

## Characterization of Nonwoven and Textile Material Properties



### Main Features

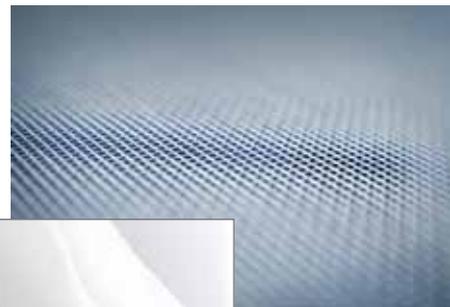
- In-line monitoring of nonwoven and textile material properties
- Process optimization
- Yield maximization
- Statistical quality evaluations

### Key Benefits

- Seamless integration with EasyInspect
- Uses visible light, avoids Beta or X-ray radiation
- 100% coverage of the material

### Monitoring of

- Grammage
- Formation in CD and MD direction:
  - Cloudiness
  - Streakiness
  - Ripples
- Coating thickness
- Porosity
- Permeability



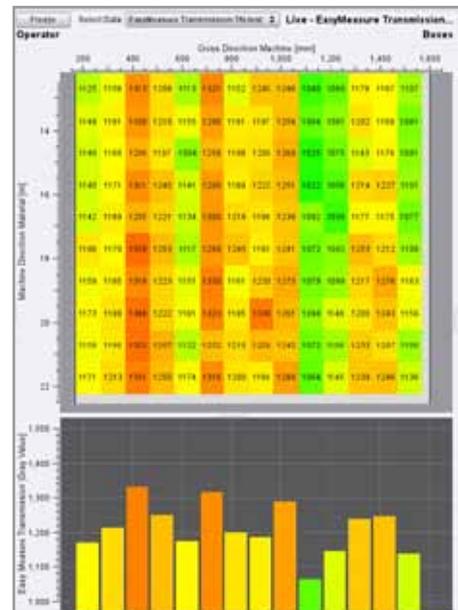
# EasyMeasure

## EasyMeasure for overall characterization of material properties

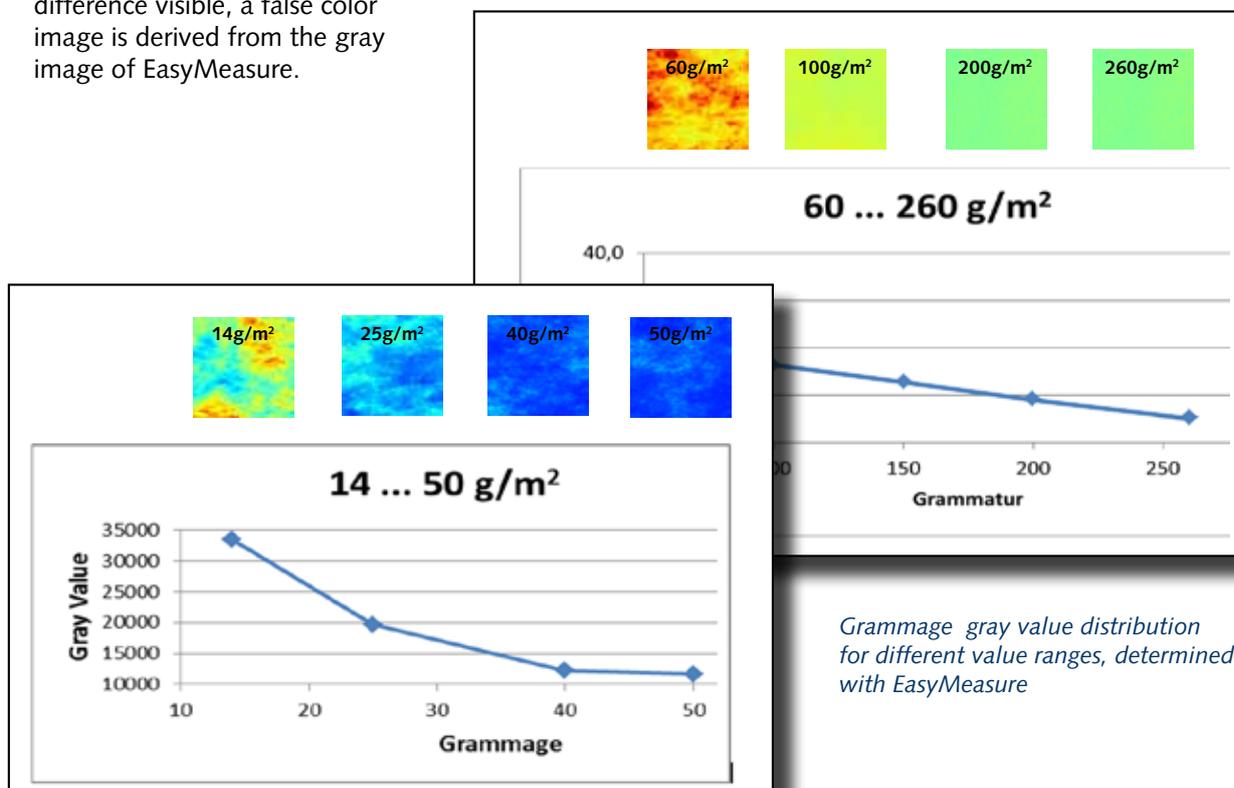
Dr. Schenk offers all-in-one quality assurance and process control systems for the production of nonwoven and textile materials. EasyMeasure can be combined with the surface inspection system EasyInspect. This offers for the first time multiple material property monitoring tasks, such as grammage or density, together with versatile defect detection in a single system. The amount of light transmitted through the material can also be expressed as optical density. This provides a linear correlation to the actual thickness.

