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WELCOME

We were excited to announce the launch of the NEX CG II on July 6, 2021. Applied Rigaku Technologies, Inc., a division of Rigaku Corporation, introduced the powerful second-generation benchtop energy dispersive X-ray fluorescence (EDXRF) spectrometer.

NEX CG II is a multi-element, multi-purpose analyzer that delivers rapid qualitative and quantitative elemental analyses, and addresses needs across many industries. It provides non-destructive analysis of sodium to uranium in almost any matrix.

It builds on NEX CG's legacy of using full 90° Cartesian geometry and secondary targets for trace-level sensitivity. The new, superior analytical power of the NEX CG II is provided by a proven 50 kV 50 W end-window palladium-anode X-ray tube, monochromatic or polarized excitation from five secondary targets, and a high-performance large-area silicon drift detector. This unique and improved optical kernel, combined with Rigaku's advanced RPF-SQX Fundamental Parameters software, delivers the most sensitive EDXRF measurements in the industry.

FEATURED APPLICATION NOTES

EDXRF

Analysis of Carbon Black
Applied Rigaku Technologies

Carbon black is made from coal tar and various petroleum tars from the cracking process. Carbon black is a crystalline form of carbon with very high surface area to volume ratio, and is used mainly as a reinforcing filler in tires and to strengthen engine hoses and gear belts. It is also used as copier toner inks and as pigment in polymers. The elemental characterization of carbon black is critical to ensure proper quality of the various products. To meet this industry need, Applied Rigaku Technologies offers EDXRF, ideal for the fast and simple analysis of carbon black and related products.
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Raman

Combating the Fentanyl Epidemic Using Handheld 1064 nm Raman
Rigaku Analytical Devices

As synthetic opioid overdose deaths continue to rise, the use of fentanyl and its analogues in legacy drugs is posing significant danger to communities, as well as first responders. Fentanyl has become popular in illicit drug sales by itself, or as a cutting agent in heroin, cocaine, and methamphetamine. The lethal dose of pure fentanyl is estimated at 2 milligrams for a typical adult (Reference: U.S. DEA). Responders encounter fentanyl in various forms, such as powder, tablet or liquid and risk potential fatal exposure if swallowed or inhaled. They are faced with this problem at our borders, in mailrooms, and on the streets.

Due to the high risk of fatal exposure, there is no time for outdated testing techniques of these controlled substances. The use of field-ready analytical techniques that can provide presumptive test results is critical in response to potential fentanyl use. In recent years, handheld Raman spectrometers that provide chemical identification are being used more frequently by law enforcement, border protection (at the border, as well as in international mail facilities), and first responders as a way to identify suspicious threats.
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WDXRF

Beryllium Analysis in Beryllium Copper Alloy: Using ZSX Primus IV with RX8S
Rigaku Corporation

Beryllium copper alloy is almost as strong as steel, and is the strongest among copper alloys. In addition, it has non-magnetic and non-sparking characteristics, high electrical conductivity, and ductility. Owing to these features, beryllium copper has many uses, such as: springs, electric connectors, tools in environments with explosive vapors and gases, and musical instrument components. Since the characteristics and uses of beryllium copper alloys depend on the beryllium concentration, it is important to analyze beryllium in beryllium copper.

Beryllium is the lightest element that can be analyzed by XRF spectrometry. Its element line, Be-Kα, has a very long wavelength, 11.4 nm (or very low energy, 0.109 keV) and very shallow critical depth. Therefore, X-ray intensities of Be-Kα are significantly affected by the surface condition of specimens. For beryllium analysis by XRF spectrometry, surface treatment is essential.

Owing to the long wavelength of Be-Kα, beryllium analysis requires high-power wavelength dispersive X-ray fluorescence (WDXRF) spectrometers equipped with an analyzing crystal with high reflectivity for Be-Kα.
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FEATURED PRODUCT

NEX CG II

NEX CG II is a multi-element, multi-purpose EDXRF spectrometer that delivers rapid qualitative and quantitative elemental analyses and addresses needs across many industries. It provides non-destructive analysis of sodium (Na) to uranium (U) in almost any matrix, from ultra-low and trace element concentrations up to percent levels. The Cartesian geometry and indirect excitation vastly improve detection limits for elements in highly scattering matrices like water, hydrocarbons, and biological materials. As a result, users can easily manage complex applications like testing agricultural soils and plant materials, analyzing finished animal feeds, measuring waste oils, environmental monitoring, and many others.
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UPCOMING RIGAKU WEBINARS

Thermal Analysis Technical Seminar – Let's evaluate materials with DSC! Principles, Applications and Tips
August 19, 2021 1 AM | CDT

This webinar is a beginner's course. The presentation will focus on basic principles of differential scanning calorimetry (DSC), structural difference between DTA and DSC, as well as optimizing measurement conditions for DSC measurements. During the presentation, we will also highlight several applications including recent developments in DSC instrumentation.
Read More >

FEATURED VIDEOS

Rigaku NEX CG II Cartesian Geometry EDXRF Spectrometer

NEX CG II is a powerful second-generation benchtop EDXRF spectrometer for non-destructive elemental analysis of sodium to uranium in almost any matrix. The Rigaku NEX CG II pushes the boundaries of EDXRF technology with its unique close-coupled Cartesian Geometry (CG) optical kernel. NEX CG II serves a broad range of applications and industries and is an ideal tool for measuring ultra-low and trace element concentrations into the percent levels.

Rigaku ResQ CQL Product Demonstration

Rigaku ResQ CQL offers first responders, border protection, and law enforcement an advanced method for identifying potential threats in an improved tactical form factor, thereby improving functionality particularly in high stress environments. By combining the 1064 nm Raman advantage with improved ergonomics and sample presentation, ResQ CQL makes it even easier to perform chemical analysis of powders, liquids, gels, mixtures and more.

MATERIALS ANALYSIS IN THE NEWS

July 20, 2021: The photovoltaic effect of ferroelectric crystals can be increased by a factor of 1,000 if three different materials are arranged periodically in a lattice. This has been revealed in a study by researchers at Martin Luther University Halle-Wittenberg (MLU). They achieved this by creating crystalline layers of barium titanate, strontium titanate and calcium titanate which they alternately placed on top of one another. Their findings, which could significantly increase the efficiency of solar cells, were published in the journal *Science Advances*.

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