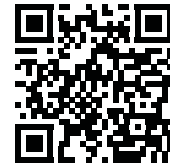


Micro-Z ULS

Wavelength dispersive X-ray fluorescence



http://www.rigaku.com/products/xrf/microz_uls

WDXRF ultra-low sulfur analyzer for ULSD and Tier 3 gasoline



Rigaku Corporation and its Global Subsidiaries
website: www.Rigaku.com | email: info@Rigaku.com

Sulfur

S 16

Atomic Weight = 32.07

ASTM D2622-10
ISO 20884
JIS K12541-7



Sulfur

S

16

Atomic Weight = 32.07

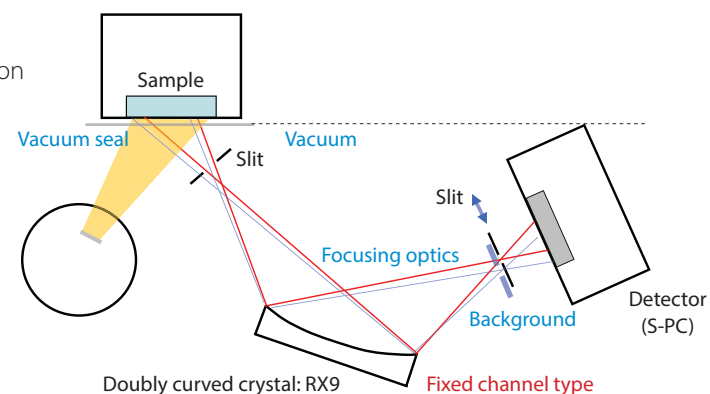
ASTM D2622-10, ISO 20884 and JIS K12541-7 compliant

Superior optics for reliable performance

The Rigaku Micro-Z ULS is the ideal solution for sulfur analysis of petroleum based fuels, with a lower limit of detection (LLD) of 0.3 ppm sulfur. Employing robust fixed optics in a vacuum environment, and featuring a specially designed doubly curved RX-9 analyzing crystal, the Micro-Z ULS delivers consistent high-intensity measurements.

Movable slit provides background correction

The unique Rigaku automatic background correction enhances the goodness of the calibration fit, providing unmatched precision for short-term repeatability and long-term reproducibility.



Schematic of the close-coupled optical design. Note that the moveable receiving slit allows for measurement of both peak and background intensity.



Designed for routine non-technical operation

Specifically designed for non-technical users, all operations—from calibration through routine analysis—can be performed via the easy-to-use interface. The analyzer can be powered by any standard wall AC outlet.

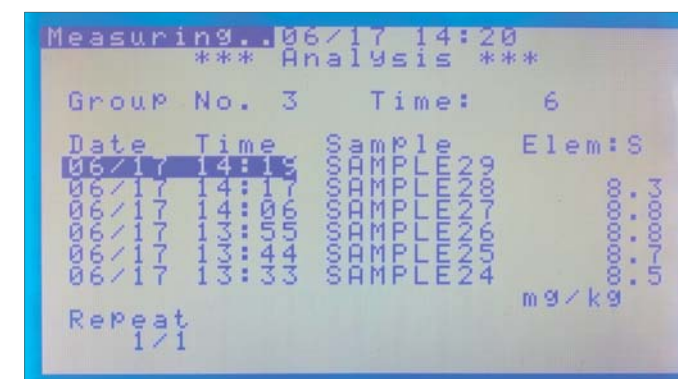
High resolution WDXRF spectrometer

A unique doubly curved analyzing crystal delivers superior resolution for sulfur that ensures the required performance for production and validation of ULSD and Tier 3 gasolines. With the ability to perform automatic background corrections, Micro-Z ULS is strictly compliant with ASTM D2622-10. As a vacuum type design, no helium (He) gas is ever required. And the spectrometer features easy maintenance for the vacuum seal system.

(a) Diesel fuel			(b) Gasoline		
Run #	Average (mg/kg)	Difference (mg/kg)	Run #	Average (mg/kg)	Difference (mg/kg)
1	8.0	0.3	1	11.8	0.8
2	8.2	0.1	2	11.7	0.7
3	8.1	0.3	3	12.1	0.1
4	8.0	0.3	4	11.8	0.8
5	8.2	0.1	5	11.5	0.1
6	8.1	0.3	6	11.5	0.1
7	8.1	0.3	7	11.8	0.4
8	8.2	0.1	8	12.1	0.4
9	8.1	0.0	9	12.1	0.4
10	8.1	0.1	10	11.7	0.4
11	8.2	0.5	11	11.7	0.4
12	8.5	0.0	12	11.9	0.2
13	8.6	0.2	13	11.7	0.1
14	8.7	0.0	14	12.0	0.6
15	8.4	0.7	15	12.1	0.4
16	8.3	0.6	16	11.6	0.6
17	8.3	0.5	17	11.5	0.3
18	8.0	0.2	18	11.6	0.0
19	8.2	0.7	19	11.6	0.1
20	8.3	0.5	20	11.8	0.4
Avg.	8.2		Avg.	11.8	
Maximum		0.7	Maximum		0.8
ASTM limit		0.8	ASTM limit		1.1

