

HTEK INSTRUMENT

Compass 4294- Portable XRF

Sulfur in oil Analyzer



Compass 4294 . Portable XRF sulfure in oil analyser

Background

Quick on-site analyzing the Sulphur content of fuel oil on-board a ship with minimum operation is essential for the shipowners and operators to comply with the latest IMO (MARPOL) regulations.

The IMO (International Maritime Organization) continuously sets new standards to minimize and control the harmful polluting exhausts from vessel engines. IMO is the World's largest maritime organization with over 170 member states and acts as a regulatory agency for the international maritime industry.

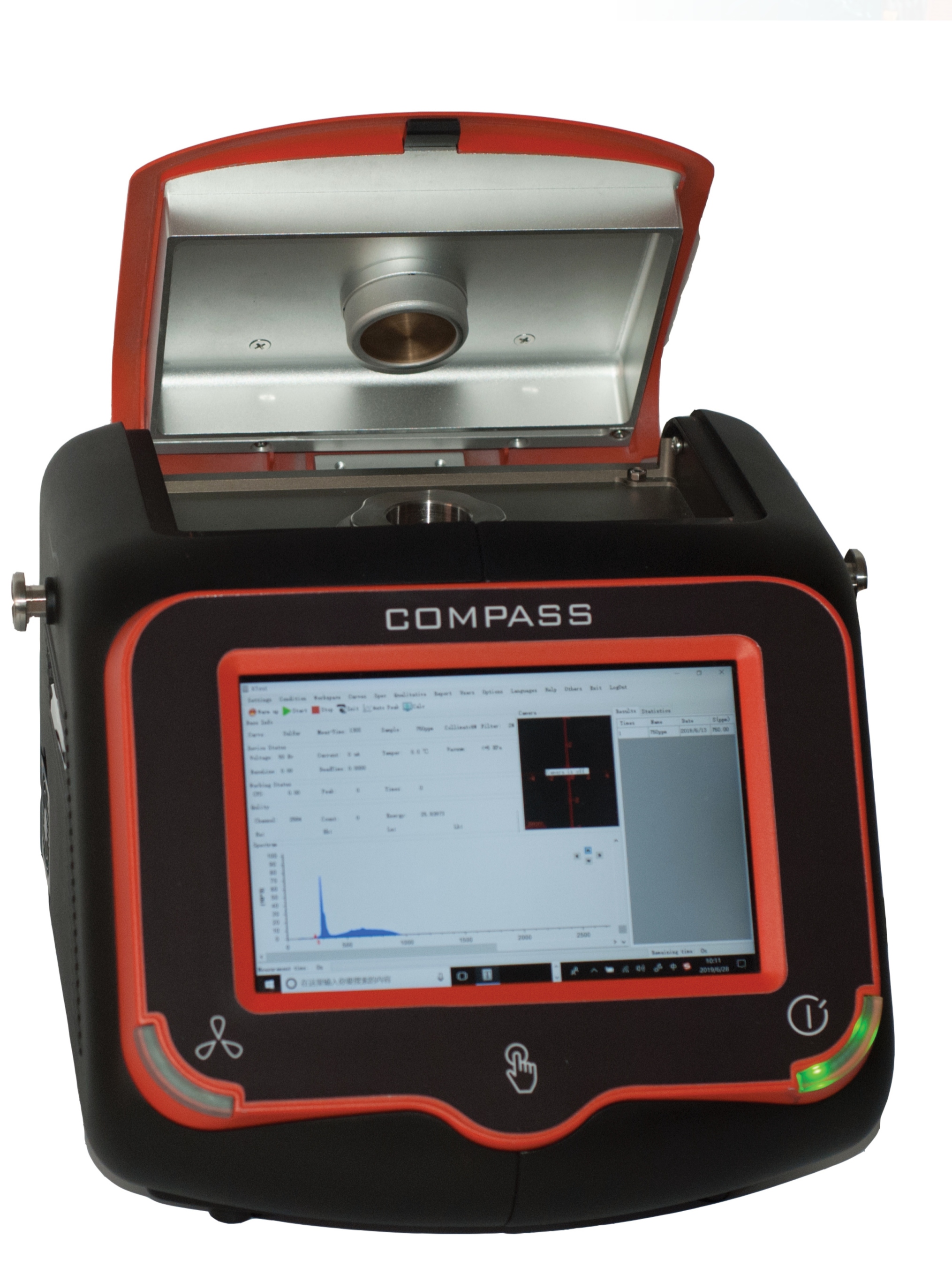
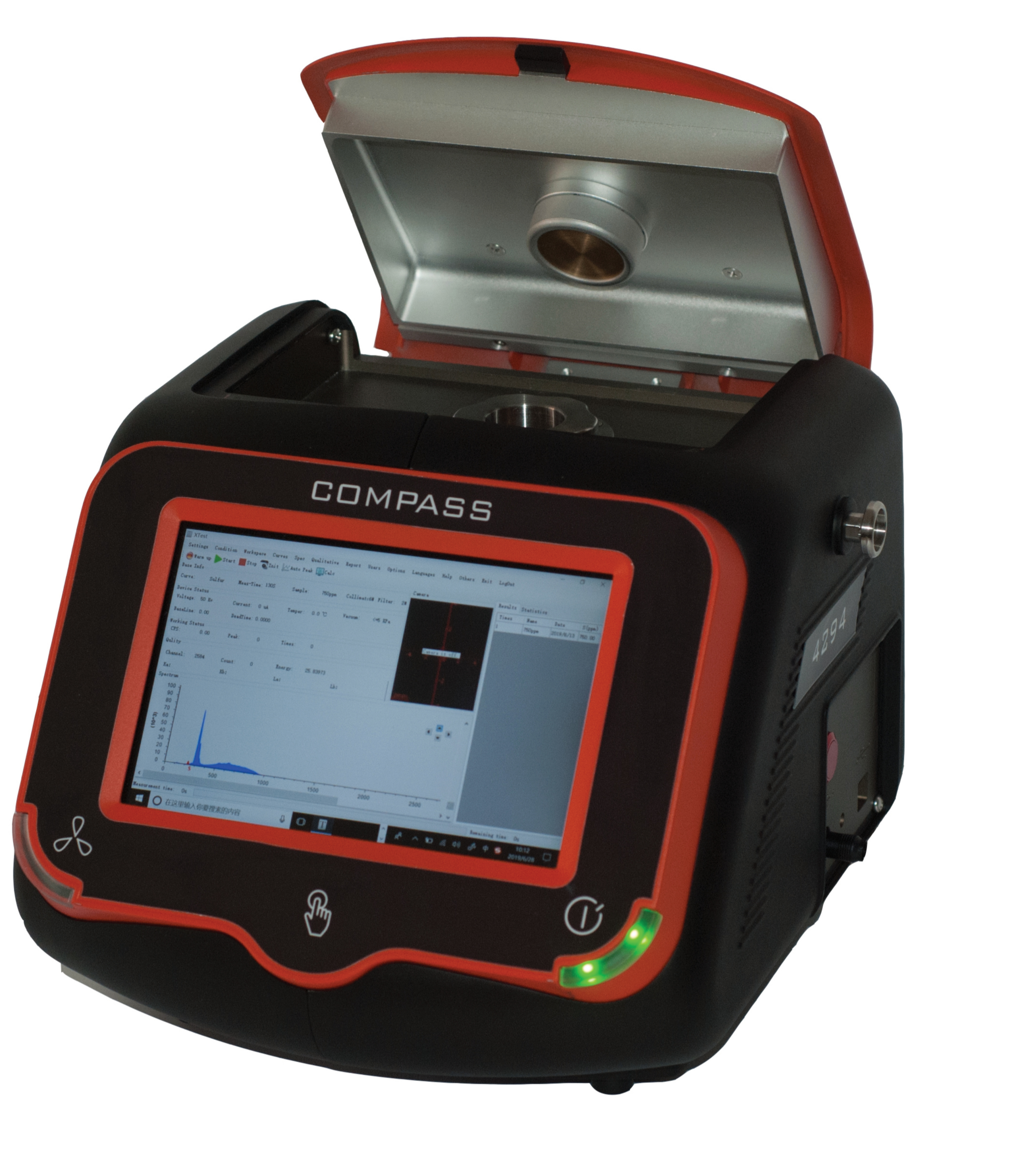
These regulations are enforced both globally and locally by each country and failure to comply can lead to heavy penalties. Based on standard method such as ASTM D4294 and ISO 8754, XRF spectrometer is one of the most effective technology of establishing fuel compliance with the Sulphur and other elements regulations

It will be essential and compulsory for each vessel to comply with the Sulphur limits of 0.10% m/m in SECAs or 0.50% m/m in all other areas worldwide.

