



橋 THE BRIDGE

MATERIALS ANALYSIS eNEWSLETTER

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WELCOME

At Rigaku we are proud of our products and our company's long history of innovation, but most importantly we are proud of the outstanding individuals who make up our team of employees. Two of these individuals, Thanh Nguyen and Glenn Williams, are key members of the XRF team at Rigaku Americas Corporation. They both have extensive backgrounds in the pharmaceutical industry and this expertise is invaluable in our efforts to best serve that market. However, their dedication and professionalism carries over into all our markets that are served by XRF. If you have had the opportunity to interact with them, I am sure you will agree that they help set Rigaku apart as a business partner who truly cares about our customers' needs.

This month we include two articles by Thanh and Glenn, as well as a variety of items that pertain to the different markets Rigaku covers.

PHARMACEUTICAL APPLICATIONS



Thanh Nguyen
Sr. XRF Applications Scientist
Rigaku Americas Corp.



Glenn Williams
Analytical Services Mgr.
Rigaku Americas Corp.

The Use of XRF Elemental Analyses Techniques to Support the Development of Formulations

X-ray fluorescence (XRF) can be used in several ways to aid in the development of new active pharmaceutical ingredients (APIs) and formulations, including metal catalyst residue screening, catalyst poisoning investigations, and blend uniformity. XRF is often used as a complementary technique to inductively coupled plasma mass spectrometry (ICP-MS) and for general elemental contamination mapping.

This article discusses the use of XRF for fast, quantitative elemental characterizations of excipients and APIs via a simple workflow that can be used to check drug product potency, blend uniformity, and heavy metals impurities. In addition, another point that will be highlighted is how XRF can be routinely used in an open-access environment.

[Read More >](#)

X-ray Fluorescence and the Pharmaceutical Industry: Implementing an Age-Old Technique

Wavelength-dispersive X-ray fluorescence (WDXRF) is a direct analysis technique for the detection and quantification of elements/composition and elemental impurities in pharmaceuticals. It can also analyze a final product as unadulterated pills in a non-destructive analysis. What follows is a dedicated dialog between *Spectroscopy* and two of Rigaku's top XRF experts.

SPECTROSCOPY: Can you tell us more about the roles you are currently in at Rigaku?

WILLIAMS: We are both applications scientists specializing in XRF. Essentially, we find the best way to prepare and analyze a sample and make methods for customers who are evaluating a system or existing customers who have a system and have different samples they want to look at. We have customers in almost every field, and there are many cases in which XRF can benefit the development, control, and design of products. Pharmaceuticals is one area we want to expand into.

NGUYEN: Within the last few years, Glenn and I have been working on a variety of different pharmaceutical-related applications.

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FEATURED APPLICATION NOTES



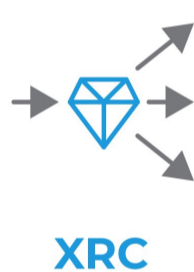
EDXRF

Chemical Bath for Copper Foil Surface Treatment

Applied Rigaku Technologies

Surface treating is an important part in the manufacture of copper foil for the electronics industry. Surface treatments are used to clean the copper foil, to create roughing and heat resistance treatments, and to make single or multiple layer thin film coatings to prevent oxidation or enhance the electro-chemical properties of the copper foil. The chemical baths must be constantly monitored to ensure the highest quality surface treatments. Rigaku offers the NEX OL analyzer to meet these analytical needs for trend analysis of bath composition.

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XRC

Calibrating the XtaLAB Synergy-S for Pair

Distribution (PDF) Analysis

Rigaku Oxford Diffraction

Pair Distribution Function (PDF) Analysis has become a versatile tool for understanding the structure, and ultimately properties, of materials. Under normal circumstances, PDF is a technique performed using powdered samples and on suitable powder diffractometers. Modern microfocus single-crystal diffractometers contain exceptionally bright sources and feature ultra-low noise HPC detectors which make them capable of performing high quality diffraction experiments on microgram quantities of powder. A natural extension of these features is to perform PDF experiments on such equipment.

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UPCOMING RIGAKU WEBINARS

Thermal Analysis Technical Seminar "Important Factors Affecting the Measurement Conditions Let's evaluate materials with DSC! Principles, Applications and Tips – Sample Preparation, Atmosphere, Heating or Cooling Rate, etc."

