In-line, roll-to-roll morphology analysis of organic solar cell active layers - DTU Orbit (30/09/2019)

In-line, roll-to-roll morphology analysis of organic solar cell active layers
We present the first comparative in situ small and wide angle X-ray scattering study of two polymers that are relevant for organic photovoltaics, during coating on a flexible substrate. From the obtained measurements we identified several differences between the drying of the two polymers. The polymer optimized for roll-to-roll coating attained its final morphological packing nearly instantly after deposition, and had the shortest drying profile. We therefore conclude that fast-drying polymers which are influenced less by drying temperature or substrate inhomogeneities are better suited for roll-to-roll coating, and that fundamentally, the kinetics of drying dominate the process in the case of roll-to-roll slot-die coating.

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