

Press Release

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New Application Report from Rigaku Demonstrates Analysis Method for Transition Metal-Based Alloys by WDXRF

Quantitative analysis by the FP method for Fe, Ni and Co based alloys, using the Rigaku ZSX PrimusIII+ WDXRF spectrometer, is demonstrated in a new application report.

May 13, 2019 – The Woodlands, Texas. [Rigaku Corporation](http://www.rigaku.com) has published a new application report demonstrating quantitative analysis by the Fundamental Parameters (FP) method for iron (Fe), nickel (Ni) and cobalt (Co) based alloys using wavelength dispersive X-ray fluorescence (WDXRF) spectrometry. Rigaku application note *XRF 1096* includes complete information about sample preparation, method calibration and repeatability, and is available on the company's global website.

Fe, Ni and Co based alloys—including high-temperature alloys, tool steel, and stainless steel—have broad ranges of concentrations for many elements. X-ray fluorescence (XRF) spectrometry is typically employed to analyze these alloys during production control.

With the conventional empirical calibration method, many calibration groups for the analysis of the alloys must be established, even if matrix corrections are introduced, because of strong inter-element absorption and enhancement effects.

The Rigaku FP method described in the report has achieved precise analysis for these alloys with a single calibration for each element, covering a wide range of concentrations. The measurements were performed using the [Rigaku ZSX PrimusIII+](http://www.rigaku.com) tube-above wavelength dispersive X-ray fluorescence spectrometer with a 3 kW Rh target X-ray tube. WDXRF spectrometers offer heightened spectral resolution. Since Fe, Ni and Co based alloys



Rigaku ZSX PrimusIII+ high-performance WDXRF spectrometer for rapid quantitative elemental analysis

contain many heavy elements, spectral resolution is essential. An optional analyzing crystal used in this method adds additional resolution to the spectrometer.

The FP method included in the ZSX Program available with the Rigaku ZSX PrimusIII+ spectrometer simplifies the analysis, eliminating the extra work of dividing calibration groups and preparing numerous standards. The FP method and software for WDXRF spectrometers have been widely used for screening in semi-quantitative analysis to production control in many industries.

A copy of this report may be requested at:

<https://www.rigaku.com/en/products/xrf/primus3/app1096>

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 1,400 people in the manufacture and support of its analytical equipment. Its products are in use in more than 90 countries – supporting research, development, 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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