

## Press Release

# Sulfur Analysis in Petroleum Products by Benchtop WDXRF According to ASTM D2622-10

**The Woodlands, TX – October 31, 2012.** Rigaku Americas Corporation is pleased to announce the publication of a new application report on Sulfur Analysis in Petroleum Products by Benchtop WDXRF. Application Note #5043 describes the performance of the new Rigaku Supermini200, the world's only benchtop WDXRF spectrometer and the latest in a series of revolutionary compact wavelength-dispersive X-ray fluorescence (WDXRF) systems from Rigaku. The report details the analysis of sulfur with complete information regarding sample preparation, method calibration and repeatability.

Sulfur is a critical element in the petroleum refinery process and in its final products. Since sulfur in petroleum-based fuels contributes to atmospheric pollution, its concentration, especially in automobile fuels, is strictly controlled. Sulfur also causes damage to components in refinery processes, impacting both environmental quality and production costs.

One of the benefits of using X-ray fluorescence (XRF) spectrometry for quantitative analysis of sulfur in petroleum products is its simple sample preparation requirements. Application Note XRF5043 demonstrates quantitative analysis of sulfur in petroleum products, according to American Society for Testing and Materials Method: ASTM D2622-10, on the Supermini200.

The Supermini200 features a unique air-cooled 200 W X-ray tube, two detectors, programmable environments of vacuum or helium, and three analyzing crystals. It can analyze elements from fluorine to uranium and is designed specifically to deliver excellent performance while eliminating typical installation requirements, such as cooling water, special power supplies, and large floor space, combining all of the advantages of traditional WDXRF elemental analysis systems in a smaller, more economical package.

For this method, measurements were performed on the Supermini200 using a PET analyzing crystal, included in the standard crystals, with the X-ray tube operating at 50 kV and 4.0 mA. The counting time for low sulfur concentration was 300 seconds for peak and 150 seconds for background; for high sulfur concentration, 50 seconds and 25 seconds. The results detailed in the report show that sulfur in petroleum products can be routinely analyzed in both low and high concentrations, with excellent accuracy, sensitivity and repeatability using the benchtop WDXRF Supermini200 with minimal site requirements.

A copy of this report may be requested at <http://www.rigaku.com/products/xrf/supermini/app5043>.

### 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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