### Grammage characterization

Grammage is a crucial characteristic in nonwoven materials. The EasyMeasure camera system can clearly identify variations in grammage values. With a gray value resolution of  $2^{16}$  steps EasyMeasure can differentiate these properties in more than 50,000 levels. Based on this capability the resolution for the grammage values monitored by the system is far below  $1 \text{ g/m}^2$ . To make this difference visible, a false color image is derived from the gray image of EasyMeasure.



Visualization of material properties in EasyMeasure

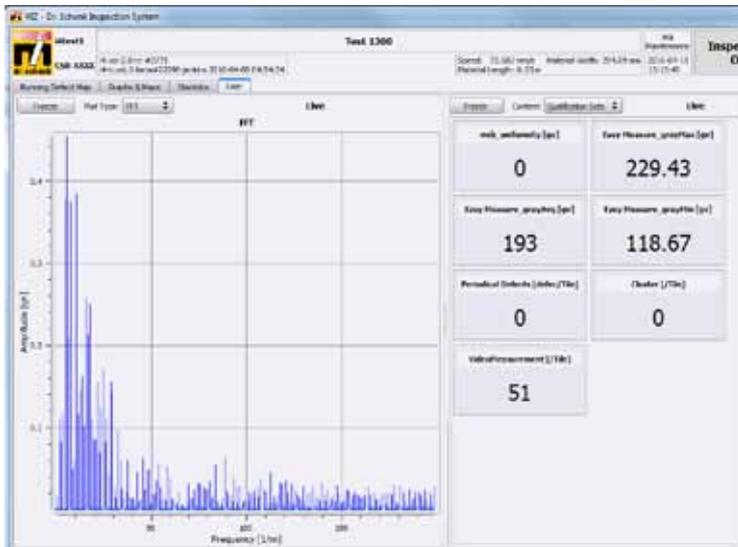


Grammage gray value distribution for different value ranges, determined with EasyMeasure



