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Wavelength Scanning Interferometry for PV Production In-line Metrology

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Flexible PV modules are manufactured using roll-to-roll (R2R) technology. These modules require a flexible barrier material to prevent water vapor ingress.

Two representative Al$_2$O$_3$ ALD samples processed by the Centre for Process Innovations (CPI). These samples have an 80 mm diameter area that has been ALD coated with 40nm Al$_2$O$_3$.

The WVTRs of the study were carried out at the National Physical Laboratory (NPL) using a traceable in house developed instrument.

- The analysis of the results appears to indicate that sample with higher density of large defects exhibit inferior barrier properties.
- WSI results compare favorably with Coherence Correlation Interferometry (CCI) results.
- The results provide basis for development of a proof of concept system.

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References