Certify Sulfur and Monitor Critical Elements at Sub-ppm Levels

Benchtop and Process Analysis Solutions

Sulfur Measurement Advanced

The Petra series delivers high-precision D4294 sulfur analysis across a broad measurement range. Petra MAX™ delivers D4294 sulfur analysis in addition to 12 elements from P to Zn, for rapid monitoring of critical elements like Ca, Fe, K, Ni, and V at sub-ppm levels.

Petra MAX
Elemental Analyzer for Petroleum

Petra 4294
Sulfur Analyzer for Petroleum

Technical Specifications							
Petra MAX	Dynamic Range	Sulfur 5.7 ppm – 10 wt%					
	Limit of Detection (ppm @ 600 s)	Sulfur 5.7 ppm					
		P	Cl	K	Ca	V	Cr
		17	3	0.7	0.4	0.1	0.09
		Mn	Fe	Co	Ni	Cu	Zn
		0.07	0.07	0.07	0.04	0.1	0.1
	Applications	Hydrocarbons, water and catalysts					
Petra 4294	Dynamic Range	Sulfur 2.6 ppm – 10 wt%					
	Limit of Detection (ppm @ 600 s)	Sulfur 2.6 ppm					
	Applications	Hydrocarbons					

Petra is powered by High Definition X-ray Fluorescence (HDXRF®) technology: an elemental analysis technique offering significantly enhanced detection performance over traditional XRF technology.

Advanced Workflow

Petra Series Autosampler boasts a novel design with advanced software features for a more flexible and efficient workflow. Using unique identifier (X-ID) sample cups and an open-ended sample slide, the autosampler offers sample tracking and continuous sample loading. It is an optional add-on feature for a Petra 4294 or Petra MAX analyzer. QR/barcode scanner included with purchase.

X-ID Sample Cup

ASTM D4294
ISO 8754 | IP 336

Sulfur Analysis with Compliance Flexibility

The Sindie® 2622 series complies with ASTM D2622, D7039 and ISO 20884 methods, enabling complete flexibility in sulfur analysis. With no compromises in detection, performance, or reliability, Sindie 2622 is the ideal sulfur analytical solution from ultra low sulfur diesel and gasoline to heavy fuel oil and crudes.

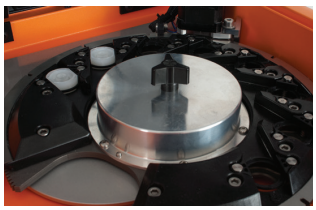
FEATURES AND BENEFITS

- Powered by MWDXRF
- **Easy to use:**
  - Intuitive touch screen
  - Just plug-in and measure
  - Measurement time: 30-900 s
- **Low and high range calibrations available:**
  - Low Range: LOD - 3000 ppm
  - High Range: 0.3 wt% - 10 wt%
- **Extremely low maintenance:** no conversion gasses, heating elements, columns, or quartz tubing
- 75 W air-cooled excitation tube

OPTIONS

- 8-cell Autosampler (Gen 2 Only)
- LIMS data output compatible software

Sindie 2622 Sulfur Analyzer



AUTOSAMPLER

- 8 sample cell capacity
- Increases productivity
- Utilizes XOS Accucell sample cups

ASTM D2622 & D7039
ISO 20884

Technical Specifications		
Sindie 2622 Gen 2	Dynamic Range	0.4 ppm to 10 wt%
	Limit of Detection (LOD)	0.4 ppm at 300 s
	Sample Cup*	Traditional XRF or Accucell
Sindie 2622 Gen 3	Dynamic Range	0.15 ppm to 10 wt%
	Limit of Detection (LOD)	0.15 ppm at 600 s
	Sample Cup*	Traditional XRF or Accucell

*Determined at time of order

Sulfur Analysis in Liquid Hydrocarbons

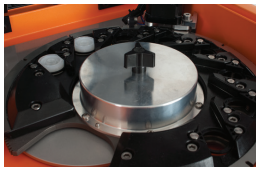
From ultra low sulfur diesel and gasoline, to heavy fuel oil and crudes, the Sindie® 7039 series delivers unprecedented precision and accuracy. Sindie 7039 is the ideal analytical solution for the refining industry where detection, performance and reliability are critical.

