Press Release

Applied Rigaku Technologies, Inc. Publishes New Method for On-line Measurement of Cobalt, Bromine and Manganese in Terephthalic Acid

Austin, TX – January 22, 2016. Applied Rigaku Technologies, Inc. today announced a new method for on-line measurement of cobalt (Co), bromine (Br) and manganese (Mn) in terephthalic acid (TPA) and purified terephthalic acid (PTA), demonstrating the use of a process energy dispersive X-ray fluorescence (EDXRF) analyzer. Rigaku EDXRF Application Note #1539 describes the analysis of concentrations of Co, Br and Mn in TPA and PTA solutions and highlights the performance of the Rigaku NEX OL on-line EDXRF process analyzer. The report includes complete information about method calibration and repeatability.

TPA and PTA are precursors in the making of polyethylene terephthalate (PET) for polyester films, bottle resin, containers for liquids and foods, and specialty chemicals. The catalysts Co, Br and Mn must be closely monitored during production to ensure optimum product quality.

Due to the aggressive nature of the solutions, on-line measurement is ideal. Continuous monitoring minimizes laboratory testing requirements, allows for process optimization, and is critical in ensuring that the end product meets specifications.

The analysis detailed in the report was carried out using the Rigaku NEX OL on-line process elemental analyzer. The instrument offers a simple, low maintenance on-line analytical technique for trending process streams. Designed to span from heavy industrial through to food grade process gauging solutions, the NEX OL analyzer delivers rapid, non-destructive, multi-element analyses and is configurable for use in both classified and non-classified areas.

As described in the report, an empirical calibration was built using a set of 8 standards with a measurement time of 300 seconds per sample. Samples containing low and high amounts of Co, Br and Mn were chosen from the set of calibration standards to demonstrate precision. The Lower Limit of Detection (LLD) was determined using the empirical method whereby ten repeat analyses of a blank sample (DI water) were measured and the standard deviation calculated.

The results of the study indicate that given stable samples, proper sample handling and proper calibration technique, the Rigaku NEX OL EDXRF analyzer can achieve excellent results monitoring the concentrations of Co, Br and Mn in TPA and PTA solutions.

A copy of this application report may be requested on the official Applied Rigaku Technology, Inc. website at http://www.rigakuedxrf.com/edxrf/app-notes.html?id=1539_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 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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