

Pb <sup>82</sup>	Hg <sup>80</sup>	Br <sup>35</sup>
Cr <sup>24</sup>	Cd <sup>48</sup>	



SharpBeam®  
Optimized  
Geometry

XFlash®  
Technology

# S1 TITAN

● Definition of Precision

Handheld XRF

Innovation with Integrity

## ● Applications

# Hazardous 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.

The Bruker S1 TITAN family of X-ray fluorescence (XRF) analyzers provides completely non-destructive testing for lead-free manufacturing, RoHS compliance and detection of heavy metals in toys and consumer products. Based on our revolutionary Silicon Drift Detector, the Bruker X-Flash® and our 50 kV X-ray source, the S1 TITAN provides unparalleled speed and accuracy of analysis. 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

- Light weight
- Take measurement to sample
- Automatic measurement conditions
- Ease of use and reporting
- Low detection limits
- Rapid Analysis

## ● Applications

### RoHS II (Directive 2011/65/EU)

- Restricts: Pb, Cr, Hg, Cd, PDBE, PDB
- New requirements for CE marking
- Will cover 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
- WEEE
- ELV

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	70	0	130	45

## ● Introducing the S1 TITAN



### Features:

- Ultra light: 1.44kg / 3.17 lbs
- Detects all restricted elements
- Bruker X-Flash® SDD
- Fast analysis times
- 50 kV X-ray tube
- Both protected and unprotected data storage

### SharpBeam®<sup>1</sup>

- Optimized detector/tube geometry
- Reduces power requirements
- Reduces weight
- Improves measurement precision
- Improved detection limits
- Increases battery life

## ● Environmental

The S1 TITAN is designed to withstand field operation in humid and dusty environments.

- Sealed against moisture and dust
- Ruggedized with rubber over-molding
- Protected from dirt and windblown dust
- Sample stand for measurement of complex samples

## ● Easy to Use

The S1 TITAN is among the lightest portable tube-based XRF analyzer 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. The data can be stored in a protected data format, which cannot be modified, or an unprotected format, which allows simple modification.

- Intuitive user interface
- Requires very little operator training
- Multiple fields for sample identification
- Lightweight – only 1.44kg / 3.17 lbs, including battery
- User selectable protected or unprotected data storage
- Simple data transfer using USB thumb drive
- Quickly generate inspection reports

S1 TITAN with desktop stand



<sup>1</sup> Patent pending

## • Configurations

Configuration	Detector	Elemental Range	Window	Resolution (typical)	Sample Temp. (maximum)	Sample Types (typical)	Analysis Time (typical)
<b>S1 TITAN<sup>LE</sup></b>	SDD	Mg - U	Ultralene®	145eV	150°C	Metal and Ceramics Plastics	60 seconds 60 per condition
<b>S1 TITAN<sup>SE</sup></b>	SDD	Ca - U	Kapton®	145eV	500°C	All	60 seconds

The **S1 TITAN<sup>LE</sup>** is the premium configuration which is designed using the X-Flash® SDD with a Ultralene® measurement window. The SDD operates at very high count rates thus providing low detection limits and high precision even at short measurement times. In addition the S1 TITAN<sup>LE</sup> will measure light elements such as aluminum, silicon, sulfur and chlorine which will enable halogen free determinations. This is the most versatile configuration and should be chosen for most applications.

The **S1 TITAN<sup>SE</sup>** is the standard configuration which is designed using the X-Flash® SDD with a rugged aluminized Kapton® measurement window. The SDD operates at very high count rates thus providing low detection limits and high precision even at short measurement times. This configuration will measure all the elements restricted by the RoHS directives and the elements covered by EN71 and ASTM F963.

## • Signature Service

Bruker has been in the instrument business for many years and has supplied products and services to companies just like yours. We understand the critical importance of post-sales support to our clients. That's why we design our products with maximum uptime in mind and established our Signature Service program, striving to provide the highest level of service in the industry.

- Guaranteed loaner program<sup>2</sup>
- Extended warranties
- Standard two year warranty<sup>3</sup>
- Service contracts

## • Contact Us

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