FEATURES AND BENEFITS

- Powered by MWDXRF
- **Easy to use:**
  - Intuitive touch screen
  - Just plug-in and measure
  - Measurement time: 30-900 s
- **Extremely low maintenance:** no conversion gasses, heating elements, columns, or quartz tubing
- 75 W air-cooled excitation tube

OPTIONS

- **Extended Range (XR):** 0.3 wt% - 10 wt%
- 8-cell Autosampler (Gen 3 only)
- LIMS data output compatible software



AUTOSAMPLER

- 8 sample cell capacity
- Increases productivity
- Utilizes XOS Accucell sample cups

Technical Specifications		
Sindie 7039 Gen 2	**Dynamic Range**	0.4 ppm to 3000 ppm
	Limit of Detection	0.4 ppm at 300 s
	Sample Cup*	Traditional XRF or Accucell
Sindie 7039 Gen 3	**Dynamic Range**	0.15 ppm to 3000 ppm
	Limit of Detection	0.15 ppm at 600 s
	Sample Cup*	Traditional XRF or Accucell

*Determined at time of order

Sindie 7039 Sulfur Analyzer

ASTM D7039 and ISO 20884

Advanced Analysis with MWDXRF

Monochromatic Wavelength Dispersive X-ray Fluorescence (MWDXRF) utilizes state-of-the-art focusing and monochromating optics to increase excitation intensity and dramatically improve signal-to-background ratio compared to traditional WDXRF instruments. This enables significantly improved detection limits, precision, and a reduced sensitivity to matrix effects. A monochromatic and focused primary beam excites the sample and secondary characteristic fluorescence X-rays are emitted from the sample. A second monochromating optic selects the sulfur characteristic X-rays and directs these X-rays to the detector.

TWO critical measurements, ONE push of a button, ZERO hassle

Sindie® +Cl is a two-in-one instrument enabling trace analysis of both sulfur and chlorine. It is the ideal solution to certify sulfur levels in finished products and assess chlorine for corrosion mitigation.

Sindie +Cl Sulfur and Chlorine Analyzer

FEATURES AND BENEFITS

- Powered by MWDXRF
- **LOD:**
  - Sulfur: 0.4 ppm at 300 s
  - Chlorine: 0.3 ppm at 300 s
- **Dynamic Range:**
  - Sulfur: 0.4 ppm to 5 wt%
  - Chlorine: 0.3 ppm to 3000 ppm
- Extremely low maintenance: no conversion gasses, heating elements, columns, or quartz tubing

OPTIONS

- LIMS data output compatible software

ASTM D2622, D7039, D7536, D4929
SH / T 0842, ISO 20884

Effective Online Sulfur Analysis in Petroleum Process Streams

Sindie ONLINE Sulfur Analyzer

Sindie® Online is an industrial grade process sulfur analyzer with breakthrough detection capability to monitor ultra low sulfur in petroleum or aqueous process streams. This process analyzer presents the ultimate solution for refineries and pipeline terminals where measurement speed and reliability are essential.

FEATURES AND BENEFITS

- Powered by MWDXRF
- Uses ASTM D7039 technology
- ATEX Zone 1 and NEC Cl | Div 2 Certified
- **LOD:** 0.5 ppmw in hydrocarbon matrices @ 300 s
- **LOD:** 1.5 ppmw in aqueous streams @ 300 s
- **Dynamic Range:** 0.5 ppmw – 3000 ppmw

ATEX and NEC Certified

OPTIONS

- Multi-stream analysis capability
- Extended Range (XR) available for measurements above 3000 ppmw up to weight percent levels

XOS® better analysis counts

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