Repeatability results for Micro-Z ULS (ASTM D2622-10)

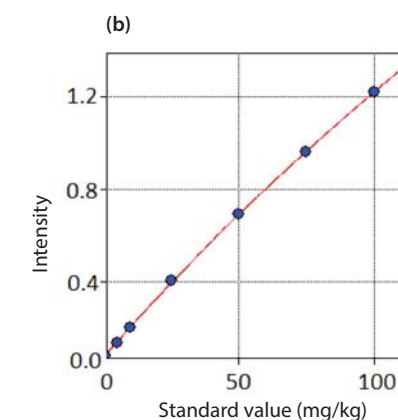
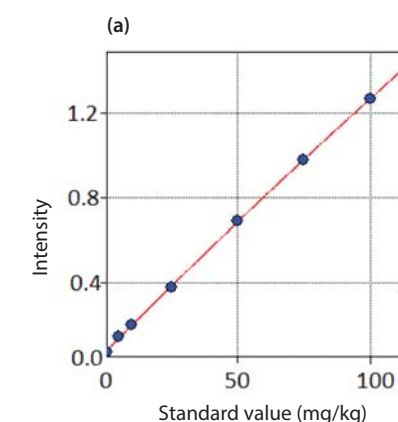
Micro-Z ULS



Instrument status, through to analytical results, are selectable with the touch of a finger.

Calibration results using Micro-Z ULS (units: ppm)

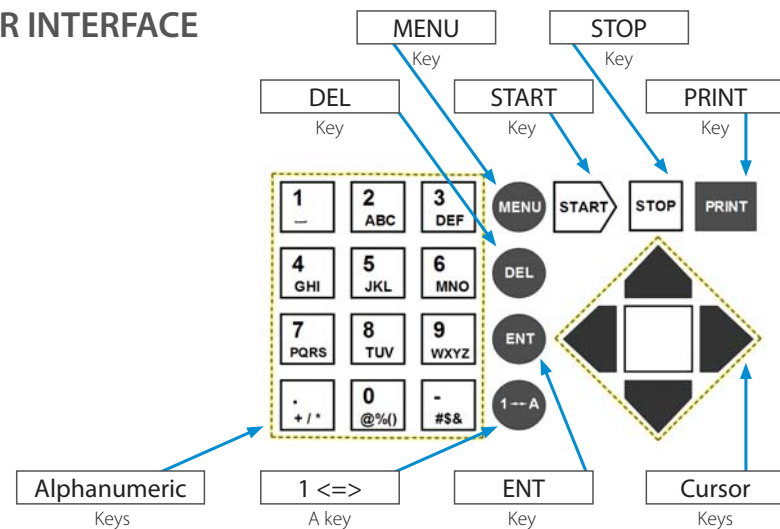
Material	Diesel fuel	Isooctane (for gasoline)
Calibration range	0 – 100	0 – 100
Accuracy	0.49	0.37
LLD	0.3	0.3



