



X-Strata 980

XRF for analysis of
trace elements
and coating thickness

Why XRF?

- XRF is the screening method of choice for the RoHS compliance testing, IEC 62321
- XRF is Coating Thickness Measurement method according to ISO 3497, ASTM B568 and DIN 50987

Rapid

ppm to %

Ease-of-use

Non-destructive

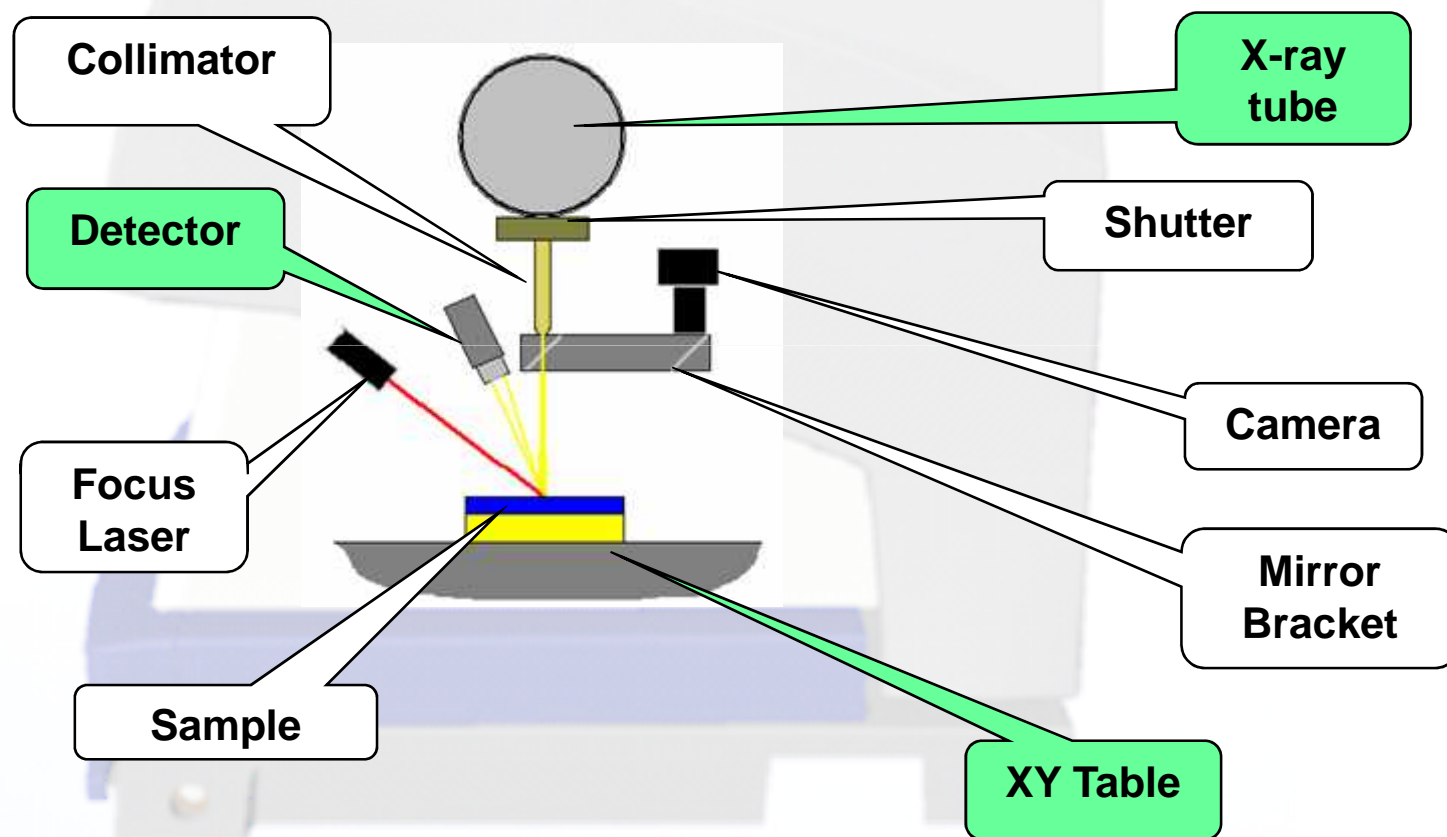
Cost effective

**X-Strata980 for analysis of
hazardous elements and coating thickness**

Application Range

- Measure the composition and/or thickness of parts, containing elements with Atomic Numbers 16(S) through 92(U)
- Composition analysis of up to 25 elements simultaneously
- 5 layers (4 layers + base) / 15 elements / Common elements correction
