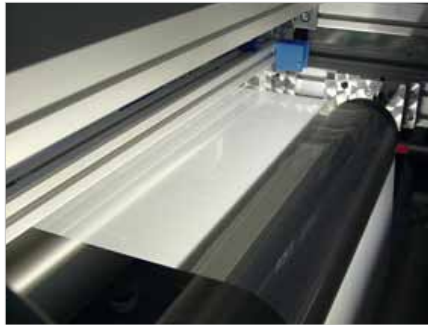


In-line Inspection in Label Production: Quality and Process Control of Release Liners and Label Stocks



Coated material production line

Dr. Schenk's reliable in-line inspection solutions detect defects and irregularities in film, foil and paper during all production steps, e.g. coating and calendering of label material. Thanks to an innovative optical concept even the smallest defects are detected.

Automated quality assurance and process control with EasyInspect and EasyMeasure ensure fast process optimization and increased yield combined with minimized rejects for manufacturers of base and converted materials.

Steep requirements for release liner and label film

In pharmaceutical or food applications strict legal requirements exist for the information printed on labels to be legible without fail. The printing quality depends largely on the surface quality of the involved base material and the release liner.

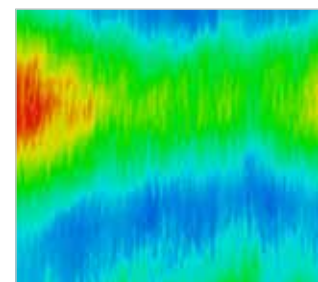
The silicone layer of a release liner is coated onto paper or plastic film. Irregularities such as voids or agglomerations in the coating can cause problems when separating the label from the release liner. Surface smoothness and release force are further material properties that define the label quality.

Automatic optical inspection with EasyInspect helps to identify defects in the silicone coating process and monitor the overall product quality. The system can be configured for single-sided and double-sided (top and bottom) control of the release liner.

EasyMeasure

Monitoring options for the coating process:

- Layer Thickness:** Thickness variations of silicone & adhesive coatings
- Haze:** Coating surface structure
- Reflectivity:** Reflectance of materials and coatings
- Formation:** Fiber dispersion variations in paper
- Resistivity:** Coating sheet resistance

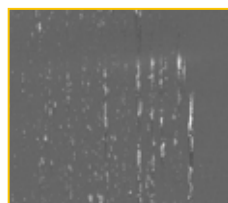


False color images reflect layer thickness variations on coated material

Coating inhomogeneity



Silicone void

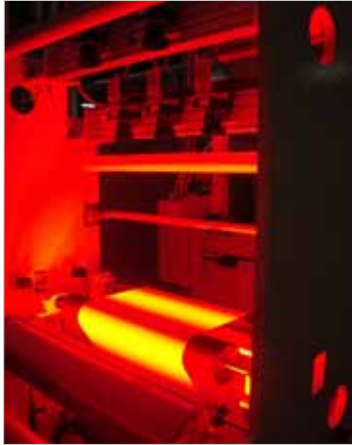


Bubbles in laminated film



Streaks in coated material





Dr. Schenk inspection system

Ensure product quality and optimize the coating processes with EasyInspect

Dr. Schenk's innovative technology helps manufacturers and converters to:

- Establish consistent quality standards by rejecting material with irregularities from further process steps
- Increase 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 statistics reports
- Closed loop functionality: Inspection data is immediately available for optimizing the production process.

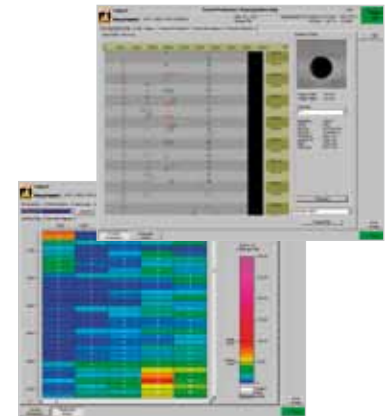
Quality challenges for coated material manufacturers

Controlling coating layers: During the coating processes microscopically thin layers of, e.g. polycarbonate, polyester or acrylic, are deposited on film substrates. To guarantee their full functionality, these coating layers must be free from defects, contaminations or unacceptable thickness variations.

Detecting repeating defects in coatings: Residue and foreign particles on rollers of a coating line can generate a repeating defect in subsequent material sections. EasyInspect recognizes the equal distance between defects and automatically diagnoses contaminated or damaged rollers. This reliable detection of repeating defects helps to ensure a consistently high quality level throughout the production process.

KEY FEATURES

- Advanced camera and illumination technology for highest contrast and optimized resolution
- Ultra-bright LED units for maximum light
- Reliable and accurate classification of coating defects
- In-line capability
- Standard components for optimal price / performance ratio
- User-friendly interfaces, e.g. roadmap (SEMI standards)
- Data storage function for quality evaluation and process optimization



Running defect map (top) and density map (bottom) to visualize inspection results

About Dr. Schenk

Dr. Schenk GmbH, established in 1985, is a globally active, innovative high-tech company based in Munich, Germany. For the third decade now Dr. Schenk offers comprehensive solutions for automated quality assurance and production process monitoring for the solar, flat glass, film and foil, converting, optical media and semiconductor industries.

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