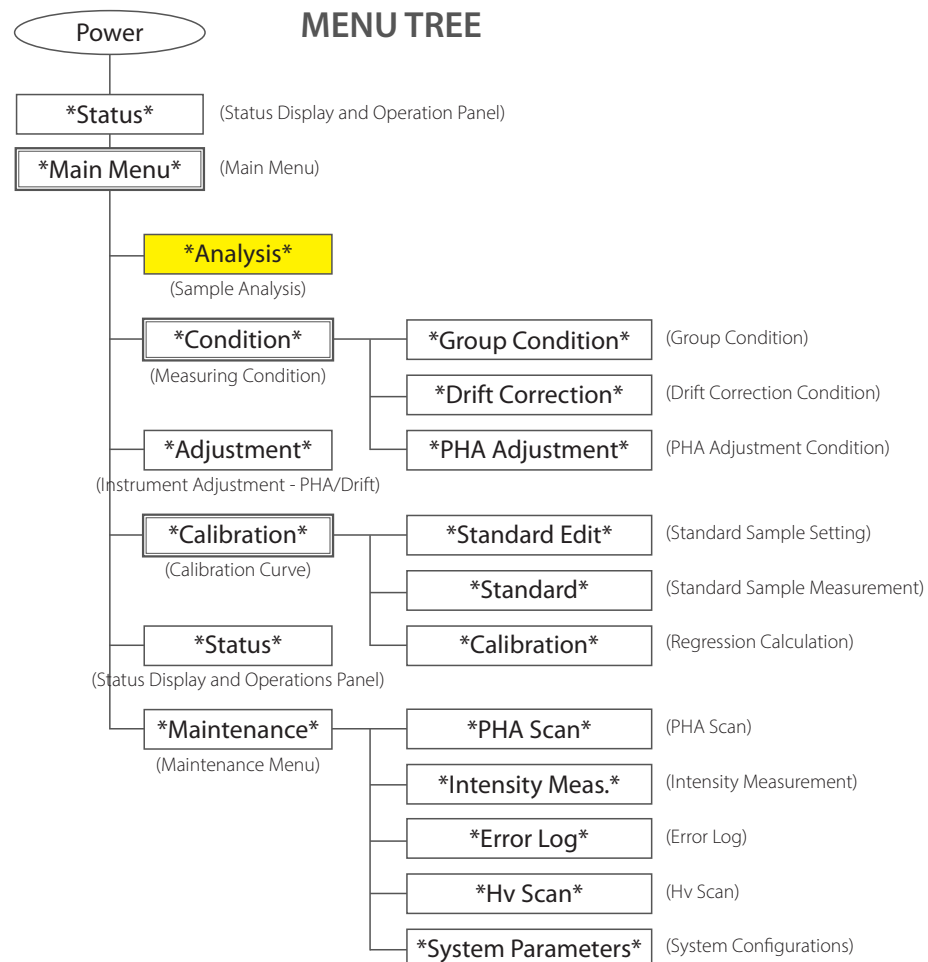
Calibration curve for each material of Micro-Z ULS

(a) Diesel fuel
(b) Isooctane (for gasoline)

USER INTERFACE



MENU TREE



Specifications

Instrument:

- Wavelength dispersive X-ray fluorescence analyzer
 - Includes vacuum pump
- Element range: sulfur (S), LLD = 0.3 ppm
- Application: analysis of fuels for sulfur content
- Single measurement position (std. 35 mm cup)

Supported methods:

- ASTM D2622-10
- ISO 20884 and JIS K12541-7

Excitation:

- 40 kV Cr-anode X-ray tube
- 40 W max power

Detection:

- Doubly curved RX-9 analyzing crystal
- Sealed proportional counter
- Fixed optics with switchable receiving slit
 - To select peak or background
- Pulse height analyzer (PHA)

Atmosphere:

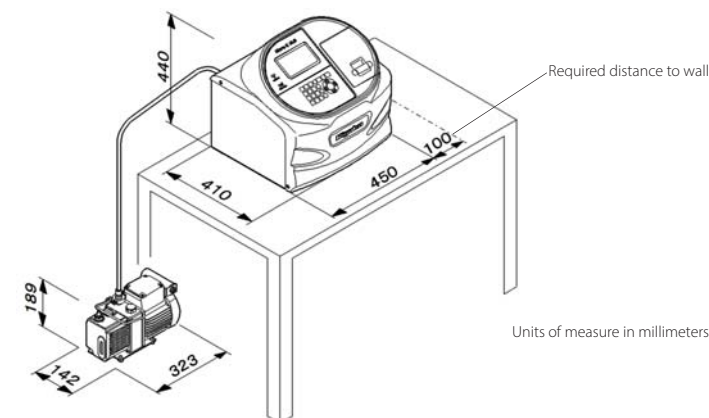
- Sample analysis in air
- Optics are under vacuum

Environmental conditions:

- Ambient temperatures 15 – 28°C
- Relative humidity <75% non condensing
- Vibration undetectable by human
- Free from corrosive gas, dust, and particles

Dimensions / power:

- Analyzer: 450 x 410 x 440 mm, 36 kg
- Pump: 323 x 142 x 189 mm, 10 kg
- 100-120 VAC, 15 A or 200-240 VAC, 10 A



Backed by Rigaku

Since its inception in 1951, Rigaku has been at the forefront of analytical and industrial instrumentation technology. Today, with hundreds of major innovations to our credit, the Rigaku Group of Companies are world leaders in the field of analytical X-ray instrumentation. Rigaku employs over 1,400 people worldwide in operations based in Japan, the U.S., Europe, South America and China.

Computer:

- Embedded dedicated processor
- Proprietary operating system

Software:

- Up to 10 calibrations
- Up to 30 standards per calibration
- Selectable analysis time (up to 900 s)
- Drift correction
- Pulse height analyzer (PHA) adjustment

User interface:

- LCD display
- Embedded computer
- Membrane keypad and navigation

Options:

- Thermal dot printer
- RS-232C data output