Press Release

EDXRF ANALYSIS OF AGRICULTURAL SOILS & PLANT MATERIALS

Austin, TX – April 29, 2015. Applied Rigaku Technologies, Inc. announced today the publication of a new method for the analysis of agricultural soils and plant materials by Energy Dispersive X-ray Fluorescence (EDXRF). The method is detailed in Rigaku application note #1385 and demonstrates the capabilities of the Rigaku NEX CG benchtop EDXRF analyzer in the elemental analysis of soil and crop samples. The report includes details of sample preparation, instrumentation and results for both plant materials and soils.

The study of soil composition and use of fertilizers, as well as of nutrient uptake and levels of potentially toxic elements within the plants and crops, is critical within the agri-food sector. XRF (X-ray Fluorescence) is an established analytical technique in the industry and the Rigaku NEX CG satisfies industry requirements for soil and crop analysis using indirect excitation EDXRF.

Rigaku NEX CG - Energy Dispersive X-ray Fluorescence Spectrometer

For the described method, samples were ground to dry, homogeneous powders and then made into hydraulically pressed pellets using 20 tons pressure for 5 seconds. Plant materials used 3g per sample; soils used 5g per sample.

For this application, the exclusive Rigaku RPF-SQX Fundamental Parameters (FP) software was used, which automatically deconvolutes spectral peaks and models the sample matrix, X-ray absorption and enhancement effects using fundamental XRF equations. The resulting measurements can be further optimized with the use of a Matching Library, which can be easily created by the operator using measurements of one or more assayed reference samples.

The elemental breakdown of the results shown in the report reveal the soils to be mainly inorganic with a low organic component and the plant material and crops as mainly organic material with low inorganic levels exhibiting minimal or no mineralogical effects.

The results demonstrate that the Rigaku NEX CG delivers excellent performance for the elemental analysis of plant materials and soils. The NEX CG is further shown to be an ideal EDXRF tool for such screening and characterization due to its powerful and flexible, yet simple and intuitive software.

A copy of this report may be requested at:
http://www.rigakuedxrf.com/edxrf/app-notes.html?id=1385_AppNote

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, X-ray diffraction, non-destructive testing, X-ray microscopy, Raman spectroscopy and optics, as well as small molecule and protein crystallography and semiconductor metrology. Today, Rigaku employs over 1,100 people in the manufacturing, sales and support of its analytical equipment, which is used in more than 70 countries around the world for research, development, and quality assurance activities. Throughout the world, Rigaku continuously promotes partnerships, dialog, and innovation within the global scientific and industrial communities. Information about Rigaku is available at www.rigaku.com.

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