

Press Release

Quantitative Analysis of Cast Iron using ZSX Primus III+

The Woodlands, TX – January 31, 2013. Rigaku Corporation has published a new method for the quantitative analysis of cast iron. Application Note # 5017 describes the analysis of cast iron, including ductile cast iron, and demonstrates the performance and versatility of the Rigaku ZSX Primus III+ wavelength dispersive X-ray fluorescence (WDXRF) spectrometer. Accuracy and repeatability data are shown in the report.

Cast iron is a fundamental material used in machinery and automotive industry parts. During its production, it is heated until it liquefies then poured into a mold to solidify. There are various types of cast irons, each with specific properties determined by the concentrations of the alloying elements. Rapid elemental analysis of the alloyants, including carbon and silicon, is crucial for quality control in cast iron production, aiding in the control of the composition of molten metal in furnaces.

Because sand casting molds are typically used for casting the iron, the elemental analysis of casting sands, such as silica sand and olivine sand, is also required to verify the quality of recycled casting molds.

For this analysis, measurements were performed using the ZSX Primus III+ WDXRF spectrometer with a 3 kW Rh target X-ray tube. Certified standard reference materials of cast iron were used to establish the calibration.

The results demonstrate that highly precise analysis of the elements in cast iron can be performed using the new method and that the ZSX Primus III+ spectrometer, optimized for process control of ferrous foundries, can be used for total analysis of carbon for cast iron analysis. The ZSX Primus III+ can cover all necessary elemental analyses of carbon for various kinds of cast iron and casting sand. It is ideally suited for the steel industry, where both bulk metal and powder samples are analyzed as part of the process protocol during the manufacture of iron steel.

A copy of this application report may be requested on Rigaku's official website at <http://www.rigaku.com/products/xrf/primus3/app5017>

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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