Application Note EDXRF3137

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EDXRF 3137 - Ultra Carry Detection Limits

Scope

Typical detection limits for analyzing aqueous samples using Ultra Carry are demonstrated using the NEX CG II+ EDXRF analyzer.

Background

Rigaku Ultra Carry is a novel sample retainer disk used to preconcentrate an aqueous liquid sample onto a uniform sample carrier optimized to suppress background noise. This approach dramatically improves sensitivity, resulting in up to two orders of magnitude improvement in lower limit of detection (LLD) and thus lower limit of quantification (LLQ) over measuring liquid samples neat.

Trace element analysis of aqueous-based solutions is important in many areas, such as industrial manufacturing effluents, quality control (QC) and quality assurance (QA) processes, environmental monitoring and remediation, agriculture, and general research. To meet the challenges of trace analysis into the ppb range, Rigaku offers the NEX CG II+ EDXRF analyzer and the Ultra Carry sample preparation disk. With the Rigaku system, trace analysis can be carried out by non-technical operators and experts without special scientific training and costly, complicated, time-consuming sample preparation.

Conclusion

The Rigaku NEX CG II+ combines secondary and polarization target excitation with a 100 W X-ray tube and high-performance wide-area SDD to deliver optimal EDXRF sensitivity. In conjunction with Ultra Carry, the NEX CG II+ is an ideal tool for the trace elemental analysis of aqueous solutions down to parts-per-billion levels. This technique is suitable for many applications, including:

Industrial

- Monitor effluents, waste streams, and discharge waters
- Screen for common metals
- Measure hazardous elements
- QC of production rinse waters

Environmental

- Pavement run-off
- Stormwater run-off
- Agricultural run-off
- Site remediation
- Soil leachate

Related products

NEX CG II Series

High-performance *indirect excitation* EDXRF for complex ap
plications with trace elements and variable base matrices