Meanwhile other similar sulfur control is widely applied, for example In India, all automotive diesel and gasoline was transitioned to Bharat IV with a 50 ppm maximum sulfur in April 2017. Maximum permissible level of sulfur in fuel in Europe for 2003/17/EC (or EURO VI) directive requires a maximum amount of sulfur in fuel of 10 ppm.

Aviation Turbine Fuels specifications such as ASTM D1655 and D6615 require a maximum sulfur of 3000 ppm.

The Compass 4294 is the most suitable instrument in order to fulfill the regulatory control on site, without any complex laboratory sample treatment and at the best analysis cost per sample.



Introduction

The Compass 4294 Energy-Dispersive X-Ray Fluorescence (EDXRF) systems was especially designed for on-board total sulfur content analysis in wide concentration range from ppm to percent levels.

The portable compact design with low detection limits and high accuracy makes the Compass 4294 the ideal tool for sulfur testing at sea, offshore or on land.

Features and Benefits

- Portable, rugged, compact design for total non-destructive sulfur analysis
- Quick analysis in 130 seconds per sample with minimum sample preparation
- User-friendly software and One-touch measurement start for testing
- Training for routine analysis takes only minutes
- Low cost of daily analysis without any gas consume
- Built for tough environments
- Intuitive interface displayed on the large 8 inches touchscreen
- Low maintenance cost

Key Applications

Analysis of Sulfur content in bunker diesel fuels

Analysis of hydrocarbon samples of heating oil, kerosene, jet A, vacuum gas oil (VGO), and crude oil

Analysis of Cl, Mg and K in marine fuel

Analysis of catalysts in the fuel- avoiding engine failure

High precision results without daily calibration needed.

Test report of Sulfur in oil standard samples :

Model Compass 4294, Test Time: 130 seconds

No	Calibration curve	Sample #1	Sample #2	Sample #3
1	Mineral oil	315	0.1035	1.0085
2	Mineral oil	303	0.1026	0.9905
3	Mineral oil	305	0.1021	0.9995
4	Mineral oil	299	0.1035	1.0095
5	Mineral oil	292	0.1025	0.9978
6	Mineral oil	307	0.1033	1.0088
7	Mineral oil	311	0.1048	0.9986
8	Mineral oil	305	0.1016	0.9999
9	Mineral oil	307	0.1015	1.0095
10	Mineral oil	295	0.0995	0.9988
	Certified value:	300ppm	0.100%	1.0000%
	Average test result	304	0.1025%	1.0021
	Standard deviation S	6.9992	0.0014	0.0065
	RSD	2.30%	1.41%	0.65%

Specifications

Detector: High Resolution SDD

Excitation Source: 4 watts high efficiency micro tube 50kv Max, 200uA Max

Working temperature: -20 to 50 °C

Test environment Air (Modell 4294) and vacuum (modell 4294 Plus)

Measuring time per sample: 130 seconds

Sample Type: Liquid, powders and solids

Factory Calibration Low sulfur: 10ppm- 100ppm and High sulfur: 0.01%-5%

Detection Limit of Sulfur: 3.8ppm (in Air) - Compass 4294 and 1.0ppm (Vacuum)- Compass 4294 Plus

Instrument Dimension: 270mm x 320mm x 230mm (L*W*H)

Sample Chamber Dimension: 170mm x 110mm x 17mm (L*W*H)

Weight: 9.4 kg

Operation: touch Screen(1280 x 800dpi) 8 inches Windows 10 based OS

External Connections: USB Port, Bluetooth, Wi-Fi, GPS

Test Report: Excel, PDF

Consumables: Sample test Mylar

Oil analysis sample cup

Sampling pipette

Test window film

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