

Reliable, fast and accurate WVTR measurement technology

Joerg Koch

Abstract

WVTR measurements have gathered both from fundamental as well as application point of view increasing interest. In recent years progress has been made in the development of ultra barrier material, hence increased focus is on reliable and fast WVTR measurement technology to move barrier development manufacturing to production level. Fundamentally gas diffusion processes and detailed understanding of the permeation mechanisms are key to develop reliable ultra barrier material and to move lab made webs into a fab based production environment. Here highly sensitive and selective WVTR measurements are mandatory in order to understand the properties of the substrates. The industry has specific interest in a reliable measurement technology and sensitivity down to $10E-6$ range which is a prerequisite for the production of OLED's on flexible substrate material. The paper will discuss latest developments on spectroscopic laser based WVTR measurement technology. In particular recent results in the range of $10E-5$ - $10E-6$ g/m²/d will be presented and discussed. In addition requirements for fast measurement time are a challenge for any measurement technology. We are going to present latest results on improving the measurement duration and discuss possibilities for controlling production processes with our tunable laser based measurement technology HiBarSens.