- Measurement method according to ISO 3497, ASTM B568, DIN 50987, IEC 62321

The Basic Elements of X-Strata980



Key Features on X-Strata980

- Industry leading 100W Tube
- 25mm² PIN detector
- Five position primary filters
- Multiple collimator
- AlTi plate
- New Navigator Based Empirical Calibration
- **Improved Fundamental Parameters**
- Combined Calibration Method



Key Features on X-Strata980

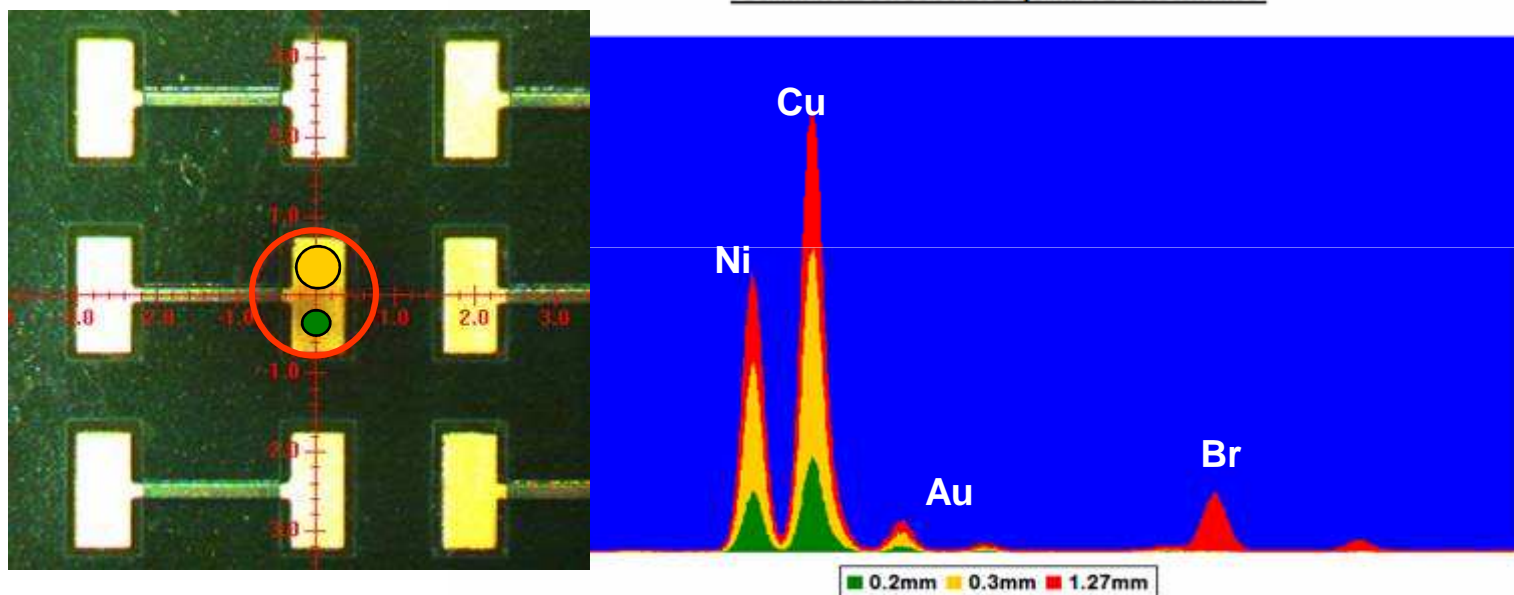


- Color coded compliance screening display
- **Advanced Data Export (option)**
- **Mapping Software (option)**
- **Programmable stage (option)**
- **Variable Focal Distances**
- **Giant Closed Chamber**
- **Integrated PC and Monitor**
- Available in nine languages
- **Easy as 1, 2, 3**

