

Cr <sup>24</sup>	Ni <sup>28</sup>	Si <sup>14</sup>
Fe <sup>26</sup>	Ti <sup>22</sup>	



SharpBeam®  
Optimized  
Geometry

XFlash®  
Technology

# S1 TITAN

● Definition of Precision

Handheld XRF

Innovation with Integrity

## ● Applications

# Positive Material Identification (PMI)

### The S1 TITAN - for your PMI and QA/QC programs

In the refinery, or other industries requiring high temperature and high pressure, equipment safety is routinely ensured by verification of the alloy type required for a particular purpose. More than 75% of refinery incidents are caused by having the wrong metal in service. By maintaining a strong PMI program – based on API 578 or internal procedures – it is possible to virtually eliminate these failures.

In a machine shop, the identification of an alloy may be lost as the metal moves through the shop. Using the portable alloy analyzer allows immediate identification of the alloy and ensures that a part is the proper material prior to investing a large amount of machining time and prior to shipment to your customer.

#### Applications Include:

- Refinery / petrochemical
- Quality control
- Process control
- Aerospace
- Pharmaceutical
- Food (GMP)
- Biomedical

#### Measures:

- Sheets & plates
- Rods & pipes
- Bolts, nuts, and fasteners
- Valves
- Complete assemblies

#### Benefits:

- Light weight
- Fast identification
- Non-destructive
- Measure in-situ
- Welds and filler material
- Analyze hot samples, up to 500°C
- Large grade library
- User-defined alloys

## ● Calibrations

- Calibrations based on traceable standards
- Standardless calibrations
- Automatic selection of calibrations
- Elemental range: up to 37 elements
- Accurate measurement for metal samples
- Automatic energy calibration
- Modes: Assay, Grade ID, Grade pass/fail, Limit testing

## ● Grade Library

The S1 TITAN's grade libraries contain over 700 alloy definitions. The libraries cover both AISI and DIN grade definitions. In addition, users may create their own user-defined library or modify existing libraries.

The libraries cover:

- Low alloy steels
- Cr-Mo steels
- Tool steels
- Stainless steels
- Specialty alloys
- Nickel alloys
- Brass and bronze alloys
- Cobalt alloys
- Zinc alloys
- Titanium alloys
- Light metal alloys (e.g. aluminum and magnesium)
- Exotic alloys such as zirconium, tantalum and tungsten alloys

Grade ID screen				
<b>304SS</b>				
42 Match 9.6 01-04 22:38				
Time 2.0				
El	Min	%	Max	+/-
<b>Fe</b>	66.35	<b>71.80</b>	74.00	0.37
<b>Cr</b>	18.00	<b>18.05</b>	20.00	0.16
<b>Ni</b>	8.00	<b>8.36</b>	10.50	0.16
<b>Mn</b>	0.00	<b>1.22</b>	2.00	0.09
<b>Cu</b>	0.00	<b>0.17</b>	0.50	0.03
<b>Mo</b>	0.00	<b>0.13</b>	0.50	0.01

# Introducing the S1 TITAN



## Features:

- Ultra light: 1.44kg / 3.17 lbs
- Detects Mg, Al and Si
- Bruker X-Flash® SDD
- Fast alloy ID (2-5 sec)<sup>1</sup>
- 50 kV X-ray tube
- Both protected and unprotected data storage

## SharpBeam<sup>®2</sup>

- Optimized detector/tube geometry
- Reduces power requirements
- Reduces weight
- Improves measurement precision
- 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 rain and splashes
- Protected from dirt and windblown dust

### Sealed against moisture and dust



## 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

<sup>1</sup> Not including light elements like magnesium (Mg), aluminum (Al) and silicon (Si)  
<sup>2</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	Standard alloys Light alloys	2 - 5 seconds 10 - 20 seconds
<b>S1 TITAN<sup>SE</sup></b>	SDD	Ti - U	Kapton®	145eV	500°C	Standard alloys	2 - 5 seconds
<b>S1 TITAN<sup>SP</sup></b>	SiPIN	Ti - U	Kapton®	195eV	500°C	Standard alloys	5 - 10 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 and thus provides good precision at short measurement times. In addition the S1 TITAN<sup>LE</sup> will measure light elements and light metals such as magnesium and aluminum with no need for vacuum or helium purge. The maximum sample temperature which can be measured with this configuration is 150°C. This is the most versatile configuration and should be chosen for any applications which do not require measurement of high temperature samples.

The **S1 TITAN<sup>SE</sup>** is the standard configuration which is designed using the X-Flash® SDD with an aluminized Kapton® measurement window. The SDD operates at very high count rates and thus provides good precision at short measurement times. The maximum sample temperature which can be measured with this configuration is 500°C. This configuration is excellent for the measurement of alloys which do not contain light elements. This configuration is designed especially for applications in which samples must be measured in service at high temperatures.

The **S1 TITAN<sup>SP</sup>** is the value configuration based on the traditional SiPIN detector with an aluminized Kapton® measurement window. The SiPIN detector is an excellent choice when light element detection is not required. Good precision and accuracy are achieved using this configuration, but slightly longer measurement times are required. The maximum sample temperature which can be measured with this configuration is 500°C. The S1TITAN<sup>SP</sup> is the value based version of the TITAN and should be chosen for measurement of standard alloys as well as precious metals.

## • Signature Service

Bruker has been in the instrument business for many years and 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>3</sup>
- Extended warranties
- Standard two year warranty<sup>4</sup>
- Service contracts

## • Contact Us

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<sup>3</sup> Not available in all regions. Ask your local representative about availability  
<sup>4</sup> See Terms and Conditions for details