

Impacts of new non-contact coated film measurement methods on web coating processes

Abstract: Web coating process improvements, QA impacts and productivity gains generated from new non-contact on-line coating and film weight measurement techniques for coated web applications will be presented. The coating process impacts and production and QA data to be presented will include the measurement of wet and dry thin coatings and adhesives applied to multiple web substrates.

The measurement system utilized incorporates exclusive ruggedized optical technologies with applicability to the measurement of performance coatings within packaging, solar thin films, coated metals and specialty web applications. The non-radioactive and non-contact measurement systems can be readily used to monitor wet or dry coating thickness of variety of coated layers on film packaging substrates in real-time. A new approach for the on-line measurement of solvent and water-based coatings with similar refractive indices as the base substrate will also be outlined.

Measurement data and summary run results will be provided for production testing performed on thin top coats used on printing web applications. Results will also be presented on the testing performed on *intermediate* adhesive layers in solar panel back sheets and on selected matte finished coatings applied on a film substrate. Furthermore, applicability of technology on thin nano barrier coatings and UV hard coats will also be discussed. Limitations of the measurement method for certain applications will also be identified

Although the non-contact in-line measurement techniques used in these production and trial test efforts demonstrated great flexibility and broad applicability over a wide range of applications, only the measurement results from coatings that have been a significant challenge for manufacturers and converters to measure with conventional in-line and off-line coat weight measurement techniques in film packaging will be explored in detail.