EDXRF1844 - RoHS Metals-Pak Rapid Screening by XRF

Scope

The Metals-Pak is demonstrated for RoHS Rapid Screening by XRF, as well as WEEE and ELV screening.

Background

The Restriction on Hazardous Substances initiative (RoHS) limits the allowable amounts of the toxic elements chromium, mercury, lead, bromine, and cadmium in plastics and consumer goods. Energy Dispersive X-ray Fluorescence (EDXRF) is an accepted analysis technique for the rapid screening by XRF and quantification of the hazardous element according to RoHS norms. To meet the industry needs, Rigaku offers the [NEX DE VS](NEX DE VS) analyzer with automatic collimators and camera for sample positioning and sample image, giving QA/QC technicians the means for fast and simple screening and analysis of materials that must conform to RoHS and similar directives.

RoHS Metals-Pak Method: Fundamental Parameters (FP) Matching Library

- FP for flexibility in measuring diverse metal samples
- Flexible Rigaku Matching Library software makes it easy for user to customize the Matching Library or create new Matching Libraries
- Software includes empirical calibration capability
- Select sets of CRM standards to easily build and optimize FP Matching Library or empirical calibration methods

- Cal set, Al Alloy CRM, 6 reference stds.

- Cal set, Cu Alloy CRM, 6 reference stds.

- Cal set, Ni Alloy CRM, 6 reference stds.

- Cal set, Fe Alloy CRM, 6 reference stds.

- Cal set, SS Alloy CRM, 6 reference stds.

User-defined RoHS limits

The PE-Pak comes with the default RoHS Pass/Unsure/Fail judgment settings. NEX DE software allows the user to easily adjust and enter different limits as desired.

|	Component	Output	Output digits	Lower limit	Unsure limit	Upper limit
1	Total	Yes	3 effective digits	No limit	No limit	No limit
2	Cr	Yes	3 effective digits	No limit	600.0000	1200.00000
3	Br	Yes	3 effective digits	No limit	600.0000	1200.00000
4	Hg	Yes	3 effective digits	No limit	600.0000	1200.00000
5	Pb	Yes	3 effective digits	No limit	600.0000	1200.00000
6	Cd	Yes	3 effective digits	No limit	60.0000	130.00000
7	As	Yes	3 effective digits	No limit	No limit	No limit
8	Sn	Yes	3 effective digits	No limit	No limit	No limit
9	Sb	Yes	3 effective digits	No limit	No limit	No limit
10	Ba	Yes	3 effective digits	No limit	No limit	No limit
11	Zn	Yes	3 effective digits	No limit	No limit	No limit
12	Polyethylene	Yes	3 effective digits	No limit	No limit	No limit

User-definable RoHS report fields

The flexible Rigaku software allows users to design RoHS report field headers to suit specific reporting needs. Headers to report Sample Name and Analyzed By are automatically set by default and users simply enter up to six additional report memo headers as desired.
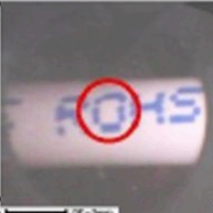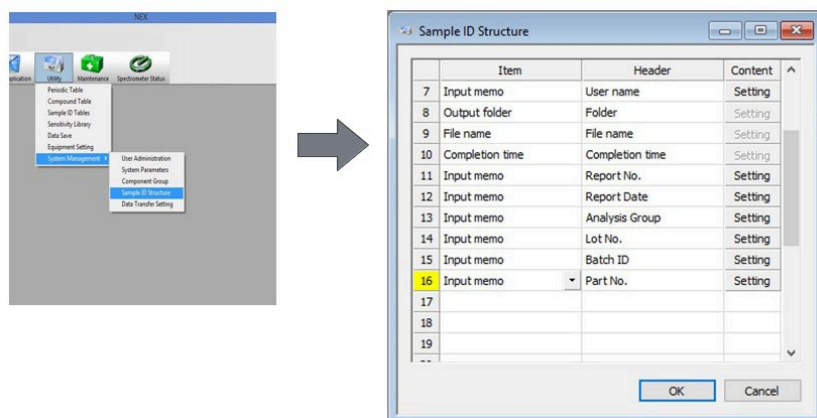
Point analysis screen

Operator simply selects method, enters sample name and report fields, then presses Start.
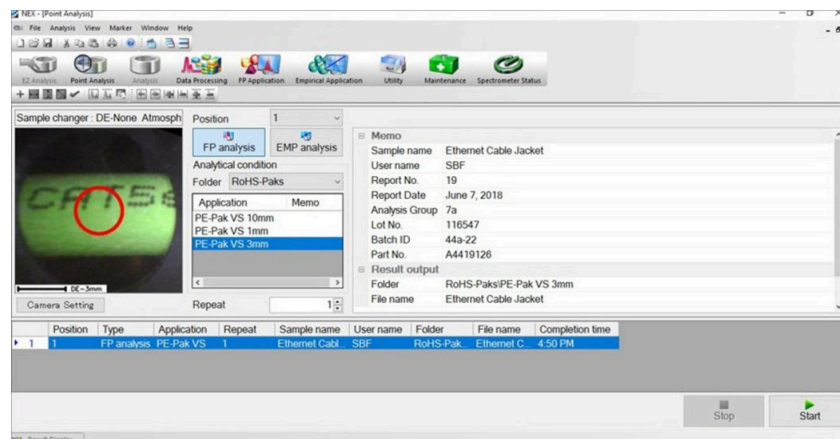
RoHS report

A RoHS report is automatically generated that includes the user defined fields, sample image, and element judgment.

Material identification

Easily identify alloy type with one click using optional Material Identification.

Material Identification Result

No.	Matching	Standard	Category	Material type
1	99.98	JIS	Steel castings	SCPH 1
2	99.98	JIS	Steel castings	SCPH 2
3	99.98	ASTM	Steel castings	A 216 WCA
4	99.98	ASTM	Steel castings	A 216 M WCA
5	99.98	ASTM	Steel castings	A 216 WCB
6	99.98	ASTM	Steel castings	A 216 M WCB
7	99.98	ASTM	Steel castings	A 216 WCC
8	99.98	ASTM	Steel castings	A 216 M WCC
9	99.98	ASTM	Steel castings	A 352 LCB
10	99.98	ASTM	Steel castings	A 352 M LCB
11	99.97	JIS	Steel castings	SCPL 1
12	99.92	JIS	Steel castings	SCW 550
13	99.92	JIS	Steel castings	SCW 620
14	99.91	JIS	Steel castings	SCW 480
15	99.91	JIS	Steel castings	SCW 520-CF
16	99.85	ASTM	for general structure	A 242 1
17	99.83	ASTM	Steel forgings	A 350 LF1
18	99.83	ASTM	Steel forgings	A 350 M LF1
19	99.83	ASTM	Steel forgings	A 350 LF2
20	99.83	ASTM	Steel forgings	A 350 M LF2

Conclusion

The NEX DE VS with automatic collimators and camera provides excellent sensitivity and reliable precision for RoHS rapid screening by XRF down to 1 mm spot size. Simple Point Analysis Screen allows operators to easily enter report information as designed using customizable report headers and automatically generates an RoHS report complete with sample image, analysis results and Pass/Unsure/Fail judgment.

Related products

NEX DE Series

High-power 60 kV EDXRF systems delivering speed, precision, and small spot measurements