

# Press Release



## Applied Rigaku Technologies publishes new EDXRF method for analysis of gemstones

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**October 16, 2013 – Austin, TX.** Applied Rigaku Technologies, Inc. today announced a new method for the elemental analysis of gemstones. Rigaku Application Note # 1241 demonstrates the effectiveness of the [Rigaku NEX CG](#) energy dispersive X-ray fluorescence (EDXRF) spectrometer using the Rigaku RPF-SQX fundamental parameters method for the analysis of gemstones.

An increased variety of gemstones, as well as new treatments and synthetics, has presented new challenges for gemological laboratories. Elemental analysis is important in gemology for identification, classification and characterization of both natural and synthetic gemstones. Minor and trace levels of metal help to identify the geographic region and environmental conditions present during the formation of a gemstone, while other elements can be used to establish processing requirements of synthetics.

EDXRF is a simple, non-contact, non-destructive analysis technique that is ideal for use in precious materials testing. It is useful for quantifying the elements that occur naturally in many gem materials, including transition metals which are used as coloring agents, as well as other elements that are evidence of certain treatment processes. The benefit of using low power 50 W EDXRF is that the X-ray source does not damage the gems.

The analysis described in the report was performed using the Rigaku NEX CG EDXRF spectrometer, which combines indirect excitation with secondary targets, polarization targets and a high performance Silicon Drift Detector (SDD) to give the operator a powerful and versatile analysis tool with a very simple-to-operate software interface. The NEX CG is powered by RPF-SQX, the new qualitative and quantitative analytical software. The use of RPF-SQX eliminates the need for calibration standards, and quantification can be optimized with Matching Libraries based on one assayed sample of each gemstone.

The results show that the Rigaku NEX CG using the RPF-SQX Fundamental Parameters method yields excellent performance for the elemental analysis of gemstones.

A copy of this report may be requested at:  
<http://www.rigaku.com/node/5361>

### **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 life sciences and general purpose analytical instrumentation. With hundreds of major innovations to its credit, Rigaku and its subsidiary companies are world leaders in the fields of small molecule and protein crystallography, X-ray spectrometry and diffraction, X-ray optics, as well as semiconductor metrology. Rigaku employs over 1,100 people globally and its products are in use in more than 70 countries – supporting research, development, production control and quality assurance activities. Throughout the world, Rigaku continuously promotes partnerships, dialog, and innovation within the global scientific and industrial community.

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