

# The next generation of layer thickness measurement

SpecMetrix Systems from Sensory Analytics improve coating process control and product quality

The critical importance of continuous coating process improvements, cost-reduction efforts and the need to adopt greener production processes are impacting EU manufacturers and converters. To support these critical needs, a new generation of in-process tools led by SpecMetrix systems, is helping to change the way coating and film layer thicknesses are measured.

Manufacturers and converters of coated film, foil and extruded products are improving end product quality thanks to non-contact SpecMetrix in-line coating thickness measurement systems by Sensory

Analytics from the United States. These award-winning systems have successfully improved process control, optimised coating quality and reduced the costs of measuring wet and dry coatings on thin films and other substrates at many films and packaging industry leaders. "Our advanced SpecMetrix technology has enabled us to deliver a higher level of measurement precision to manufacturers down to submicron levels on products that have not been measurable using older in-line gauging," stated Greg Frisby, global industry manager of SpecMetrix Systems at Sensory Analytics.

## Advancements in Coating Thickness Measurement

Traditional mechanical methods for determining coating thickness face challenges when a manufacturer requires the measurement of multiple layers of coating. Manual weight checks also require a time-consuming investment of QA man-hours on sample sizes that are not representative of cross web or down web coating thickness levels. Such off-line measurements have been insufficient to assure quality across the web and for the length of the coated roll. The accuracy, precision and maintenance



A dual traversing system from the SpecMetrix product line

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### The SpecMetrix software

of in-process beta and x-ray thickness gauges create other long-term issues for manufacturers looking for in-process measurement offerings. They cannot provide precise measurements of thinner films and coatings as they use an indirect differential type measurement method that requires expensive and cumbersome scanning frames and cause plants to bear excessive administrative oversight. In addition, most other optical in-process measurement tools such as UV and IR absorption gauges rely on various inferential means for calibration and measurement, as opposed to measuring the absolute thickness of a film package or a specific film or coating layer using SpecMetrix In-line systems.

### Improving precision with in-process optical methods

In contrast, optical interference and ellipsometry techniques are also precise, although they have generally been limited to laboratory environments and for measuring clear and smooth coated layers. The exclusive ruggedised optical interference (ROI) technology designed into all SpecMetrix In-line systems are designed and built to withstand

the rigors of any manufacturing environment. The systems incorporate a broad wavelength range and can therefore accurately monitor wet or dry coating or film layer thickness as low as 0.25 microns across a web – and at over 150 measurements per second. SpecMetrix systems successfully measure single or double layers simultaneously and individually (including thin UV hard coat and adhesives) on tapes, high performance optical films, foils, window films, medical and automotive products to help manufacturers identify underlying problems with a particular layer in the film stack. SpecMetrix systems have a wide range of unique and flexible measurement capabilities ranging from

sub-micron barrier layers to thicker base films with equal accuracy. These systems are available in fixed probe, traversing or OEM configurations for ease of integration onto new or existing plant coating lines. SpecMetrix systems are in active in-line and off-line use at industry leaders in over 30 countries.

The SpecMetrix product line is reported to provide a proven and cost-effective means to generate real-time coating thickness and film layer data in a non-contact, non-destructive and non-radioactive manner on a wide variety of substrates. Manufacturers will also benefit from improved process control which will help to verify product quality, avoid customer claims and to reduce production costs. ■



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## INFORMATION

For more than a decade, the experts at Sensory Analytics have been working on advanced concepts for process control and increasing the coating quality. With the introduction of the SpecMetrix technology and software, the company from Greensboro, North Carolina, offers a new type of solution portfolio for these and similar applications.