Multiple Collimator

- Optimize for measurement area
- 4 collimators are available: 0.1, 0.2, 0.3, 1.27 mm Ø

Collimator Selection to Optimize Performance



- 1.27mm Ø: inducing too much interference (Br), affecting accuracy
- 0.2mm Ø: too small area, precision is compromised
- 0.3mm Ø is ideal as it yields the optimal count rate

Advantages of FP Analysis

- Easier to calibrate
 - ✓ FP based calibrations cover a much wider range, including complex multi-element applications.
 - ✓ A laboratory can test a variety of materials. This is especially useful when the workload contains a large amount of non-routine tasks.
- Minimize number of calibration standards
 - ✓ Matrix matched standards are not always readily available.
 - ✓ When limited standards are available, the FP technique provides a means of reliable quantitative analysis.
- **No standard required**
 - ✓ It is even possible to create a purely theoretical calibration when no standards are available.

Combined Analytical Method

- Allows optimum choice of methods
 - Some elements from empirical caliabtion
 - Some elements from Fundamental Parameters

The periodic table shows elements color-coded as follows:

- Green (FP):** Ti, Zr, Hf, Rf, Sb, Sn, Pb, Bi, Po, At, Pn.
- Blue (Empirical):** Cr, Mn, Fe, Co, Ni, Cu, Zn, Ga, Ge, As, Se, Br, Kr, Ag, Cd, In, Sn, Sb, Te, I, Xe, Hg, Tl, Pb, Bi, Po, At, Pn.
- Yellow (Both):** B, C, N, O, F, Ne, Al, Si, P, S, Cl, Ar, K, Ca, Sc, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, Ga, Ge, As, Se, Br, Kr, Rb, Sr, Y, Zr, Nb, Mo, Tc, Ru, Rh, Pd, Ag, Cd, In, Sn, Sb, Te, I, Xe, Cs, Ba, La, Hf, Ta, W, Re, Os, Ir, Pt, Au, Hg, Tl, Pb, Bi, Po, At, Pn, Fr, Ra, Ac, Rf, Db, Sg, Bh, Hs, Mt, Ds.

Key...

Analytes from the FP calibration
Analytes from the Empirical calibration
Analytes from both calibrations

Key	Analyte	Display	Source Cal	Input to FP
	Sb	Yes	FP	No
	Hg	Yes	Empirical	No
	Pb	Yes	Empirical	Yes

Acceptance Scheme

- Easy to make PASS/FAIL determination
- User define
 - Threshold
 - Rules
 - Overall determination message
 - Result text/background color

The screenshot displays the 'Set-up or Edit an Acceptance Scheme' dialog box and the 'Acceptance Results' window. The dialog box is titled 'Set-up or Edit an Acceptance Scheme' and contains a table for defining thresholds for various analytes. The 'Acceptance Results' window shows the results of a measurement, including the overall result and individual analyte results.

