

## In-line Inspection for Coated Web Materials - Quality and Process Control for Higher Yields

The Dr. Schenk product range comprises comprehensive solutions for automated quality assurance and process control for web manufacturers and converters. Dr. Schenk offers a variety of reliable in-line inspection solutions that detect defects and irregularities in film, foil, paper, laminated and coated products.

### Examples for Coating Applications

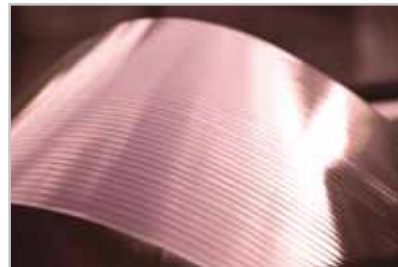
#### Coating on Label Material, Adhesives and Silicone

In some applications, as e.g. on pharmaceutical or food products, the information printed on a label has to be 100 percent readable for legal reasons. As the printing quality heavily depends on the quality of the base material - and here especially on the surface - optical inspection systems are used to assure the label stock quality. At the same time, irregularities in the silicone layer of release liners, which is coated onto a paper or film, may cause problems when separating the label from the release liner. An in-line control of the silicone coating process by an inspection system like EasyInspect will help to master this challenge.



#### TCO Coating on Roll-to-Roll material for the production of flexible thin-film solar modules

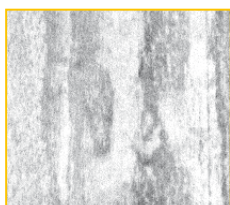
Transparent conductive oxides (TCO) and other materials, e.g. for the various solar layers, serve as coatings for thin-film PV modules. Local discontinuities and thickness variations of the layer deposition can reduce the functionality of the solar cells and have to be avoided.



### Quality Challenges of Coated Web Material

In the coating processes the layers are deposited microscopically thin onto film substrates, such as polycarbonate, polyester or acryl. To guarantee their full functionality, the coating layers must be deposited without any defects, contaminations or unacceptable thickness variations (see gray scale images for typical coating defects). Furthermore, repeating defects are very common for coating lines. Occuring in equal distances along the web material they can signal starting contamination of the rollers and need to be detected before serious damage happens. Therefore, manufacturers increasingly introduce optical vision systems that specialize on the inspection of coated material.

*Coating inhomogeneity*



*Bubble in coating layer*



*Missing coating (pinholes)*



*Streaks in coated material*





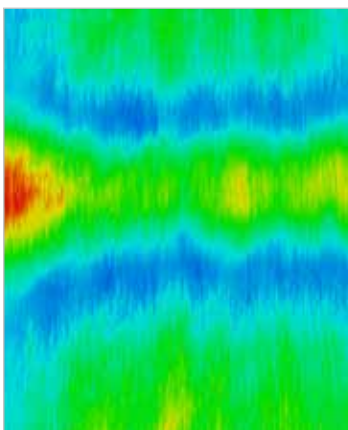
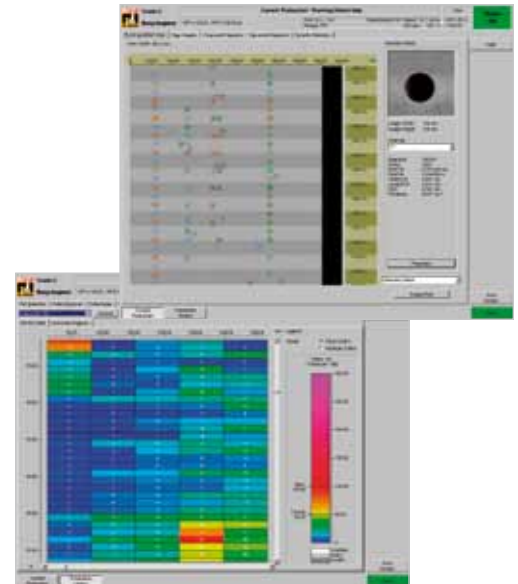
## Ensure Your Product Quality and Optimize Coating Processes with EasyInspect

Dr. Schenk, leading manufacturer of high precision inspection systems, offers an innovative technology that helps web manufacturers and converters to:

- Establish consistent quality standards by rejecting material with irregularities from the further production process
- Improve yield by quickly identifying the source of a defect and eliminating the problem immediately
- Gain in-depth knowledge of the production process by quality documentation, history and statistic reports

EasyInspect for coated web material detects defects and irregularities that occur in the base material and its coating layers while being processed. The system's innovative optical set-up and its image processing and visualization software have been adapted to the specific requirements of coated web material. Proven as highly reliable, EasyInspect convinces by the following highlights:

- Advanced camera technology for highest contrast sensitivity and optimized resolution
- Reliable and accurate classification of coating defects
- High defect sensitivity with bright-field and dark-field channels
- Easy integration into production lines
- Ideally adjusted to coating lines
- Standard components for an optimal price / performance ratio
- User-friendly interfaces according to SEMI standards
- Networking for further evaluation



*The false color images reflect layer thickness variations on coated web material*

## EasyMeasure

### Monitoring Options for 100% Control of the Coating Process

**Layer Thickness Monitoring:** With this innovative option manufacturers can monitor local thickness variations.

**Resistivity Monitoring:** This add-on option controls the sheet resistance of the coating.

**Haze Monitoring:** Developed to check the layer structure of TCO coated material, e.g. in PV products.

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