



**Fully  
compliant**

ASTM D6481:  
P, S, Ca, Zn



ASTM D7751:  
Mg, P, S, Cl, Ca, Zn, Mo



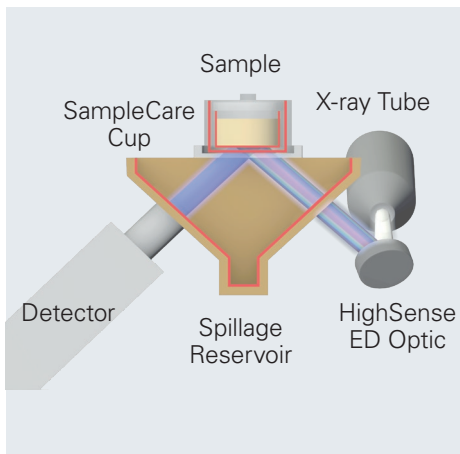
# S2 POLAR Oil Analyzer

● Spectrometry Solutions

# Additives in Oil with S2 POLAR: Performance Guaranteed



S2 POLAR for intuitive, easy-to-use oil analysis



SampleCare with HighSense beam path



Multi-element analysis of lubricating oils

Additives in base oils are used to optimize engine performance and its lifetime. It is crucial to follow the tight specifications when blending lubricating oils. Analytical accuracy and precision count to ensure high product quality in combination with low production cost.

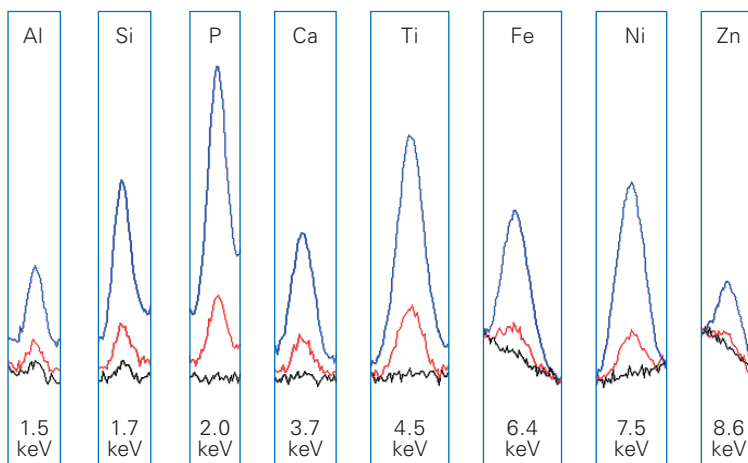
X-ray fluorescence (XRF) is the method of choice due to its ease of use and straightforward sample preparation. And the S2 POLAR is perfectly designed to master even challenging applications.

Based on the HighSense™ beam path with the HighSense ULS detector, the S2 POLAR provides high sensitivity for excellent analytical precision, lowest detection limits and optimum spectral resolution.

## Norm-Compliant Multi-Element Oil Analysis

This enables S2 POLAR to perform fully norm-compliant multi-element oil analysis according to newest international regulations such as ASTM D6481-14 and ASTM D7751-16.

But that's not all, the S2 POLAR is ideal for quality control in base oil production, blending operations of lubricants and polymers as well as oil analysis in automotive industry. The S2 POLAR Ready-to-analyze solutions minimize instrument set-up time and provide 'One Button' multi-elemental analysis. This leads to an economic and cost-effective oil analysis and pays back immediately.



Selected elements of overlaid multi-element oil standards  
(Black: blank sample, red: 10 ppm, blue: 100 ppm)

## Top-performing Oil Analysis:

### S2 POLAR with

- HighSense™
- SampleCare™
- TouchControl™

#### Ease-of-use With One-Button TouchControl™

The S2 POLAR compact XRF benchtop analyzer with an intuitive, easy-to-use TouchControl™ enables users with minimal training to run routine samples:

1. Fill 7 g lubricating oil into a liquid cup
2. Select the method with one click
3. Enter the sample ID.

That's it – easy and straight forward. Neither time-consuming sample preparation nor sample dilution is required. Results are displayed within minutes. The compact instrument with its integrated touchscreen allows installations even in rough environments, e.g. at base oil production, blending facilities or additive dosing stations. This allows immediate on-site process control and ensures cost-effective process optimization.

