

# X-Strata980

XRF for analysis of trace elements  
and coating thickness measurement



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ppm Pb  
ppm Hg  
ppm Cd  
ppm Cr  
ppm Br

600 ppm  
Pb

**Hazardous Materials**

Au  
Ni  
Cu

SnPb  
Ni  
Cu

Au  
NiPPb  
Cu

**High Reliability**



**RoHS**

Au  
Ni  
Cu  
Epoxy

SAC  
Ni  
Ag  
Ceramic

Ag  
Cu  
Epoxy

**Solderability**

Au  
Ni  
Cu-alloy

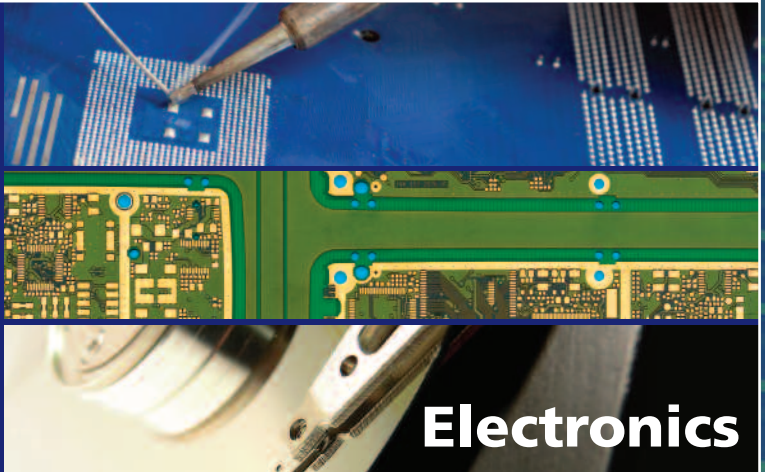
AuAg  
PdNi  
Cu

Ni  
Cu

**Electrical Contact**

NiP  
Al

**Surface Finish**



**Electronics**

ZnFe  
Fe

Cr  
Zn  
Fe

NiP  
Fe

**Corrosion Resistance**

TiN  
Tool-steel

TiAlN  
W-carbide

Cr  
Fe

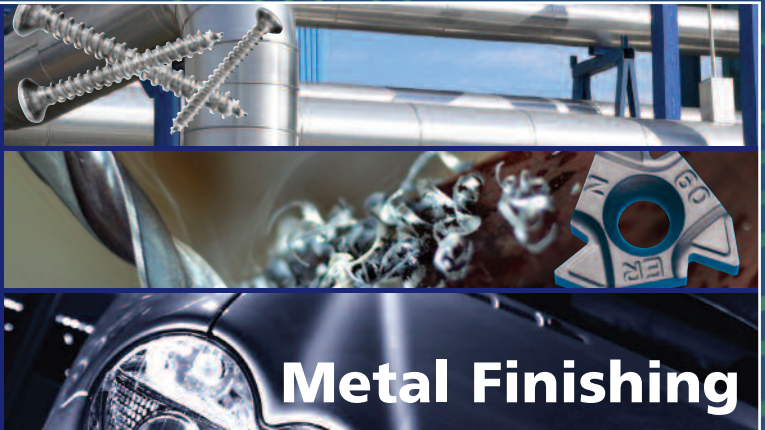
**Wear/Heat Resistance**

ZrCN  
Brass

Cr  
Ni  
Cu  
Al

AuCuCd  
Ni  
Cu

**Cosmetic Finish**



**Metal Finishing**

%Cu  
%In  
%Ga  
%Se  
Glass

%Cu  
%In  
%Ga  
Ceramic

**Photovoltaic Cells**



**Alternative Energy**

%Au  
%Ni  
%Cu  
%Zn

%Cr  
%Fe  
%Ni  
%Mo

%Au  
%Ag  
%Cu  
%Zn

**Assay and ID**



**Metal Alloy**

**Increase Productivity** – *fine tune production process*

**Improve Quality** – *ensure product requirements are met*

**Maximize Profit** – *reduce production costs*



- 100 W X-ray tube
- 25 mm<sup>2</sup> PIN detector
- Multiple collimators
- Simultaneous analysis of thickness and composition
  - Mapping software
  - Combined calibration method
  - Color-coded pass/fail results
- Giant chamber

Combining a high power x-ray tube and ultra-sensitive detector, the **X-Strata**980 micro-spot size allows you to measure small areas of a complex sample.

The ability to detect hazardous elements in single digit ppms assures the production of environmentally friendly product and saves the high expense of costly recall or enforcement of regulatory legislation.

The instrument performs excellent analysis and characterization of multilayer coatings, SAC alloys,  $\mu$ PPF and solar panels.

