

## Monitoring of Web Material Properties



**The perfect enhancement  
for optical defect inspection**

EasyMeasure

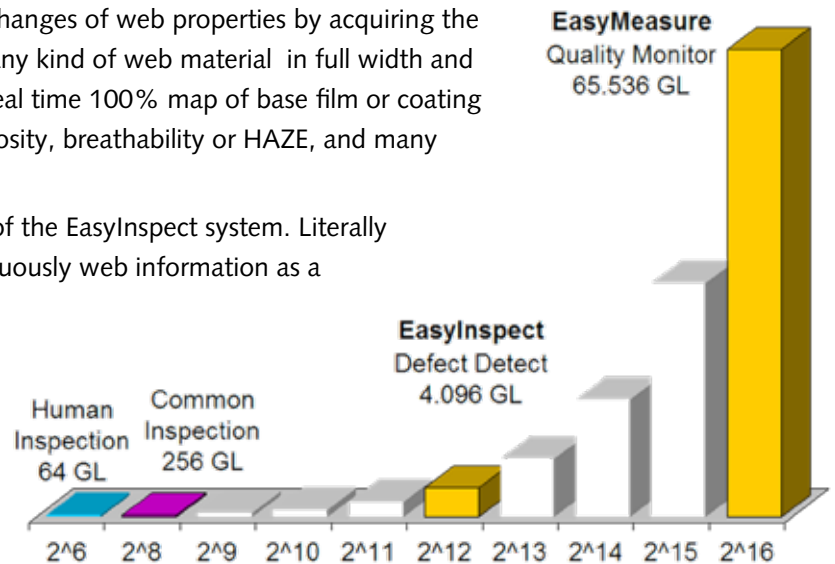
# EasyMeasure

## EasyMeasure monitors optical density variations for improved production stability

EasyMeasure is the perfect complement to web inspection by EasyInspect. In contrast to EasyInspect which focusses on local defects, EasyMeasure monitors material variations and sudden area changes of web properties by acquiring the optical density. This is applicable to any kind of web material in full width and full length. EasyMeasure provides a real time 100% map of base film or coating thickness homogeneity as well as porosity, breathability or HAZE, and many more.

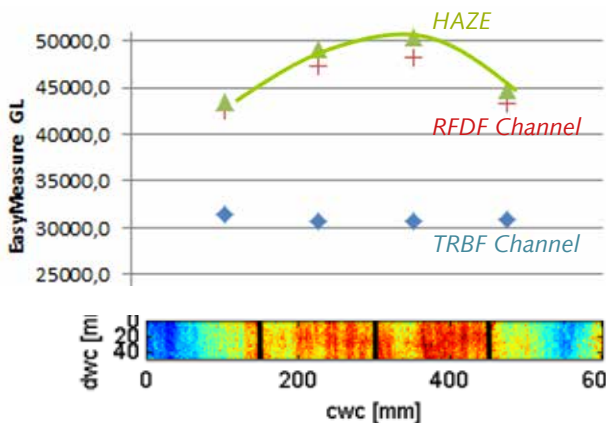
EasyMeasure is an optional function of the EasyInspect system. Literally every camera pixel contributes continuously web information as a calibrated brightness gauge.

These full surface coverage homogeneity maps provide an ultra-high resolution insight into the web production processes and simultaneously into the material quality by delivering area information of free definable web tiles.



Comparison of sensitivity regarding optical density variations: Manual (Human) Inspection, Conventional Inspection Systems, EasyInspect and EasyMeasure - visible GL (=gray level 16 bit dynamic)

## HAZE in Stretched Film



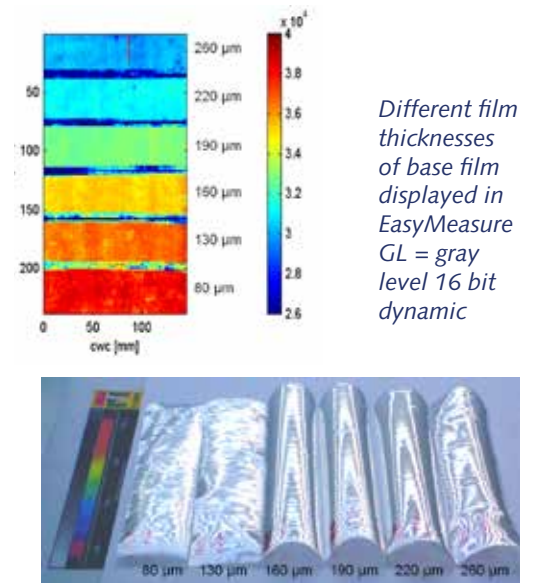
2-channel HAZE measurement enabled by MIDA in real-time for BOXX production