#### Safe Liquid Sample Handling with SampleCare™ Technology

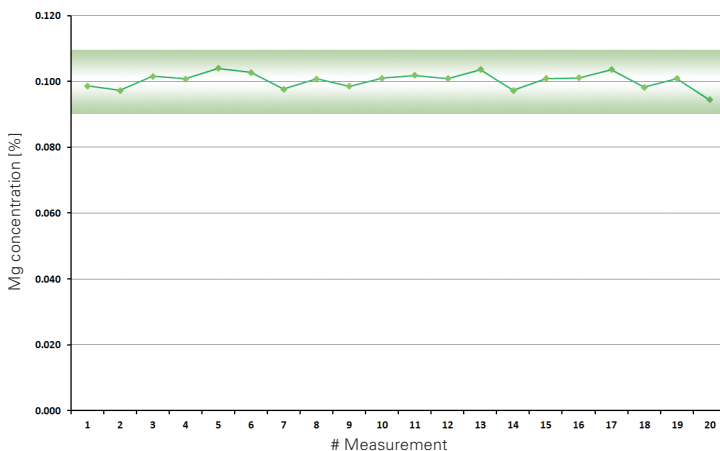
High instrument uptime is crucial for your operation. This is ensured with Bruker's SampleCare technology. SampleCare cups prevent sample leakages of your liquid samples and protect important system components. This guarantees utmost instrument availability, even with high throughput of lubricating oil samples.



TouchControl operation of S2 POLAR



S2 POLAR measurement chamber



Repeatability test of fresh lubricating oil for Mg according to ASTM D7751. The shaded area denotes the allowed limits by the norm.

## Norm-compliant with:

ASTM D6481:  
P, S, Ca, Zn

ASTM D7751:  
Mg, P, S, Cl, Ca, Zn, Mo

## Features and Benefits

	Specification	Benefits
<b>Applications</b>	Elemental analysis of additives in oils and polymers	Elemental analysis optimized for petrochemical products
<b>Norms</b>	<b>ASTM D6481-14:</b> P, S, Ca, Zn, <b>ASTM D7751-16:</b> Mg, P, S, Cl, Ca, Zn, Mo <b>Ready-to-analyze solutions*</b> for ASTM D6481 and D7751 including blanks, set of standards, QC and DC samples Further elements and norms on request	Norm-compliant analysis, internationally accepted Dedicated, optional pre-installed push button methods to fit for purpose
<b>Atmosphere Modes*</b>	Helium mode Vacuum mode	Optimal light element analysis of liquids Low cost of operation
<b>Sample Preparation*</b>	Liquid cups, SampleCare cups, Prolene and Mylar® foils, pipettes, balance	Accessories ensure high throughput of liquid samples. Low-cost per sample due to standardized liquid cups
<b>Further Options*</b>	Emergency Machine Off (EMO) Uninterruptible Power Supply (UPS) Sample rotation	Compliant with safety requirements Enables removing of liquid samples Enhanced precision for inhomogenous samples, such as polymer pucks
<b>X-ray Tube</b>	50 W, high-power X-ray tube, max. voltage 50 kV, with polarizing HighSense™ beam path  Optionally: 30 kV max.	Max. power for short measurement times and high sample throughput, beam path optimized for petrochemical materials Simplify regulatory efforts (e.g. Austria, France, Italy, Taiwan)
<b>Detector</b>	HighSense™ ULS Silicon Drift Detector	Highest count rates for fast analysis, low LLD
<b>TouchControl™</b>	Integrated 12.1" TFT touchscreen, multilingual user interface: English, German, French, Spanish, Portuguese, Italian, Russian, Chinese, Japanese	IslandMode™ without external PC Intuitive and easy-to-use, in your own language
<b>Connectivity</b>	Ethernet port RJ45, 3x USB ports for mouse, keyboard, and printer; HDMI/VGA ports for external display, remote access via TCP/IP	IslandMode™ but not isolated, various options for printing and network data transfer, even fully remotely
<b>Power Supply</b>	100-240 V, 50/60 Hz, max. 600 VA	Standard wall plug
<b>Dimensions; width x depth x height, weight</b>	46.6 x 74.5 x 37.0 cm, 55 kg 18.3" x 29.3" x 14.6", 121 lbs	Small and compact for installations with limited space, e.g. in plant labs, at blending facilities or close to dosing stations
<b>Safety</b>	DIN EN ISO 9001:2008, 2006/42/EC (CE-certified Machinery directive), 2014/35/EC (Electrical equipment), 2014/30/EC (Electromagnetic Compatibility), German Type Approval and Vollschutz according to BfS RöV pending, Fully radiation-protected system; radiation <1 µSv/h (H*), Compliant to ICRP, IAEA, EURATOM	

\* Optional packages

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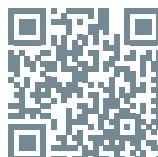
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