## 40 years of XRF experience

Oxford Instruments capitalizes on a wealth of experience gained through four decades of innovative engineering

- 40 years expertise in general XRF
- Over 25 years developing coating thickness gauges
- Over 15 years measuring coating thickness by XRF

- Trace analysis of hazardous substances
- Solder alloy composition and thickness measurement
- Coating thickness measurement of gold and palladium on electronics
- Coating thickness measurement of metal finish, CVD, PVD
- Precious metal alloy assay and identification

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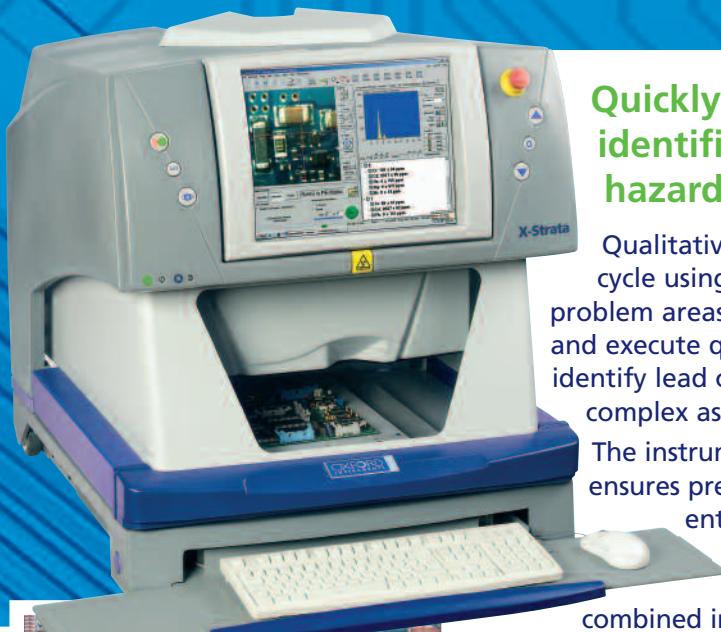
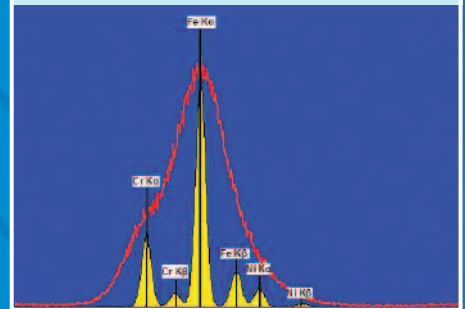
# Combining a high power X-ray tube and high resolution detector, the X-Strata980 delivers limits of detection in single digit ppms!

- Peltier cooled solid state detector ensures excellent signal to noise ratio for enhanced limits of detection.
- The detector's high resolution makes it easier to identify, quantify and differentiate neighboring elements.
- The large detector size increases the count rate – most analysis can be done in seconds to minutes.
- Choose the best of five primary filters to selectively excite a particular element of interest and get optimum application performance.
- Measure features as small as 150 microns in size. Collimators are available with diameters of 0.1, 0.2, 0.3, 1.27 mm.
- A specially designed ALTi plate is available which will surpass background when measuring light matrix samples resulting in improved detection limits.

- Improve precision by 30%
- Cut measurement time by half



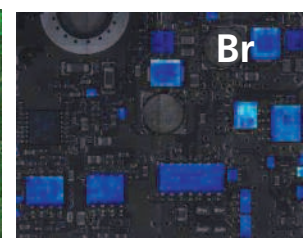
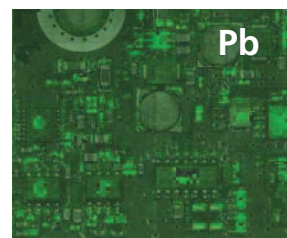
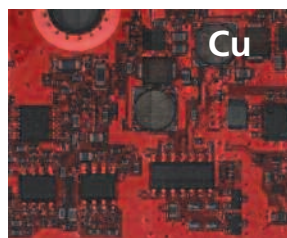
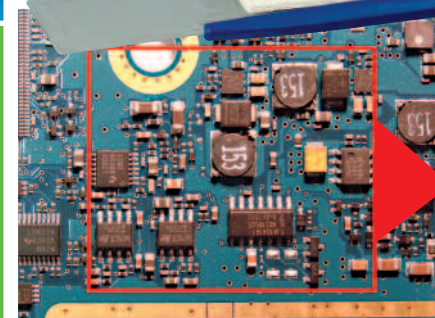
- Improve accuracy
- Enhanced limits of detection
- Identify trace elements



