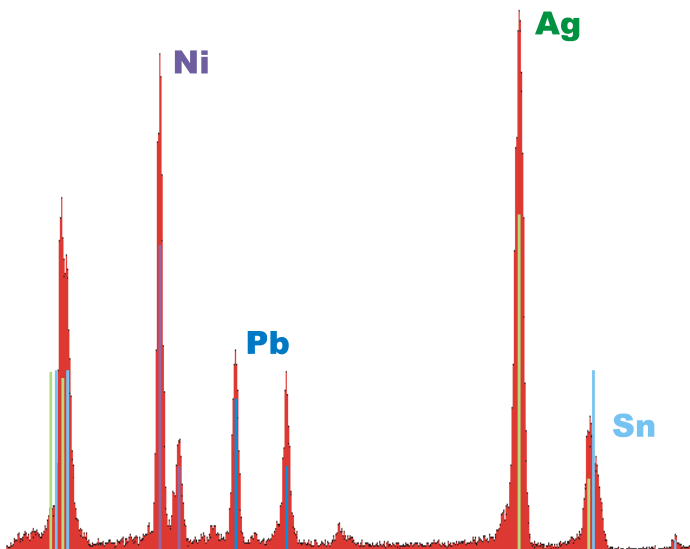
Perfect Solutions for Coating Thickness Measurement and Material Analysis

WinFTM[®] Version 6 is a fully integrated software for coating thickness measurement and material analysis.

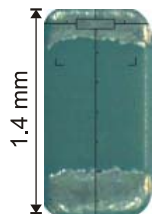
Newly developed on the foundation of the proven earlier versions of WinFTM[®], Version 6 represents a considerable improvement in performance and versatility for practical measurement applications.

Together with FISCHER'S new generation of X-RAY instruments using high-resolution semiconductor detectors and focusing x-ray optics, it is now possible to venture into entirely new applications with this new technology.

WinFTM[®] Version 6 is the ideal choice for quick and easy coating thickness measurement and materials analysis.



Specimen:
Chip Inductor



		SnPb1 (μm)	Sn 1 (%)	Ni 2 (μm)	SnPb3 (μm)	d4 (μm)
Mean value	x	3.55	94.3	1.02	2.42	28.6
Standard. Dev.	s	0.428	0.879	0.155	0.598	0.805
C.O.V. [%]	V	12.06	—	15.26	24.69	2.81
Min. Reading	min	2.36	93.0	0.63	1.48	27.3
Max. Reading	max	4.05	96.6	1.24	3.96	30.3
No of Readings	n	35	35	35	35	35

New technology opens the path for new applications

For the first time, WinFTM[®] Version 6 combines analysis and coating thickness measurement in one software. It offers significant advances in the following aspects:

Integrated technology

- Coating thickness measurement and materials analysis can be performed in one run.
- Both operate standard-free as well.

Measurements independent of the substrate material

- Elemental analysis of the substrate material can be performed "through the coating" as long as the coating is not too thick.
- Considering this analysis result, thickness and analysis of the coating can be performed substrate-independently.

Coating thickness measurement

- Max. 24 individual parameters of a specimen can be measured (thickness, composition, element).
- Under certain circumstances, even individual elements which may occur several times in different coatings of the coating system can be measured.

More layers!
More elements!
Improved analysis!

Coating analysis

- Quantitative materials analysis of complex layers.
- Individual coatings can be combined in any desired form comprising up to 24 elements.
- Max. 24 layers can be analyzed in one coating system.
- Even "buried layers" can be analyzed.

Material analysis

Typical areas of application:

- Precious metals e.g. carat specification of jewelry.
- Non-ferrous metals e.g. contact materials in electronics.
- Light metals.
- Minerals.
- Any desired material mixtures e.g. scrap, powder
- Analysis of electrolytes
- Detection limits from ppm to 100%.

User-friendly

The familiar, convenient interface allows users of previous WinFTM® versions to quickly find their way in the new software. Specifically, this means:

- Task programming allows for automated test runs.
- Fully automated measurements with programmable XYZ travel ranges.
- Auto-focus function: permits automated, highly accurate and reproducible focusing of the measurement spot.
- Picture-in-picture presentation of the video image and readings offers complete supervision of the measurement process.
- Accurate viewing of the test area and positioning of the measurement spot using a high-resolution color video microscope.
- Electronically generated crosshairs allow for accurate positioning of the test area. The measurement spot is displayed to scale.

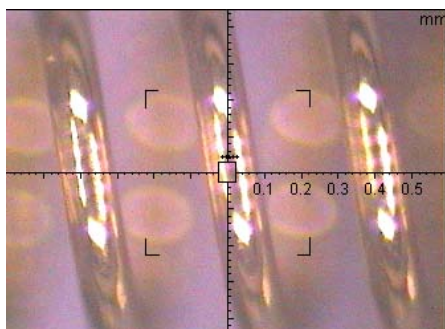


Figure 1: The electronically generated crosshairs is shown in the video image of the test area. The spring of a mobile phone keypad can be recognized at a magnification of 100x. The rectangle in the image center indicates the size of the measurement spot. Current meas. unit: mm. Other units e.g. mils are selectable.

- Surface scans with graphical 3-D evaluation (cf. Fig. 2).

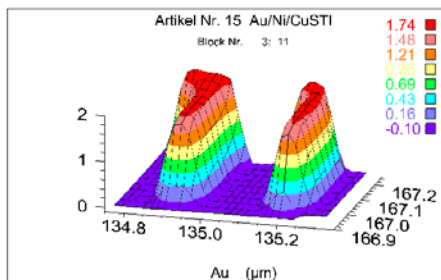


Figure 2: Coating thickness distribution Au on the bond strip of a pc-board

Extended functions

- **Measurement units in g/m², oz/gal.** or similar are freely selectable in appropriate mode
- **Library of pure element spectra** makes measurement of pure elements unnecessary when you do calibration or normalization. Important in cases where pure elements are not available
- **Video images** can be stored within the assigned product files

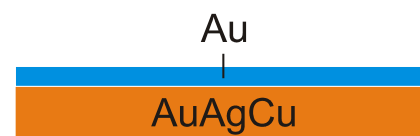
Optimized user support

- **Automatic verification** of whether the selected measurement application fits to the current specimen: otherwise you get a display warning.
- **Rejection of parts with wrong substrate material** ref. example 1.
- **Spectra comparison** through overlaying of individual spectra of two different samples. This allows for a quick and easy recognition of qualitative differences in the sample compositions.
- **Standard-free analysis** according to the fundamental parameter method. This allows for a quick analysis of samples with an entirely unknown composition.

"Never again" normalization

Adjusting for the substrate material is a big problem in coating thickness measurement, in particular during incoming inspections. Now, the substrate material can be analyzed like any other coating. Many base corrections are, therefore, unnecessary. Advantage: Several measurement applications with differing substrate materials can be processed with one single WinFTM® software application.

Example 1: The carat composition of jewelry gold can be analyzed under a coating – even under an Au coating.



Example 2: The alloy of the substrate material is generally pre-defined, e.g., Cu60Zn39Sn1 for all CuSn and CuZn materials.

If the coating is thin enough, then the substrate material can be analyzed "through the coating". If the coating is thick, then the composition of the substrate material has no effect – the program computes this with the aid of pre-defined parameters within the definition of application. This is important for example when inspecting electrical contacts.

