



X-Ray Fluorescence

Research Centre for Microtechnology

tiny structures for big ideas

Information Sheet



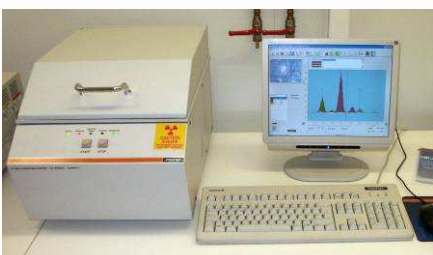
Electroplated parts

X-ray fluorescence is a method to identify materials and measure film thicknesses. Once the composition of a layered system is known, film thicknesses can be determined. First the instrument is calibrated to the particular layer system, e.g. Zn on Fe. Then the thickness of the Zn layer on the Fe substrate can be determined to an accuracy of 1 µm within 30 sec.

X-ray fluorescence can also be used to determine the chemical composition of alloys. Different types of steel can be distinguished easily.

n= 1 Zn 1 =	9.75 µm
n= 2 Zn 1 =	11.6 µm
n= 3 Zn 1 =	10.0 µm
Mean	10.45 µm
Standard deviation	0.988 µm
C.O.V. (%)	9.46
Range	1.83 µm
Number of readings	3
Min. reading	9.75 µm
Max. reading	11.6 µm
Measuring time	10 sec
Operator:	
Date: 01.07.2009	Time: 11:59:38

Measured film thickness



Services

- Determination of Chemical composition: Which elements are present at what percentage
- Qualitative and quantitative analysis from potassium (AN 19) to lead (AN 82)
- Thickness measurements on layer systems of known composition

Fields of application

- Material analysis of various steels (e.g. V2A 1.4301 and V4A 1.4401 are easily distinguished)
- Non-destructive analysis of solders on PCB's
- Thickness measurements, e.g. Zn on steel
- Not applicable for Al-alloys!

Equipment

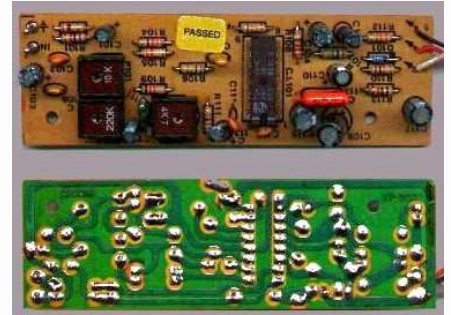
Fischerscope X-RAY XAN

Contact

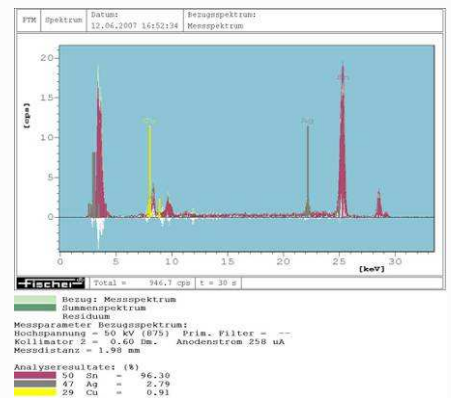
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Soldered PCB



Measured composition of the solder