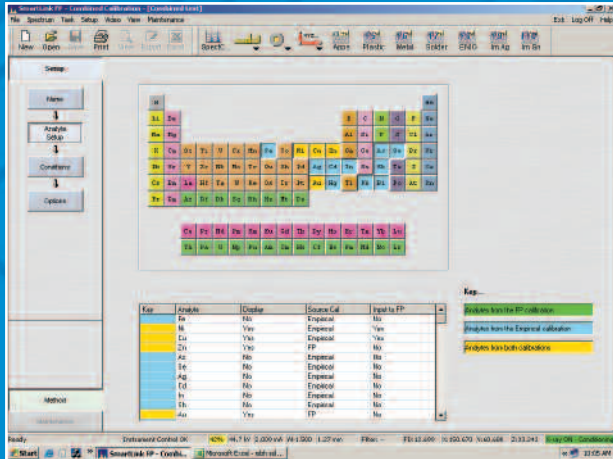
## Quickly screen critical assemblies for identification of areas with restricted hazardous elements.

Qualitatively analyze a large area in one measurement cycle using the mapping function. Once you have identified problem areas, return to specific spots with pinpoint accuracy and execute quantitative analysis. Mapping of a sample can identify lead containing components or connections within a complex assembly.

The instrument's embedded camera with live video imaging ensures precise sample placement. Generate an image of the entire sample with the concentration or intensity of an element superimposed with a false color map. Produce composite maps that display the combined intensity or concentration of multiple elements.



Best of both worlds – now you have the freedom to choose the best analytical method for your application.



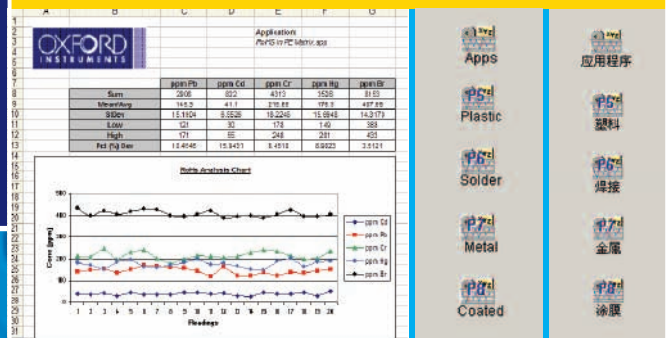
Your application drives your choice of empirical calibration or fundamental parameter or a combination of both. When you know the matrix and range of analytes, the empirical calibration method will give you the best accuracy for alloy identification and chemical composition. But matrix matches and standards are not always readily available. Then the fundamental parameter technique with full spectrum database provides reliable quantitative analysis covering a wide range of concentrations (from ppm to high %) and thicknesses for complex coatings and substrates.

- User programmable display for color coded, pass/fail, compliant/non-compliant, or any other warnings enable quick screening of elements of interest.
- Generates detailed reports to show due-diligence when testing for hazardous elements in consumer goods.

Layer	Measurement	Value	SE	Acceptance Result
1	Cr	90ppm	+/- 16.36	Cr below RoHS Limit
1	Cd	11ppm	+/- 22.73	Cd below RoHS Limit
1	Pb	377ppm	+/- 366.42	Pb above RoHS Limit
1	Hg	26ppm	+/- 23.68	Hg below RoHS Limit
1	Br	34ppm	+/- 86.55	Br below RoHS Limit

Overall Result: Sample is not RoHS Compliant

## Advanced Data Export Option

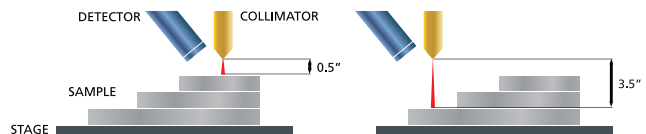


- Complete statistical data function including average, standard deviation, histograms and control charts.
- Real-time data export or export to Microsoft Excel™ for rapid statistical report generation.
- Shortcut keys allow user to choose proper calibration for a particular sample with one click.
- User interface available in nine languages.

## Variable Focal Distance, Large Chamber



- Giant chamber enables flexibility to measure large or oddly shaped samples.
- Sample surface can be measured anywhere within the focal range of 0.5 – 3.5 inches.
- Interior space 580 mm x 510 mm x 230 mm wdh.
- Secure closed chamber provides radiation protection particularly when measuring plastics.
- Large door makes sample loading easy.



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# Oxford Instruments recognized world leader in installed XRF systems for chemical analysis

We offer a full range of XRF instruments appropriate for RoHS compliance testing in different configurations which may be required to ensure product safety.

## X-MET3000TXR+

- Hand-held and simple to use
- Rapid analysis of lead and other heavy metals
- Color coded PASS/FAIL results



## Twin-X bulk analyzer

- Analyze anodized coatings on aluminum
- Ten position sample tray enables unattended operation and high throughput



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