

# Silicon Analysis in Petroleum and Biofuels

From gasoline to ethanol and toluene, Signal® delivers total silicon analysis. Powered by MWDXRF®, Signal is a robust analysis solution for demanding petroleum and industrial environments.

## APPLICATIONS

- Total silicon analysis in hydrocarbons and bio fuels
- For use in refinery labs, pipeline terminals, additive plants, and inspection laboratories

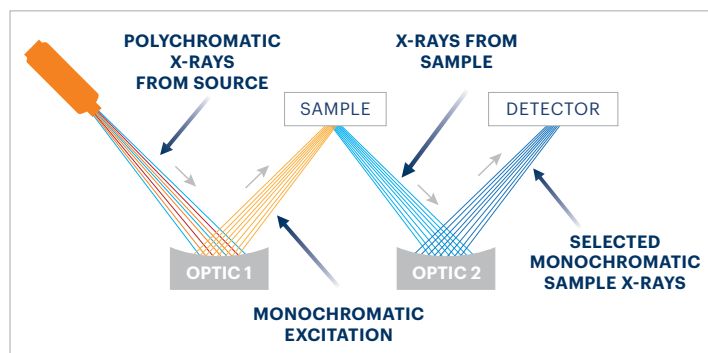
## FEATURES AND BENEFITS

- **LOD:** 0.65 mg/kg (ppm) at 600s\*\*
- **Dynamic Range:** 0.65 mg/kg (ppm) to 3000 mg/kg (ppm)
- Easy to use
  - Intuitive 10-inch touch screen
  - Just plug in and measure
  - Measurement time: 10-999 s
- **Low maintenance:** no gasses, heating elements, columns, or quartz tubing
- Traditional 43 mm XRF sample cups
- Small footprint
- LIMS integration for data management and transfer
- Custom sample presets to save data entry time and minimize data entry error on common samples
- Bar code reader autofills sample name to reduce data entry time
- Storage capacity for more than 50,000 measurement results
- Supports up to 30 calibration curves
- USB connectivity in front and back for connecting to printer, keyboard, mouse, and memory stick
- Supports USB and network printers
- Large, easy-to-remove side panels for easy serviceability
- Advanced error reporting and diagnostics

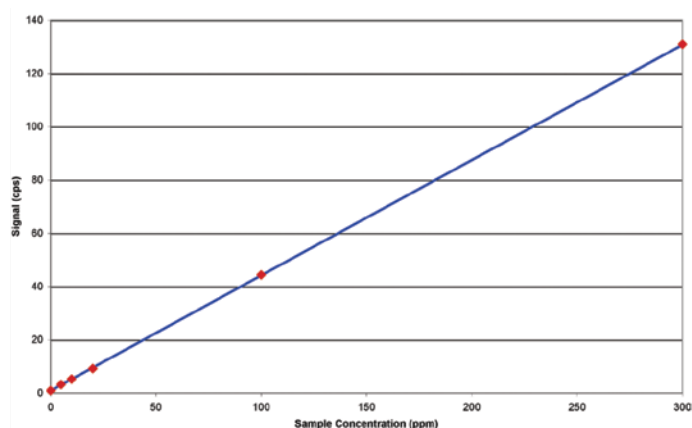


## TRUSTED PRECISION

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 over high-power traditional WDXRF instruments. This enables significantly improved detection limits and 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 silicon characteristic X-rays and directs these X-rays to the detector. MWDXRF is a direct measurement technique and does not require consumable gasses or sample conversion.



### LOW RANGE CALIBRATION



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Signal uses a weighted least squares regression which is extremely linear and easy to set up. Typical correlation (R value) is expected to be on the order of 0.999 or better.

## PRODUCT SPECIFICATIONS

<b>Model</b>	Signal
<b>Test Method</b>	ASTM D7757
<b>Dimensions</b>	42 cm (h) x 40 cm (w) x 54 cm (d) 16.5 in (h) x 15.8 in (w) x 21 in (d)
<b>Power</b>	100-120 VAC, 47-63 HZ at 5.0 Amps/ 200-240 VAC, 47-63 HZ at 2.5 Amps
<b>Minimum Sample Cup Volume</b>	Traditional 43 mm – 5 ml
<b>Ambient Temperature Requirements</b>	5-40°C (40-104°F)
<b>Optical Path</b>	Vacuum
<b>Excitation Source</b>	75 W air-cooled

\*All qualification herein are subject to user guide specifications. If you have further questions, reach out to our team of experts at [info@xos.com](mailto:info@xos.com).

\*\*Longer cycle time increases counts and lower LOD, but sample conditions over time must be considered. For further inquiries, please contact us at [info@xos.com](mailto:info@xos.com).

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### PRECISION

Typical repeatability (r) and reproducibility (R) values in diesel fuel, at 95% confidence. 600 s measurement time.

Silicon Concentration (ppm)	r	R
2	0.4	0.7
5	0.5	0.8
8	0.6	1.0
15	0.8	1.4
100	2	4
500	5	10