



S1 TITAN

● Regulated Materials Screening

The requirement to comply with a host of materials restrictions like the European Union's Restriction of Hazardous Substances (RoHS-II) and the 2008 US CPSIA limits on lead in toys has caused many manufacturers to move to XRF for screening of products for compliance. Handheld XRF has become a very well accepted method of screening of products and raw materials for heavy metals and other restricted substances.

The US Consumer Product Safety commission has endorsed handheld XRF as an effective tool. S1 TITAN models 600 & 800 provides completely non-destructive testing for lead-free manufacturing, RoHS compliance and detection of heavy metals in toys and consumer products. Hazardous elements like lead (Pb), mercury (Hg), chromium (Cr), arsenic (As), antimony (Sb) and barium (Ba) can all be detected at the part per million level.

Benefits:

- Fast, accurate assay
- Non-destructive
- Measure in-situ
- Small spot option
- Camera option
- Quick & easy report generation
- Secure, encrypted data storage
- Lightweight - only 1.5 kg
- Shielded Benchtop stand

Handheld XRF

Regulated Materials Screening

Applications:

- **RoHS II (Directive 2011/65/EU)**
 - Restricts: Pb, Cr, Hg, Cd, PDBE, PDB
 - New requirements for CE marking
 - Covers all electronic products
 - All restricted materials can be measured by S1 TITAN
- **CPSIA 2008 – Lead free toys**
 - Restricts Pb content in children's products
 - Lead content must be <100 ppm
 - Covers all toys, clothing, other
 - S1 TITAN non-destructively confirms compliance
- **High Reliability Electronics**
 - High reliability for aerospace & medical application
 - Lead must be present for reliable operation
 - S1 TITAN easily confirms proper levels of lead
- **Other Restricted Materials Applications**
 - Halogen free manufacturing
 - Packaging directives
 - California Prop 65
 - Safe Drinking Water Act
 - WEEE
 - ELV

Integrated camera & small spot collimator:

The S1 TITAN can be equipped with an integrated camera (640 x 480 pixels) to provide sample visualization and accurate positioning of the measurement spot. The small spot option provides a reduced measurement area for the isolation of small features to be tested. Thanks to the S1 TITAN's SharpBeam™ optimized geometry, the precision and accuracy of the measurement with small post collimator are the same as for the normal spot; there is no need to extend the measurement time to achieve the desired precision.

- Small spot isolates specific sampling area such as weld seam
- Camera ensures accurate measurement positioning
- Save up to 5 images per assay (provides record of measurement spot)
- Images easily import into reports
- No loss of accuracy with small spot option

Fail screen


36 Test FAIL
Time 58.0

EI	PASS	PPM	FAIL	+/-
Cl	700	460K	1300	3533
Pb	700	8658	1300	104
Hg	700	26	1300	23
Se	700	19	1300	9
Ba	700	0	1300	147
Sb	700	0	1300	104
Cd	700	0	130	45

Spectrum



Configurations and Calibrations:

S1 TITAN Configurations	Excitation	Detector	Elemental Range	Spot Size	Calibrations	
					Low Lead in Copper	Restricted Materials
Model 800 	6-50kV 4 filters		Mg - U	8, 5 or 3*mm		
Model 600 	15-50kV 4 filters		Mg - U	5mm		

- **Low Lead in Copper:** Detects and measures low concentrations of lead in copper (Pb up to 2%) to comply with the Safe Drinking Water Act and California Prop 65.
- **Restricted Materials:** For RoHS I/II, consumer product screening. Auto mode and user selectable calibrations for plastics, mid-density materials, and metals with IEC and user defined compliance limit settings.

Inconclusive screen

101 IEC Limits: INCONCLUSIVE
Time 29.0

EI	PASS	PPM	FAIL	+/-
Cr	700	49	1000K	27
Br	300	17K	1000K	108
Pb	700	998	1300	51
Cd	70	< LOD	130	22
Hg	700	< LOD	1300	23
SiO2	0	73K	0	9897
Cl	0	1302	0	578
Ca	0	4853	0	148
Ti	0	17K	0	171

Use in Average

Averaging Calculate Average

Spectrum Edit Info Back

Pass screen

48 Test PASS
Time 73.0

EI	PASS	PPM	FAIL	+/-
Pb	700	27	1300	16
Cl	700	0	1300	31
Ba	700	0	1300	43
Sb	700	0	1300	33
Cd	70	0	130	16
Se	700	0	1300	4
Hg	700	0	1300	3

Spectrum



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Data Handling:

- Data storage
 - Images, Spectra, Sample Identification, and Results are stored in a single protected file for easy storage and access
 - Results are available in both a protected and unprotected file formats
 - The unprotected file format can be imported directly into Excel or other database programs
 - Data may be stored in internal memory or a USB flash drive or both
- S1 TITAN Toolbox - PC software communicates with & controls the S1 TITAN
 - S1 RemoteCtl – Software for remote control of the S1 TITAN
 - S1 SYNC – Software to communicate with the instrument and manipulate data from the S1 TITAN. Features include:
 - Easy to use report generator
 - Spectrum viewer
 - Software & calibration updates
- Report generation- The generation of an analysis report is a critical part of the measurement. Therefore, two different PC report generation packages exist for the S1 TITAN family:
 - Included S1 Sync provides a simple preformatted report including
 - Optional S1 Data Tool is a flexible, user controlled report generator which allows the complete customization of the report format



Easy to use:

The S1 TITAN is among the lightest portable tube-based XRF analyzers available on the market today. The user interface has been designed to provide intuitive operation and results presentation. Data management and transfer are exceedingly easy to use.

- Intuitive user interface with touchscreen LCD
- Requires very little operator training
- Multiple fields for sample identification
- Lightweight – only 1.5 kg / 3.3 lbs, including battery

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