

Online-Measurement of Dip-Coated Panes on Roller Belts

Our Partner

The Schott AG develops special materials, components and systems for almost 125 years. The Flat Glass division, a strategic business unit of the company, offers a variety of refined flat glasses worldwide. A 100% control of these

products guarantees the compliance to highest quality demands. For the production and final inspection Schott successfully relies on **tec5** MultiSpec UV/VIS/NIR spectrometer systems.

Measuring Task

The layer thickness, the reflection and transmission properties of dip-coated flat glass have to be measured at exactly the same position at the roller belt.

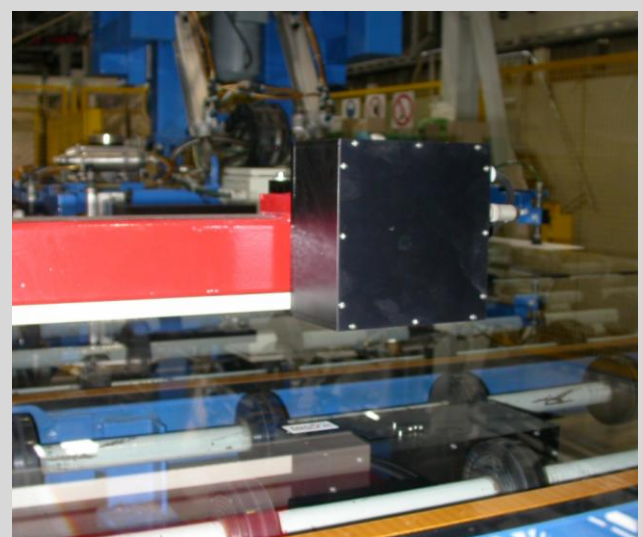
One of the more challenging tasks provides the nearly invisible glass Amiran[®], which has a residual reflection of approx. 1%, and the color-effect glass Narima[®]. Both have to be checked with the same system. This requires a high dynamic range enabling exact measurements of high signals (high reflection of Narima[®]) as well as very low signals (low reflection of Amiran[®]).



The Spectrometer System

The MultiSpec spectrometer system of tec5 acquires a complete spectrum in the wavelength range between 380 and 1,000 nm within milliseconds. The system is equipped with a highly sensitive MCS CCD spectrometer module of Carl Zeiss and a tungsten lamp. The optical setup allows the simultaneous acquisition of transmission and reflection spectra at the very same position. The determination of the layer thickness is derived from the acquired R and T values.

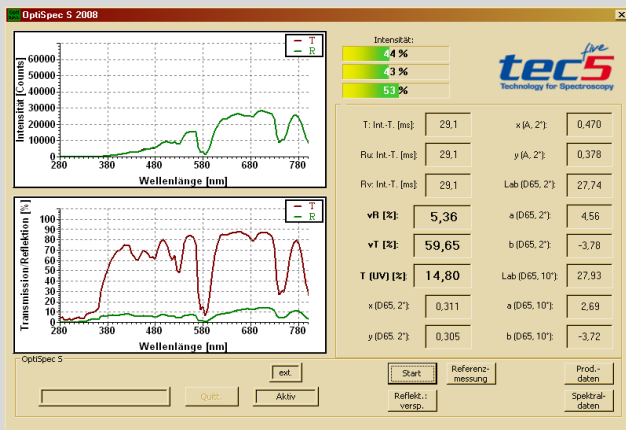
The long-term stability of the system is checked once per day by means of various references. An excellent reproducibility with a relative deviation of less than 1 % is reached in the measurement range. Typical absolute deviations for a 10% reflection is less than 0.1% and less than 1% for a transmittance of >90%.



*The non-destructive measurements directly on a roller belt (see picture) with the **tec5** spectrometer system allows a 100% final inspection of the products.*

Application Notes – MultiSpec System Vol. 32

The Software



The **tec5** OptiSpec software allows a fully automated operation of the measurement system, which is controlled via SPC.

Your Partner in Spectroscopy



Since 1993 **tec5 AG** has been developing fiber-optic spectrometer systems based on diode array technology. Today, tec5 is operating worldwide with subsidiaries in the USA and UK and global representatives are positioned to better serve the market.

At tec5 we pair our core competencies in high speed diode array readout technology, optical, mechanical, electronic and software engineering with excellent customer support. Our high quality products range from standard

The communication between the tec5 spectrometer and the process control system is realized by an OPC interface. Via this interface the system is controlled and the measurement results are read out. The complete spectra are saved to a data base.

Individual referencing standards are used for the various products such as Amiran® und Namira®. The software automatically recognizes the product by means of the scanned serial numbers. Thus the sample spectra are correlated with the related reference spectrum.

OEM electronics modules to complete application specific solutions. In close cooperation with our customers, a multitude of applications have been successfully implemented in different industries.

We are proud to be at the frontend in the field of spectroscopy and to provide cutting edge technology – today and in future.

*“The **tec5** system allows 100% final inspection to meet the highest quality demands, and to achieve the standards according to ISO 9001.” (Leoni Prinz Optics, subsidiary of Berliner Glas Group)*

*“Coated glasses are important products for Pilkington and **tec5** MultiSpec systems are used to analyze quality relevant parameters directly in the process.” (Pilkington)*



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