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A DELAYED-PHOSPHORESCENCE-BASED DOSIMETER FOR QUANTITATIVE UV PROCESS CHARACTERIZATION

ABSTRACT
Reliable determination of UV dose is a key prerequisite for reproducible curing processes in coating, adhesive bonding, and industrial curing applications. While electronic radiometers provide high measurement accuracy, they are often limited when measurements must be performed directly on moving substrates or within complex process geometries. At the same time, many flexible dosimeters rely on irreversible color changes, which impose limitations in terms of evaluation accuracy and long-term stability.

This presentation introduces a novel dosimetry approach utilizing thin, flexible sensors based on delayed phosphorescence. By decoupling exposure from measurement, this principle allows for in-situ UV dose monitoring directly at the substrate surface.

In addition to the underlying physical principles, the presentation discusses calibration strategies, measurement uncertainty, long-term stability, and comparability with established UV radiometers. Experimental results demonstrate how the method can be applied for quantitative UV dosimetry under real production conditions.

Join the presentation to learn more about the new cutting-edge technology for process monitoring, quality assurance, and the characterization of modern UV-LED and mercury-vapor curing systems.