

Sulfur & Chlorine Analyzer

For petroleum based products
using polarized monochromatic EDXRF

The MESA-6000 is based on the latest advances in Energy Dispersive X-ray Fluorescence (EDXRF) technology. It utilizes a proprietary X-ray optical technology that produces a Polarized, Mono-chromatic X-ray energy beam. This approach is critical to achieve an ultra low noise background needed for the best limits of detection for both sulfur and chlorine. Also incorporated are; excellent performance at high concentration (multiple wt.% levels), simultaneous multi-element analysis and applicability over a wide range of sample types.

Interferences produced by matrix differences or other elements are also minimized. The MESA-6000 performance is well established, as it is compliant with ASTM and ISO International Sulfur Determination Norms:

EN ISO 20847 PrEN ISO 13032
ASTM D7220 ASTM D4294
IP 532 EN ISO 8754

Real world Petroleum applications

- ▶ Ultra low sulfur diesel (ULSD) straight run gasoline and RFG
- ▶ Diesel
- ▶ Kerosene / Jet Fuel
- ▶ Biodiesel / Biodiesel blends
- ▶ Transformer oil / hydraulic
- ▶ Crude Oil
- ▶ Home Heating Oil
- ▶ Water

Quick & Accurate

- ▶ Typical test times are 3 min per sample for less than 50 ppm concentration.
- ▶ Less than 2 min per sample for concentrations above 50 ppm.
- ▶ Detection limits for S and Cl are in low ppm with the upper range in the % level.
- ▶ Simultaneous determination capability.
- ▶ New technology eliminates oxygen interference that can vary results significantly.

Easy

A touchscreen graphical user interface displays all the important functions for routine operation at a glance. USB ports allow a supervisor to easily plug in a keyboard and mouse to handle more complicated tasks.

Clean

Unlike some methods for S and Cl, the MESA-6000 models are low maintenance and do not require furnaces, conversions gases or micro syringes.



MESA-6000 Specifications

X-Ray Tube

Pelletier-cooled, Ag anode X-ray tube; 0-1 2.5kV; 0-2mA

Monochromator

Closely coupled, doubly curved HOPG crystal reflects Ag Ka radiation for optimal excitation of S and Cl.

Si drift Detector

Stable peak positions and spectral resolution (<150 eV) up to an input count rate of 200 kcps.

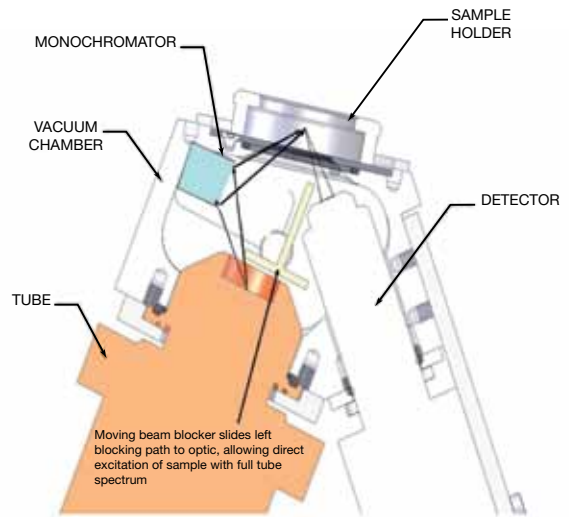
LOD: 1 ppm wt/wt

Dynamic Range: 1 ppm - 10% (wt/wt). The sample chamber is under vacuum to enhance sensitivity.

Vacuum Chamber Window

User replaceable 7.5 mm Kapton window. The detector is also protected by an expendable safety window between it and the sample cup window.

Sample volume 5 mL



S Concentration

	0 ppm	1 ppm	10 ppm	100 ppm
1	-0.7	1.7	9.8	99.1
2	0.1	1.4	9.8	99.5
3	0.7	0.9	10.5	101.4
4	0.5	1.9	8.8	100.6
5	-0.1	1.4	9.9	100.5
6	-0.2	0.7	10.8	99.7
7	-1.5	0.7	9.4	101.1
8	0.0	2.2	10.9	100.1
9	-1.3	1.1	10.6	100.9
10	-0.1	0.7	10.9	100.9
Ave	-0.26	1.30	10.10	100.40
Std.	0.71	0.54	0.71	0.75

Software

- ▶ Allows users to create calibrations using their own standards methodology for system monitoring and preventive maintenance including onscreen diagnostics for all operating parameters.
- ▶ An intuitive touch screen based, user interface.
- ▶ Ability to add new functionality

Included Accessories and Options

- ▶ Printer
- ▶ Optional Keyboard and Mouse for convenient programming

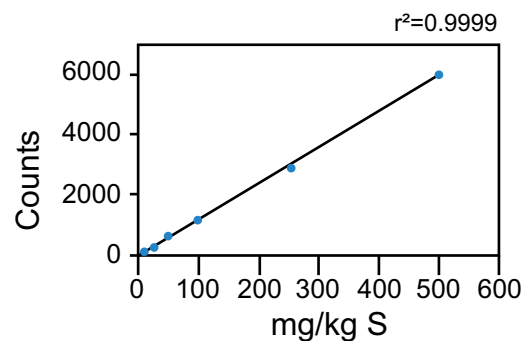
Dimensions and Operating Requirements

- ▶ Nominal input voltage: 120-240 V +/- 10%AC, 50/60 Hz, 125 W
- ▶ Dimensions: W x D x H: 33 x 51 x 41 cm (13 x 20 x 16 inches)
- ▶ Weight: 21 kg (45 lbs)
- ▶ Ambient operation temperature: -25°C to 40 °C
- ▶ Relative humidity at 25 °C (77°F): 0 to 95%

Computer

- ▶ Powerful Pentium processor, embeded Windows™ XP OS and sealed, field-hardened color touchscreen (8.4", 800x600 pixels) capable of clearly displaying calibration curves Two UI levels
- ▶ Simple, touch screen interface for supervisor setup.
- ▶ Password protected, keyboard driven interface for supervisor setup
- ▶ 80 GB hard drive and 500 MB of RAM
- ▶ Two USB ports: one on the back and one on the side, a PS2 Connection and a USB port for a mouse or keyboard and a direct ethernet connection to the web for customer support located on the rear panel.

Calibration Curve



Typical calibration line based on calibration standards prepared with ultra high purity mineral oil (0, 10, 25, 50; 100, 250, 500 mg/kg)

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