

## Press Release

# Rigaku NEX QC EDXRF for Analysis of Sulfur in Gypsum

**Austin, TX – August 30, 2012.** Applied Rigaku Technologies, Inc. today announced a new empirical method for the analysis of sulfur in gypsum. Gypsum is a soft sulfate mineral added to Portland cement to prevent flash setting of concrete. Application Note #1255 demonstrates the performance of the [Rigaku NEX QC](#) energy dispersive X-ray fluorescence (EDXRF) spectrometer in the monitoring of gypsum for quality control during the cement production process.

X-ray fluorescence (XRF) spectroscopy is integral to control of the production process in modern cement plants, enabling a cement maker to produce a consistent product. Energy dispersive X-ray fluorescence (EDXRF) spectrometry is a routinely employed for screening and quality control, providing rapid compositional data at various stages of production. Whether at the quarry, cement plant or industrial manufacturing site, the sulfur content of the gypsum as it is processed needs to be closely monitored to ensure the quality and proper formulations of the final products. EDXRF analyzers are typically implemented to monitor the addition of gypsum throughout the manufacturing process.

For this method, each gypsum sample is prepared by grinding the material to dry, homogeneous powder <200 mesh (<75um particle size). Approximately 8 grams of powder is then placed in a 32mm sample cup and packed to an even and consistent sample. Empirical calibration was developed using a set of six assayed standards with sulfur content ranging between 12-17%. Analytical results and precision data are shown from the measurement of the low and high Sulfur content calibration standards. Detection limits were in part determined by the calibration range and analysis time.

The data confirm that the NEX QC analyzer yields excellent results for the measurement of sulfur in gypsum, without the need for helium purge. Other elements in the gypsum, including calcium, can also be measured. The method shows how the Rigaku NEX QC analyzer, with its simple, modern touch screen interface, enables reliable and efficient measurement to meet analytical needs at the quarry or cement plant when testing gypsum and finished cement, as well as during the manufacturing of other gypsum products.

Request a copy: [http://www.rigakuedxrf.com/edxrf/app-notes.html?id=1255\\_AppNote](http://www.rigakuedxrf.com/edxrf/app-notes.html?id=1255_AppNote)

### 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 life sciences and general purpose analytical instrumentation. With hundreds of major innovations to its credit, Rigaku and its subsidiary companies are world leaders in the fields of small molecule and protein crystallography, X-ray spectrometry and diffraction, X-ray optics, as well as semiconductor metrology. Rigaku employs over 1,100 people globally and its products are in use in more than 70 countries – supporting research, development, production control and quality assurance activities. Throughout the world, Rigaku continuously promotes partnerships, dialog, and innovation within the global scientific and industrial community.

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