

Dyesol Proves Perovskite Solar Cell Stability

Queanbeyan, 09 August 2015 – Dyesol Limited (ASX: DYE), the world leader in the industrialisation of perovskite solar cell (PSC) technology, has recently passed an important Technology Advisory Board milestone in taking the technology from “lab-to-fab”. While previous development activities have focussed on proving efficiency of core PSC architectures at meaningful scale and volume, the Company’s recent technical focus has validated the stability of these high-performing cells with industrially relevant areas. Stability, leading to durability and long product life, is considered the key performance parameter in establishing this disruptive technology as a genuine commercial threat to incumbent silicon-based solar PV.

Multiple batches of statistically meaningful numbers of strip cells with >10% efficiency at 1 cm² size (masked) were encapsulated and subjected to continuous light soaking at full sun intensity for over 1000 hours. All of these batches of strip cells were constructed using one of Dyesol’s highly prospective, low-cost, scalable, carbon-based PSC architectures. All of the batches survived over 1000 hours under this accelerated test condition with less than 10% relative degradation in efficiency over the duration of the test. This is an important sub-test towards meeting IEC 61646 accreditation – the most established international measure for PV durability validation. Dyesol’s focus for the near-term is to further expand both this stability work as well as other stability validation tests.

Dyesol’s Chief Technical Officer, Dr Damion Milliken, commented:

“This achievement gives us confidence to accelerate development and scale-up of our preferred low-cost and easily produced PSC technology architecture, as we’ve now reproducibly, both within and between batches, proven that the system is inherently photo-stable in larger 1 cm² cells with high efficiency of >10%.

The technical rigour with which Dyesol’s development teams pursue industrialising this technology is value-building and very gratifying, and I look forward to further compelling progress over the coming months.

Dyesol believes no other team in the world has achieved these high-quality results and we have created significant internal IP along the way.”

These achievements will be presented on 10 September 2015 at a Swiss Photonics Workshop on Lifetime and Reliability Issues in PV by one of Dyesol’s research staff, Dr Adrianna Paracchino.

About Dyesol Limited

Dyesol is a renewable energy supplier and leader in Perovskite Solar Cell (PSC) technology – 3rd Generation photovoltaic technology that can be applied to glass, metal, polymers or cement. Dyesol manufactures and supplies high performance materials and is focused on the successful commercialisation PSC photovoltaics. It is a publicly listed company: Australian Securities Exchange ASX ([DYE](#)), German Open Market ([D5I](#)). Learn more at www.dyesol.com and subscribe to our mailing list in English and German.

About Perovskite Solar Cell Technology

Perovskite Solar Cell (PSC) technology is a photovoltaic (PV) technology based on applying low cost materials in a series of ultrathin layers encapsulated by protective sealants. Dyesol’s technology has lower embodied energy in manufacture, produces stable electrical current, and has strong competitive advantage in low light conditions relative to incumbent PV technologies. This technology can be directly integrated into the building envelope to achieve highly competitive building integrated photovoltaics (BIPV).

The key material layers include a hybrid organic-inorganic halide-based perovskite light absorber and nano-porous metal oxide of titanium oxide. Light striking the absorber promotes an electron into the excited state, followed by a rapid electron transfer and collection by the titania layer. Meanwhile, the remaining positive charge is transferred to the opposite electrode, thereby generating an electrical current.

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