Set-up or Edit an Acceptance Scheme

Acceptance Scheme Name: 10-30-07 (New Scheme)

Analyte Description	Upper Threshold	Lower Threshold	Default Set
Cr concentration	1300ppm + 3*	700ppm - 3* SE	X
Co concentration			
Ni concentration			
Zn concentration			
Br concentration	1300ppm + 3*	700ppm - 3* SE	X
Ag concentration			
Cd concentration	1300ppm + 3*	700ppm - 3* SE	X
Pb concentration	1300ppm + 3*	700ppm - 3* SE	X
Bi concentration			

Upper Threshold Settings

☒ Define an upper threshold for the concentration of Pb

Threshold level: 1300 ppm + 3 * Standard Error for the measurement

If the measurement is above the threshold, display this message: Pb above RoHS Limit

Result color: [Red] (Foreground) [] (Background)

Lower Threshold Settings

☒ Define a lower threshold for the concentration of Pb

Threshold level: 700 ppm - 3 * Standard Error for the measurement

If the measurement is below the threshold, display this message: Pb below RoHS Limit

Result color: [Green] (Foreground) [] (Background)

Default Settings (used if result does not exceed any thresholds)

☒ Define a default setting for the concentration of Pb (used if result does not exceed any thresholds)

If the measurement does not exceed the threshold, display this message: Pb Compliant

Result color: [Blue] (Foreground) [] (Background)

Acceptance Results

Statistics | Graphs | QC / Restandardization | Spectrum

Reading : 2

Layer	Measurement	Value	SE	Acceptance Result
1	Cr	15ppm	±43.34	Cr below RoHS Limit
1	Cd	9ppm	±22.76	Cd below RoHS Limit
1	Pb	5773ppm	±331.42	Pb above RoHS Limit
1	Hg	28ppm	±23.68	Hg below RoHS Limit
1	Br	34ppm	±68.53	Br below RoHS Limit

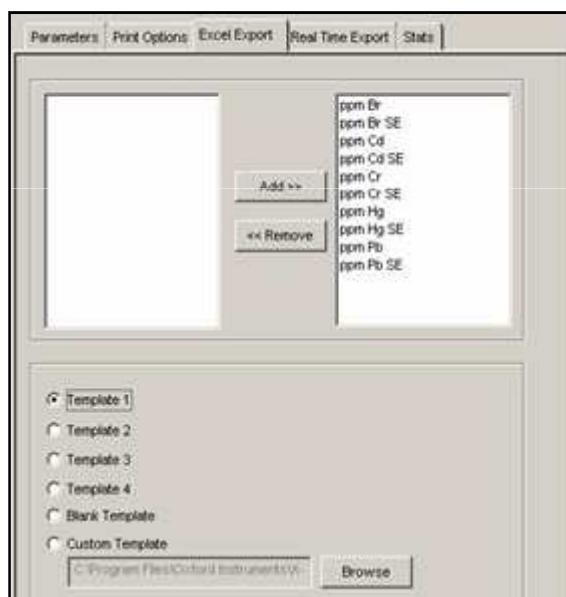
Overall Result: Sample is not RoHS Compliant

Reading : 1

Advanced Data Export

Excel Export

Analytes and user-defined data fields can be selected for export onto factory default or user-customizable Excel templates



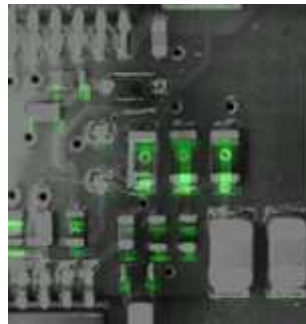
Mapping

Smartlink is designed to allow Visual identification of problem areas.

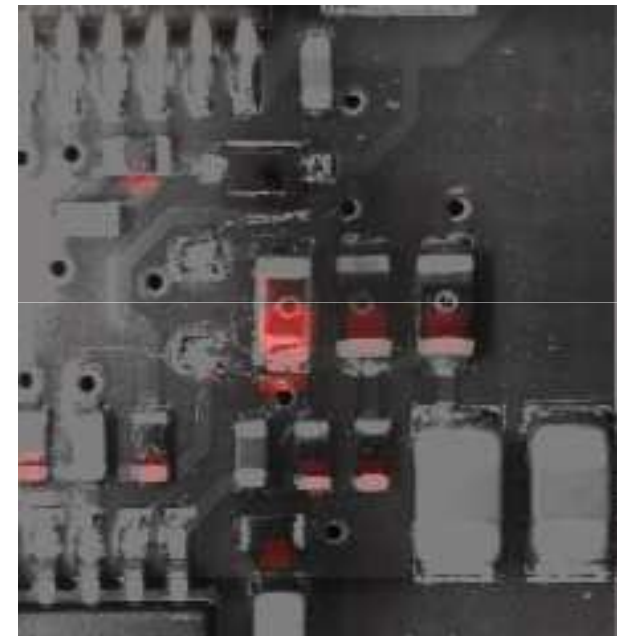
Giving an element specific map, suitable for RoHS screening purposes or for thickness analysis.