GL = gray level 16 bit dynamic

RFDF = Reflection Darkfield

TRBF = Transmission Brightfield

## Base Film Thickness Control



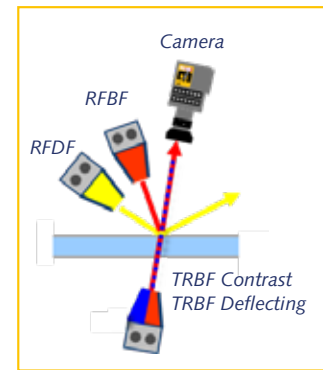
Different film thicknesses of base film displayed in EasyMeasure GL = gray level 16 bit dynamic



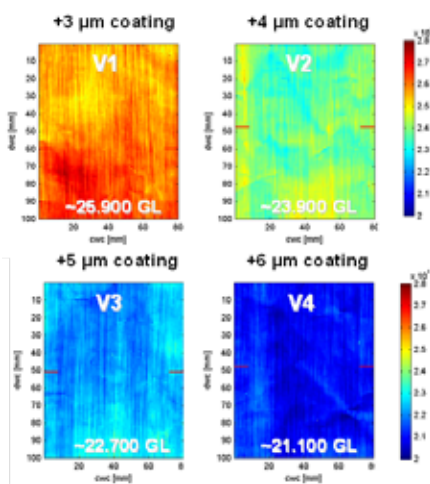
# Material Property Characterization

## EasyMeasure - Monitoring Material Properties with MIDA

Both EasyInspect and EasyMeasure use MIDA technology (Multiple Image Defect Analysis) to qualify material with multiple optical channels on one single scan line. The material is analysed for local defects in up to 4 dedicated inspection channels and is simultaneously monitored for its larger scale material variations in up to 2 channels at the same time. As different web characteristics require different optical detection setups, the capability of multiplexing between different setups / channels is a decisive advantage for high-speed, high-volume material production control.



## Coating Thickness Control



Coating thickness homogeneity displayed with a resolution of up to 2.000 gray levels per 1 μm coating thickness

## Monitored Properties

- Base Film Thickness / Uniformity
- Coating Thickness / Uniformity
- Haze
- Grammage / Formation
- Porosity
- Breathability
- Transmissibility (VLT/IR)
- and many more

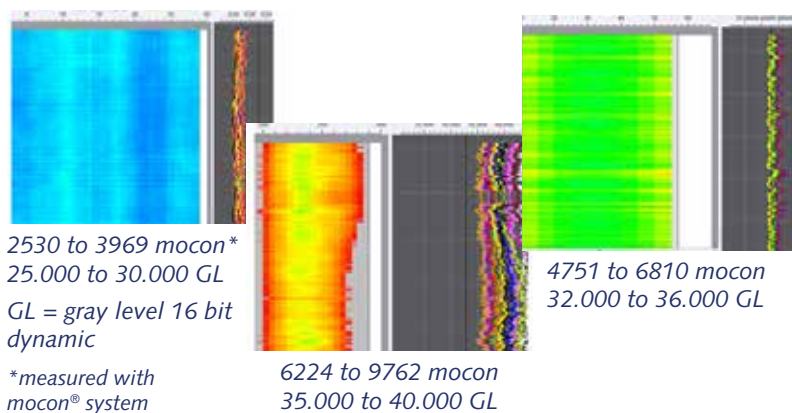
## Inspected Materials

- All types of film / sheet:
  - Optical Films
  - Packaging Film
  - Metallized Film
  - $AlO_x$  Coated Film
  - Packaging Film / EVOH
  - Window Film
  - Fuel Cell / Li-Batteries
  - Polycarbonate / PMMA
- Nonwovens / Wovens
- Label Stock / Release Liners
- Solvent-Based Coating
- and many more

## Production Processes

- Blown Film
- Extruded / Cast Film
- Stretched Film
- Coating / Lamination / Sputtering
- Multi-layer Functional Composites
- and many more

## Monitoring Breathability (Moisture Vapor Transmission Rate)



Your Reliable Partner



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