HORIZON-CL5-2023-D3-02-12
Large area perovskite solar cells and modules

LUMINOSITY

Large area uniform industry compatible perovskite solar cell technology

Starting date of the project: 01/06/2024
Duration: 48 months

= Deliverable D2.2 =

Stable solar cells

Abstract

Deliverable D2.2 presents the development and stability assessment of flexible perovskite solar cells with small active areas (<1 cm^2), fabricated using scalable slot-die coating. It outlines the techniques applied by the project partners and evaluates device performance following exposure to light, heat and moisture.

The results demonstrate highly stable slot-die-coated perovskite solar cells on flexible substrates. Encapsulated cells achieved T94 after 1,000 hours of light soaking at 55 °C, while non-encapsulated cells retained T98 after 3,000 hours of continuous thermal stress at 85 °C. Under damp-heat conditions of 85 °C and 85% relative humidity, the champion encapsulated cell maintained its initial performance after 1,680 hours. These tests were conducted under conditions more demanding than the originally targeted ISOS-L-1 protocol.

The results confirm the strong stability of flexible devices produced with scalable techniques and support the consortium's continued focus on DMF-free ink systems, particularly DMSO-based formulations.

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101147653.