



NOVEMBER 2021, ISSUE 101

## WELCOME

Rigaku is the global pioneer in reduced-size powder diffraction instrumentation. The benchtop MiniFlex™, now in its sixth generation, changed the perception of how people expected a powder diffractometer to look and how much space was required to house one. We now introduce the MiniFlex XpC as a key component of lab automation solutions. Smaller than what you would expect for an XRD instrument that is part of factory automation, but all the performance that you would expect from a lab-based instrument.

Also, this month we highlight:

- A case study on the use of Rigaku's handheld Raman spectrometers in combating Transnational Organized Criminal (TOC) groups who are mass producing narcotics
- An EDXRF application note that highlights the ability to measure the amount of chlorides in crude, a contaminant that can contribute to corrosion in the piping at refineries during cracking as well as mid-stream in pipelines
- A WDXRF application note that illustrates fast and accurate determination of the composition of natural & processed iron ores

We hope you find the material of interest.

## UPCOMING EVENTS

**MRS Fall 2021**  
Boston, MA  
Nov. 29–Dec. 2, 2021

**The Battery Show**  
Stuttgart, Germany  
Nov. 30–Dec. 2, 2021

**Semicon Japan 2021**  
Tokyo, Japan  
Dec. 15–17, 2021

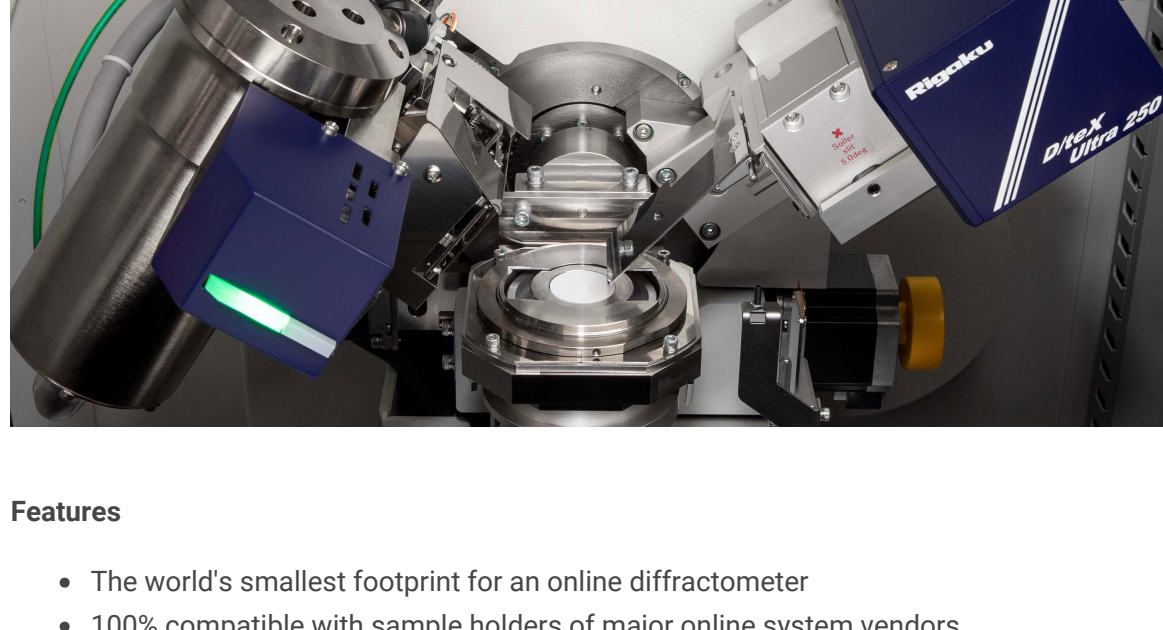
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## FEATURED PRODUCT



### MiniFlex XpC

In a move to bring lab-quality performance to the manufacturing floor, Rigaku introduces the MiniFlex XpC, a manufacturing-optimized powder diffractometer for fast and accurate quality control measurements. It is extremely easy to operate using Rigaku's new EasyX quality control software, which requires minimal clicks to run. A minimal interface means there will be no accidental error variance from operator to operator. The MiniFlex XpC can be configured with a conveyor belt or robot for automated sample processing and collaboration with other instruments. With an 800 W X-ray source and a short-diameter goniometer, the system has the performance of a lab unit, and thus can greatly improve throughput for quality control measurements.