September 24, 2021 1 AM | CDT

This webinar will focus on the important factors that affect the measurement conditions, highlighting sample preparation, the effect of atmosphere, selecting the appropriate sample pan, how the heating or cooling rate affects the analysis results and other relevant factors. In addition to our instrumentation, we will also showcase a wide array of options that will facilitate your ease of measurement.

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FEATURED VIDEOS



WiFi (OR USB)
FOR EASY DATA TRANSFER
AND REPORT GENERATION

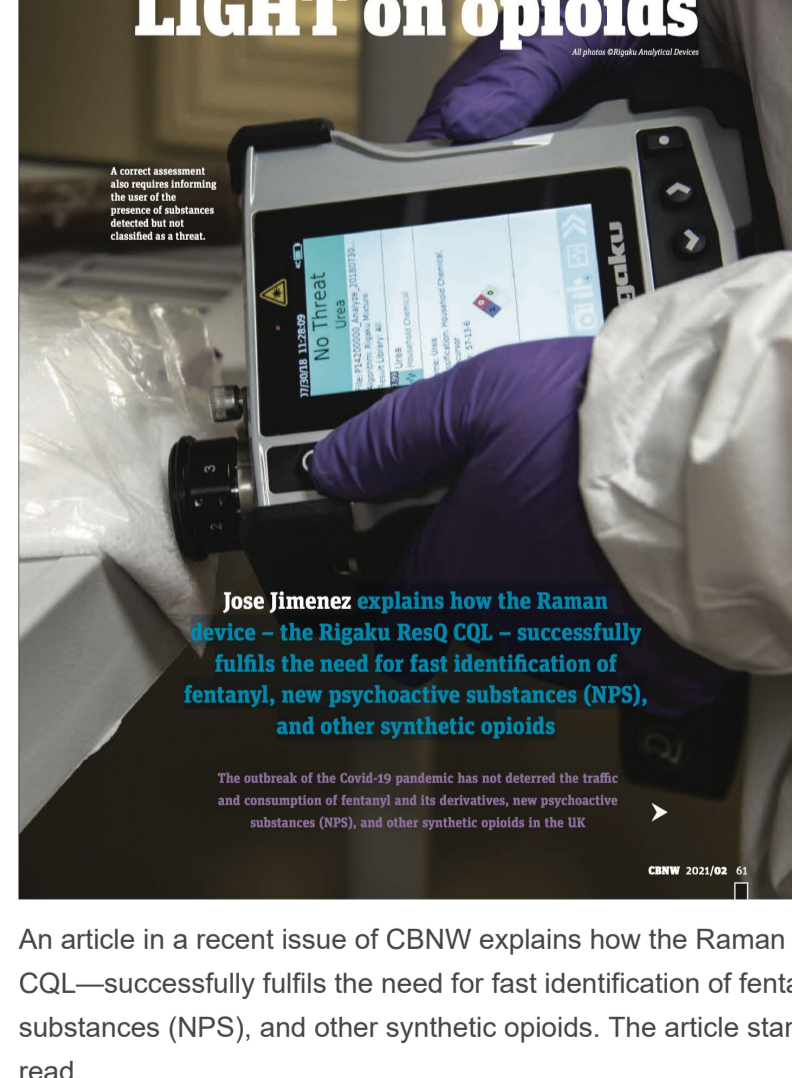
Rigaku ResQ Product Demonstration, July 20, 2021

The **Rigaku Progeny ResQ** is the original handheld 1064 nm Raman analyzer to provide emergency responders, law enforcement agencies and the military with the industry's most comprehensive tool for chemical threat identification, CBRNe detection, and narcotics classification in a fast and simple handheld form.

MATERIALS ANALYSIS IN THE NEWS

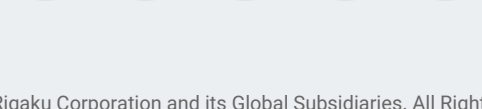
Raman Identification

Law enforcement agencies use Raman identification technology as a well-proven and mature identification technique for the vast majority of narcotic substances. Since it does not tamper with the sample, there is no risk of destroying or invalidating evidence. Identification is achieved in seconds and without the need to open the plastic bag or glass container.



An article in a recent issue of CBNW explains how the Raman device—the Rigaku ResQ CQL—successfully fulfils the need for fast identification of fentanyl, new psychoactive substances (NPS), and other synthetic opioids. The article starts on page 61. Click [here](#) to read.

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