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Press Release

A New Application Report from Rigaku Demonstrates Measurement of Titanium Conversion Coatings on Aluminum

Austin, TX— October 1, 2016. Aluminum and steel are often coated with a protective conversion coating, also called passivate or passivation coating, to prevent oxidation and corrosion of the base metal. Applied Rigaku Technologies, Inc. has published a new application report describing the analysis of titanium (Ti) conversion coating on aluminum (Al), including information about sample preparation, calibration and repeatability.

Rigaku Application Note #1620 describes the use of energy dispersive X-ray fluorescence (EDXRF) for the measurement of titanium conversion coating, and demonstrates the effectiveness of the Rigaku NEX QC benchtop EDXRF analyzer in the quality control (QC) process during the production of coated product.

The Rigaku NEX QC
Low-cost benchtop EDXRF analyzer

Aluminum is often coated with conversion coatings to protect the base metal, prevent corrosion and oxidation, and help aid the retention of paint on finished products. These coatings include chromium (Cr), titanium, vanadium (V), manganese (Mn), nickel (Ni), and zirconium (Zr).

The method described in the application note presents EDXRF spectrometry as an affordable means of optimizing quality, minimizing costs and reducing waste. For the analysis detailed in the report, a test coupon was placed flat in the sample chamber, covering the 26mm analysis aperture. Alternately, 32mm or 40mm circles can be cut for use with the autosampler tray. An empirical calibration was built using a set of standards assayed by a careful weigh-strip-weigh process. The bare, uncoated aluminum sample was measured to generate a special background correction that automatically compensates for the specific amount of background signal in each sample measured.

The analysis was performed using the Rigaku NEX QC EDXRF spectrometer. The method described shows the ability of the NEX QC analyzer to provide a quick, reliable and non-destructive means of measuring titanium conversion coatings on aluminum throughout the QC process.

A copy of this report may be requested at:
http://www.rigakuedxrf.com/edxrf/app-notes.html?id=1620_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, Xray spectrometry and diffraction, X-ray optics, as well as semiconductor metrology. Rigaku employs over 1,400 people globally and its products are in use in more than 90 countries – supporting research, development, and 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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