### Features

- The world's smallest footprint for an online diffractometer
- 100% compatible with sample holders of major online system vendors
- Able to connect with a sample-loading robot
- Utilizes newly developed, compact 800 W generator and compact X-ray tube
- High-resolution, high-speed 1D detector with a wide detection area
- $\theta$ - $\theta$ , sample horizontal goniometer
- EasyX software
  - Touch panel operation
  - Runs within 3 taps from measurement to data analysis
  - Based on SmartLab Studio II
  - Languages: Japanese, English, Chinese

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## UPCOMING RIGAKU WEBINARS



### Diffraction Methods for MOF Investigations

December 2, 2021 9 AM | CST

In the field of Metal-Organic Framework materials, structural investigation plays the most crucial role. It is also often combined with other analytical methods to allow drawing a connection between the structure and physical properties of the framework. As a result of those multi-technique approaches, a border between a single crystal and powder diffraction techniques often disappears. In this TOPIQ webinar, we would like to present you with standard and entirely new Rigaku solutions for diffraction methods for MOF research.

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### X-ray Computed Tomography for Materials and Life Sciences

December 15, 2021 1 PM | CST

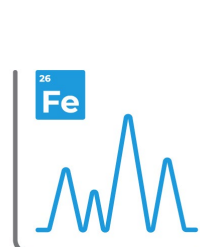
In this webinar, we will discuss sample preparation techniques for life science samples with low density contrast. Different techniques for various types of samples will be discussed. Examples include staining and fixing insects and animal tissues and preserving plants during long experiments.

You will learn:

- How to prepare life science samples
- How to stain and fix insects and animal tissues
- How to preserve plants during long experiments

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## FEATURED APPLICATION NOTES



### EDXRF

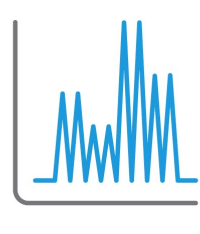
#### Organic Chlorides in Crude by ASTM D4929 Part C

Applied Rigaku Technologies

Chlorides in crude contribute to corrosion in the piping at refineries during cracking as well as mid-stream in pipelines. Organic chlorides do not naturally occur in crude; however, inorganic chlorides in the form of salts and trace levels of residual organic chlorides from various natural sources can contribute to the total chlorine content. Inorganic chlorides can be removed from crude through a wash process; however, low levels of organic chlorides may remain.

Contracts at the pipelines may contain clauses limiting the amount of organic chloride allowed in the crude. And at the refinery, after desalting and desulfurization, crude needs to be analyzed for any residual organic chlorides possibly still entrained in the feedstock to avoid potential damage during the refining process. And so, the need for a reliable measurement of low level and trace chlorine is critical in the petroleum industry. To meet this vital need, Rigaku offers NEX CG II monochromatic EDXRF using Cartesian Geometry and polarization.

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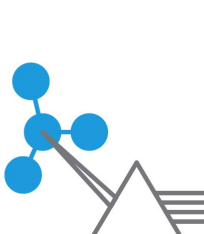
### WDXRF

#### Fast and Accurate Determination of the Composition of Natural & Processed Iron Ores by the Fusion Method on Simultix 15

Rigaku Corporation

Iron is the most common metal in industrial use. Modern infrastructure cannot be realized without iron alloys. The most dominant raw material for making metallic iron is iron ore. Currently, a huge volume of iron ore is traded in the world market. Although other factors affect iron ore prices such as ore size, ore type, physical properties, chemical composition and content of impurities, etc., ore grade (total iron content), in iron ore is the most critical factor for pricing. Therefore, highly accurate analysis to determine the total iron content is required.

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### Raman

#### Degrading the Illicit Precursor Chemical Supply Chain Network Operating in Myanmar Region

Rigaku Analytical Devices

Learn more how Rigaku worked in conjunction with a U.S. federal law enforcement agency in developing a counter-narcotics, technology-based interdiction training pilot program to assist Myanmar's primary counter-drug law enforcement agency.

Rigaku's focus was to enhance the agency's ability in using interdiction technology to identify and degrade the illicit precursor chemical supply chemical (PCSC) networks used by Transnational Organized Criminal (TOC) groups and their proxies operating in Myanmar to mass produce narcotics with a specific focus on methamphetamine.

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