analyzer for Sulfur in marine fuel oil，MERAK-MINI

* Market demand from analysis of marine fuel fuels

 With the rapid development of China's economy, the shipping industry plays an important role in the transportation of goods. At the same time, the discharge of marine exhaust gas has also aggravated the air pollution in the port and surrounding areas. In recent years, China’s environmental agencies, transportation departments, and agricultural and fishery departments have upgraded the standards for marine fuel oil. According to the “Air Pollution Prevention and Control Law,” the fuel oil used by ships in inland rivers and rivers and seas should meet the “GB252-2015 standard diesel oil” standard. The standard stipulates that the sulfur content of the oil should be less than 10mg/kg starting from January 1, 2018, and the fuel oil used for the ocean-going ships should meet the “GB17411-2015 Marine Fuel Oil” standard, which specifies the minimum sulfur content requirements. 1000mg/kg.

* Market demand from domestic gasoline and diesel circulation market

The problem of non-standard, disorderly competition and quality deterioration in the domestic fuel oil market has become increasingly prominent. If refinery companies do not meet the target for desulfurization, which saves costs for refining, these substandard fuel oils enter the local market and aggravate environmental air pollution. Among them, sulfur emissions are one of the most important causes of pollution. The regular supervision and inspection by the quality supervision department has limited sampling frequency and coverage. Some provincial and municipal government agencies check the sulfur content of gasoline and diesel in tankers on highways to prevent poor quality oil from flowing into the local market;

There are also some provinces and cities that conduct sampling inspections on the diesel fuel in vehicle fuel tanks to determine their sulphur content, so as to prevent the emission of pollutants from the local air by trucks with high-emissions of low-quality diesel fuel.

The detection of marine fuel oil, as well as the tests performed in the circulation of fuel oil, require a portable, portable, fast, and accurate analytical instrument to perform on-site analysis of the sulfur content in the fuel oil.

**Features**

High sensitivity

       Portable high-sensitivity X-ray fluorescence spectrometer MERAK-Mini due to the compact optical path and patented single-wavelength excitation technology, the detection limit of light elements can also reach very low levels, sulfur LLD: 0.5ppm, chlorine LLD: 0.3ppm;

• Selective excitation

Through HF DCC, the highly intensive characteristic spectrum of the target emitted from the X-ray tube is monochromatized and focused, and then is incident on the sample to selectively excite light elements in the sample, thereby reducing background interference and increasing the peak-to-background ratio;

• Portability

          The weight of the whole machine is 12.5kg;

          Volume 350 mm (W) × 230 mm (D) × 370 mm (H);

          No auxiliary equipment such as gas, vacuum, etc.;

          Maximize the need for portable field analysis

• High stability

        The X-Ray Fixed System (XFS), which is precision-tuned by the factory, will no longer generate displacements or deviations, ensuring maximum long-term stability of the instrument.

• Low maintenance costs, low consumption

        No need for vacuum protective film, no cylinder gas, no complicated instrument maintenance, only need to consume sample cup and sample film;

• Battery life

        Lithium battery charging system, battery life more than 4 hours;

**Specifications**

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| --- | --- |
| LOD |  Cl LLD：0.3ppm S LLD：0.5ppm |
|   RANGE      |  1.0ppm-5%（SULPHUR AS AN EXAMPLE） |
|   TIME |  30S-200S（USER SELECTABLE） |
|   REPEATABILITY |  Sn-1≤0.5ppm(10ppm)，2.5ppm(50ppm),10ppm(500ppm)（Sulphur as an example） |
| STANDARDS |  S：ASTM D7039,EN ISO20884,JISK2541-7，  SH/T0842-2010 Cl：ASTM D7536,ISO 15597 |
|   VOLUME |  350 mm (W)×230 mm (D)×370 mm (H) |
|   POWER |  80W |
|   OUTPUT INTERFACE |  USB |
|   OPERATING TEMPERATURE |  -5℃ ~40℃ |

**Applications**

Rapid Analysis of Sulfur Content in Marine Fuel Oil

- Portable high-sensitivity X-fluorescence spectrometer with ultra-low detection limit

MERAK-MINI is a portable X-ray fluorescence sulfur analyzer, which is suitable for the detection of fuel oils of low-lying offshore vessels and fuel oils of ocean-going vessels with high sulfur content. It is easy to operate and has high accuracy.

**Documents**

Analysis of Sulfur Content of Marine Fuel Oil with Portable Instrument

The instrument meets the sulfur content limit standards and analytical method requirements specified in the national standards both "GB252-2015 Regular Diesel" and "GB17411-2015 Marine Fuel Oil” and meets the requirements for the detection of sulphur content in fuel oil used by ships in inland rivers and rivers as well as those used in ocean-going vessels. Mobile PAD operation, short analysis time, high analysis accuracy.