

# Press Release

## Cement Analysis by the Pressed Powder Method on Benchtop WDXRF Supermini200 According to ASTM C114-11

**The Woodlands, TX – November 6, 2012.** Rigaku Corporation today announced a new empirical method for the analysis of cement by the pressed powder method using wavelength dispersive X-ray fluorescence spectrometry (WDXRF). Application Note #5045 demonstrates the capabilities of the Rigaku Supermini200 benchtop sequential WDXRF spectrometer for the quantitative analysis of Portland cement by the pressed powder method, in accordance with the American Society for Testing and Materials method, ASTM C114-11, which covers chemical analysis of hydraulic cement. The application note details sample preparation, method calibration and repeatability.

Cement is one of the most important materials used in construction. Many kinds of hydraulic cements, including Portland cement, have varying physical properties and are produced by changing the composition of clinker minerals. It is therefore important to control the chemical composition of cement and interim products. The sample preparation for X-ray fluorescence analysis is simpler than other analytical methods in general, and is described in the report. In this application, measurements were performed in vacuum on the Supermini200 with a 200 W Pd target X-ray tube. The Supermini200 is designed to minimize the peripherals required for installation, such as cooling water, power supply, installation area, etc.

The qualification test demonstrated that the test results on the Supermini200, using pressed powder briquettes of wet-ground samples, meet the requirements for analysis of hydraulic cement defined in ASTM C114-11. The precision obtained by the repeatability test exceeds the defined values required.

The results of the quantitative analyses confirm that the method demonstrated in the application note meets the requirements described in ASTM C114-11.

The Supermini200 configuration results in high sensitivity, relative to benchtop energy-dispersive XRF spectrometers, for light elements such as sodium (Na) or magnesium (Mg), as well as for heavy elements. It does not show any spectral overlap between typical analytes for cement raw meal, due to the high spectral resolution of its WD optics.

A copy of this application report may be requested on Rigaku's official website at <http://www.rigaku.com/products/xrf/supermini/app5045>.

### 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.

For further information, contact:

Laura Oelofse  
XRF Product Marketing Manager Rigaku Corporation  
(281) 362-2300 | [info@rigaku.com](mailto:info@rigaku.com)  
[www.rigaku.com](http://www.rigaku.com)