Press Release

Rigaku Introduces Newest SmartLab Intelligent X-ray Diffraction (XRD) System

Rigaku introduces new automated multipurpose X-ray diffractometer with intelligent guidance software

April 2, 2018 – Tokyo, Japan. Rigaku Corporation is pleased to announce the release of the *new* next-generation Rigaku SmartLab intelligent multipurpose X-ray diffractometer. A highly versatile automated X-ray diffraction (XRD) system, the newest SmartLab® diffractometer offers continued refinement of the ease-of-use features that enabled the original SmartLab diffractometer to receive the coveted R&D 100 Award, such as automatic alignment, component recognition, Cross Beam Optics and a 2D detector.

SmartLab began as the flagship model from Rigaku in 2006 and new, advanced technologies have been continuously introduced over the years. This newest addition to the SmartLab series of high-resolution X-ray diffraction analyzers is engineered to provide the best performance in all X-ray diffraction or scattering applications by offering not only breakthrough hardware, but also the advanced Rigaku SmartLab Studio II software with "User Guidance" expert system functionality, to establish a new standard in usability and flexibility for multipurpose X-ray diffractometers.

The new SmartLab system features the brand new PhotonMax high-flux 9 kW rotating anode X-ray source coupled with a HyPix-3000 high-energy-resolution 2D multidimensional semiconductor detector that supports 0D, 1D and 2D measurement modes. This allows all applications to be handled with a single detector, eliminating the inconvenience of preparing and switching individual detectors for different applications. The HyPix-3000 detector can be used to obtain 2D powder diffraction patterns, which can be processed to deliver superior qualitative and quantitative analysis by using all the 2D pattern information.

New Rigaku SmartLab intelligent multipurpose X-ray diffractometer

The system incorporates a high-resolution θ/θ closed loop goniometer drive system with an available in-plane diffraction arm. The system's new Cross Beam Optics (CBO) family feature fully automated switchable reflection and transmission optics (CBO-Auto).

The equipment accepts powder, films, and even textile samples and allows mapping measurements within a sample. *Operando* (a.k.a., real time *in-situ*) measurements can be performed with the new Rigaku SmartLab Studio II software suite, which is an integrated software platform incorporating all functions from measurement to analysis. The system also features robust security and validation protocols to ensure that any technology component - software or hardware - fulfills its purpose within regulatory guidelines, including 21 CFR Part 11, establishing the US EDA regulations governing electronic records and electronic signatures (ER/ES).

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 1,400 people in the manufacturing and support of its analytical equipment, which is used in more than 90 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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