**VISUAL INSPECTION OF DELAMINATION IN ENCAPSULATION OF FLEXIBLE ELECTRONICS FABRICATED USING SLOT DIE COATING**

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**Extended Abstract**

The mechanical properties of encapsulants and barrier film used on devices such as flexible electronics cannot easily and efficiently be assessed. A new tool low cost-effective tool is warranted. The objective of this work is to demonstrate the viability of using digital photoelasticity (DP), a low-cost visualization tool, to analyze stress formation in barrier films. Single or multiple layers of ethylene vinyl acetate (EVA) barrier film(s) is slot die coated over three different surfaces, untreated polyethylene terephthalate (PET), PET treated with indium tin oxide (ITO) or PET/ITO with small patches of poly(3,4-ethylenedioxythiophene) polystyrene sulfonate (PEDOT:PSS). Uniform axial stress is applied on each sample using DP. Then, the stress profiles and grab profiles are compared to identify the weakest areas on each sample. It has been found that multiple layers of highly concentrated EVA coatings can withstand higher stress. Furthermore, delamination initiates on the side edges when EVA is coated onto a homogenous surface (i.e, PET and PET/ITO. However, when coated on heterogeneous surfaces, i.e., PET/ITO PEDOT: PSS, delamination initiates at the interface of the substrate and active material. This work suggests that DP can efficiently and cost effectively be used to analyze stress in flexible materials.