Rigaku
Applied Rigaku Technologies, Inc.

The NEX Story

Rigaku established *Applied Rigaku Technologies, Inc.* (ART) in Austin, Texas in 2009. ART—as the Rigaku EDXRF Center of Excellence—has brought modern, innovative design into the 21st century with the NEX series of EDXRF analyzers. President and CEO Robert Bartek built the ART organization around the core team from the original ASOMA Instruments in Austin - the core group that has been at the forefront of benchtop EDXRF design and application since the 1980s. Applied Rigaku Technologies continues this tradition at Rigaku, designing and manufacturing all EDXRF systems in Austin.

Since its inception, ART has developed the NEX (**N**ew **E**nergy dispersive **X**-ray fluorescence) Series of analyzers, a complete line of benchtop EDXRF systems and on-line process analyzers. Innovative modern development incorporates unique advancements and simple, intuitive design geared towards industrial quality control, as well as for use in academia and research.

NEX analyzers are ideal tools for manufacturing and industrial QA/QC process management. To serve these analytical needs in industry, the simple, intuitive Rigaku software design is used at-line and in QC labs by non-technical operators, yet the systems are advanced and powerful enough for research as well. NEX analyzers are used for quality control in mining, cement production and in the petroleum industry, as well as in other industrial applications such as silicone coatings on paper and plastic, conversion coatings on steel and aluminum and production control of additives and RoHS screening for polymers and plastics. Rigaku EDXRF instruments are also used for the myriad QA/QC applications in many other industries and manufacturing environments around the world.

The NEX QC Series of analyzers consists of small, self-contained, simple-to-operate systems, ideal tools for the routine QA/QC control in manufacturing and industrial settings. The robust end-window X-ray tubes used are extremely stable and only ON during analysis, extending the lifetime of the tube and analyzer. Innovative multilayer primary beam filters are designed by ART to provide exceptional performance over traditional single layer filters. While NEX QC uses a high-performance Si PIN diode detector, NEX QC+ steps up to an SDD Si drift detector. This gives industry users the flexibility to choose instrumentation to best fit each particular need in process and quality control. The NEX QC Series offers especially good tools for monitoring and controlling major and minor elements in the mining and smelting industries, as a backup to control cement production when the bigger instruments are being serviced, and to monitor and control sulfur content in crude and refined petroleum fuels throughout the midstream petroleum industry.

NEX QC SERIES

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With the NEX QuantEZ PC-based software, NEX QC+ QuantEZ adds the versatile, simple-to-use qualitative feature and industry-leading Rigaku RPF-SQX Fundamental Parameters for added quality control and as an excellent teaching tool in academia.

NEX QC+ QUANTEZ

ART has further developed 21st century direct excitation design with NEX DE. NEX DE brings innovative design features using state-of-the-art 60 kV end-window transmission tubes, the specially designed layered tube filters and advanced SDD detection system that provides extremely high X-ray throughput on the order of 500,000+ cps. This allows NEX DE to achieve ultra-low detection limits for elements in the middle and higher energy ranges while providing excellent light element sensitivity.

NEX DE

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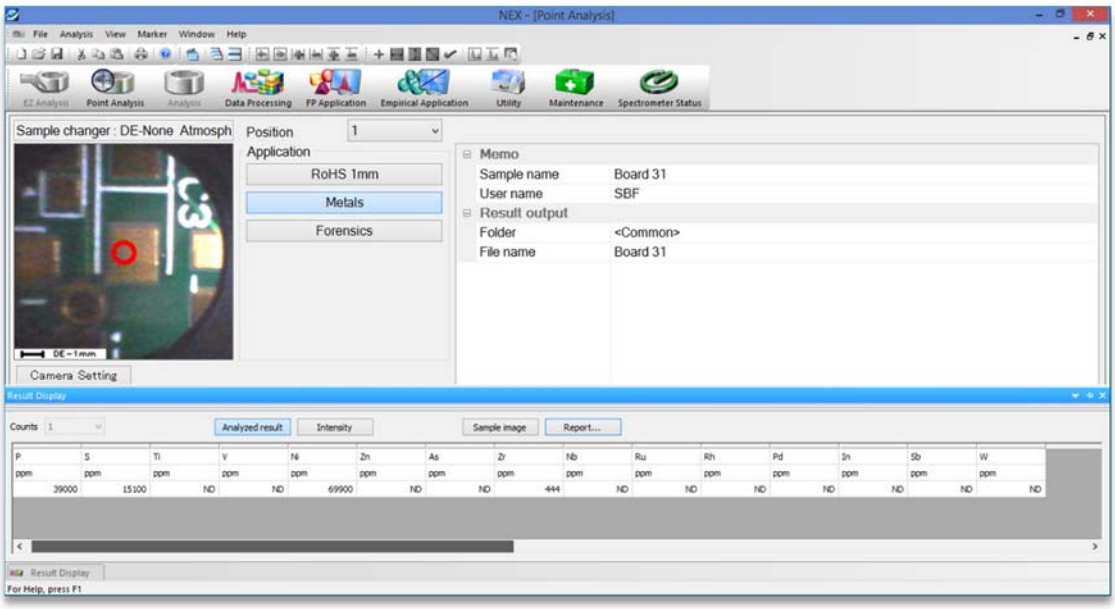
The NEX DE VS variable spot system adds a camera for the positioning of small samples and automatic collimators for 10 mm, 3 mm and 1 mm small X-ray beam spot analysis. Ideal for RoHS screening by XRF, NEX DE VS is also used for solder analysis and screening PCB boards, general purpose analysis of small samples, forensics and industrial failure analysis.



NEX DE VS Point Analysis measurement screen

At the top of the line is NEX CG. Originally developed by Rigaku in Japan as the EDXL, the NEX CG is the only true indirect excitation system on the market. NEX CG uses secondary targets to essentially remove the background and create monochromatic excitation. The special Rigaku RX9 carbon crystal target polarizes the X-rays in the Cartesian geometry, allowing for the most sensitive EDXRF measurements of the light elements Na-Cl. The NEX CG is also equipped with a special target designed specifically for the optimum measurement of low levels of Na and Mg. Armed with Rigaku RPF-SQX fundamental parameters, NEX CG is used in research, geology and oilfield services, as well as in a myriad of industrial process QA/QC settings.

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For the continuous measurement of sulfur in crude, bunker fuels and other heavy hydrocarbon oils, ART uses X-ray transmission in the NEX XT system.

ART further develops systems for on-line monitoring with NEX OL, the first on-line XRF system to use the advanced SDD detector. NEX OL can be configured for real-time monitoring of liquid streams, or for the measurement of single layer coatings such as silicone on paper and plastic or conversion coatings on steel or aluminum.

NEX OL coating configuration

NEX OL liquid stream configuration

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Applied Rigaku Technologies in Austin designs and manufactures the NEX analyzers. NEX systems are used globally in industrial process QA/QC control, as well as in academia, forensics, RoHS screening and research, while the ART team supports industry globally, participating in major trade shows and seminars around the world. Applied Rigaku Technologies, Inc. is truly the Rigaku EDXRF Center of Excellence.

Applied Rigaku Technologies at PittCon 2017 in Chicago