# Material Property Characterization

Formation: 100% monitoring of web uniformity, cloudiness and web edges

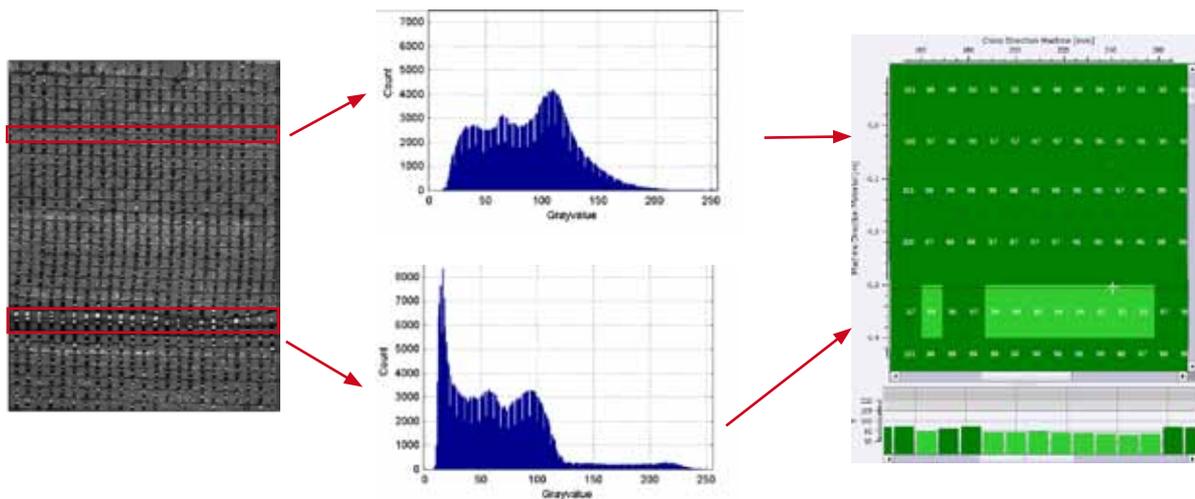


The uniformity in fiber distribution has a strong influence on the nonwoven web performance. This includes more cosmetic properties such as cloudiness, but also functional properties such as web thickness specifying the stability of a nonwoven material.

Acceptable and non-acceptable levels of formation patterns, cloudiness and inhomogeneities can be defined and evaluated in EasyMeasure. The results are displayed by values in dashboard windows allowing a fast and easy supervision by the operator.

## Unique material monitoring for technical textiles

The structured formation of textiles makes it difficult to distinguish between regular brightness variations (meshes) and variations caused by material inhomogeneities. EasyMeasure contains the Histogram evaluation by which statistic gray value distributions in user-defined tiles can reliably be detected and differentiated from regular material.



*Histogram distribution for good material (top) and misaligned meshes (bottom). The histogram values are then applied to the tiles, and show where the material is outside the specification.*

Your Reliable Partner



*Dr. Schenk's production site*

Dr. Schenk GmbH, established in 1985, is an innovative high-tech company based near Munich, Germany. Dr. Schenk develops, produces and markets optical surface inspection and measurement solutions for automated quality assurance and production process monitoring. This includes high-quality, customizable handling solutions. Our products are a key success factor in the making and converting of many materials, e.g. plastics, textile materials, nonwovens, paper, metal, or glass, for a multitude of markets like display glass, automotive, packaging, medical, renewable energy, and many more.

Throughout the world Dr. Schenk's over 280 employees continue to set new standards for the inspection of surfaces. More than 12,000 m<sup>2</sup> of modern, cleanroom-capable production and testing facilities are available to research, development and production to apply cutting-edge optics and electronics to customer applications.

Dr. Schenk offers extensive from-lab-to-fab knowledge. Customers benefit from our expertise in the translation of lab applications to large scale productions. Our sophisticated handling solutions complete the one-stop-shopping experience.

The company's objective is complete customer satisfaction. This is achieved through innovative and practical solutions that can be implemented into new and existing production lines. Local sales and service facilities around the world ensure fast support, technical service, training and consulting at any phase of a project.

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