

Press Release

Rigaku Publishes Analysis Method for P, S and Cl in Bio-diesel and Bio-ethanol Using Primini Biofuel WDXRF

The Woodlands, TX – March 6, 2013. Rigaku Corporation today announced the publication of a new application note describing the quantitative analysis of trace amounts of controlled elements in different base oils, including bio-diesel and bio-ethanol, by wavelength dispersive X-ray fluorescence (WDXRF) spectrometry.

Rigaku application note XRF 5032 describes quantitative analysis of trace amounts of phosphorus (P), sulfur (S) and chlorine (Cl) in biofuels using the Rigaku Primini Biofuel WDXRF elemental analyzer. The report includes complete information regarding sample preparation, method calibration and repeatability.

In addition to increased efficiencies in the use of conventional fossil fuels, environmental concerns have led to greater use of non-fossil fuels such as bio-ethanol and bio-diesel. As with conventional fuels, the levels of phosphorus, sulfur and chlorine in biofuels have been reduced to protect engines and catalysts and prevent air pollution.

In the analysis of biofuels, oxygen levels and carbon/hydrogen ratios affect the analysis results of the target elements. Rigaku has developed a new method to correct for this influence by analyzing scattering X-rays from samples.

For the published method, analysis was performed using the Primini Biofuel WDXRF spectrometer, a bench-top analyzer optimized for sub-ppm detection limits of P, S and Cl. The report describes the performance of the Primini Biofuel spectrometer using the Lite Matrix Correction method. In Lite Matrix Correction, an additional analyzing crystal and detector are added to the spectrometer for measurement of the X-rays. The method requires only standards for elements to be analyzed and needs no special standards for correction. By applying the method, accuracy can be significantly improved, even for different oil matrices. Additionally, the same calibration can be used for both bio-diesel and bio-ethanol.

The results demonstrate that the benchtop Primini Biofuel WDXRF spectrometer can give precise determination for trace levels of P, S and Cl in different base oils.

A copy of this application report may be requested from Rigaku's official website at <http://www.rigaku.com/products/xrf/primini/app5032>

About Rigaku

Since its inception in Japan in 1951, Rigaku has been at the forefront of analytical and industrial instrumentation technology. Rigaku and its subsidiaries form a global group focused on general-purpose analytical instrumentation and the life sciences. With hundreds of major innovations to their credit, Rigaku companies are world leaders in X-ray spectrometry, diffraction, and optics, as well as small molecule and protein crystallography and semiconductor metrology. Today, Rigaku employs over 1,100 people in the manufacturing and support of its analytical equipment, which is used in more than 70 countries around the world supporting research, development, and quality assurance activities. Throughout the world, Rigaku continuously promotes partnerships, dialog, and innovation within the global scientific and industrial communities.

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