Cr



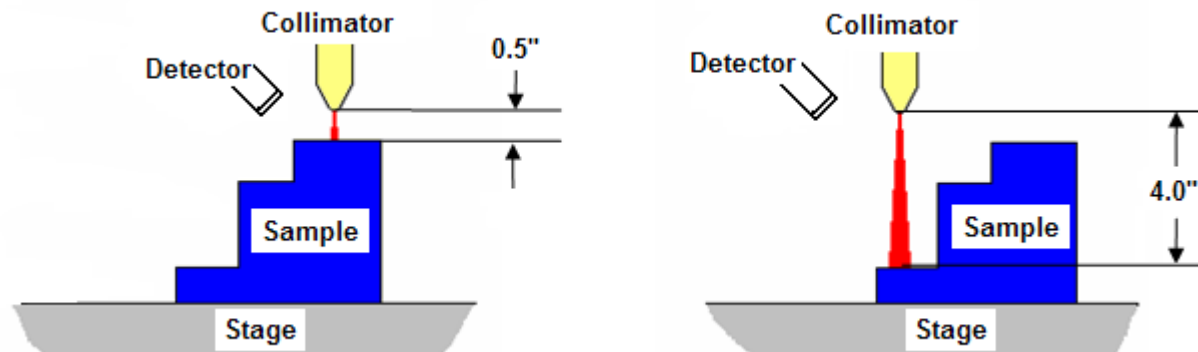
Ag



Pb

Variable Focal Distances

- **Flexibility in measuring oddly-shaped samples and parts with recessed areas**
 - Sample surface can be measured anywhere within focal range between 0.5" to 3.5"
- **Quick and precise focal distance adjustment by single-click command to activate the focus laser**
 - Eliminates the possibility of carrier collision onto sample
 - Improves system reproducibility (operator Independent)



Giant Closed Chamber Design

- Large chamber with standard 8.5" motorized Z travel
- **Closed chamber design provides** added safety and radiation protection when measuring light matrix (plastics) samples



Interior XYZ Dimensions:
23" x 20" x 9"
(580mm x 510mm x 230mm)

Key Features on X-Strata980

- Industry leading 50kV, 100W Tube
 - Increased count rate
- 25mm² PIN detector
 - Improved PTB ratio
- Five position primary filters
 - Suppresses scattered radiation
- Multiple collimator
 - Select best for different sized feature
- Alti plate
 - Minimize background interference
- New Navigator Based Empirical Cal.
 - Best accuracy for known matrix
- Improved Fundamental Parameters
 - Calibrate with few standards
- Combined Calibration Method
 - Best of all Empirical and FP method
- Color coded compliance screening display
 - Easy pass/fail determination
- **Advanced Data Export (option)**
 - Excel export, Real-time export, and SRG Software
- **Mapping Software (option)**
 - Visual identification of problem areas
- **Programmable stage (option)**
 - Scan larger area and multi-point analysis
- **Variable Focal Distances**
 - Flexibility to measure recessed areas
- **Giant Closed Chamber Design**
 - Safely measure large plastic samples
- **Integrated PC and Monitor**
 - No cabling (mains power only)
- Available in nine languages
 - English, Chinese, Japanese, Korean, French, German, Spanish, Russian, Italian
- **Easy as 1, 2, 3**
 - Simple three step operation