

## Fabrication of Perovskite PV devices using Ossila I101 Ink

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### Process summary

#### 1. Substrate clean

Sonicate ITO substrates for 5 minutes in hot (~70°C) 1% Hellmanex (Ossila C141)  
Dump-rinse substrates twice in boiling, deionised (DI) water  
5 min sonication in IPA  
Two dump-rinses in boiling DI water  
Dry with nitrogen gun

#### 2. PEDOT:PSS anode preparation

Filter AI 4083 PEDOT:PSS (Ossila M121) using a 0.45µm PVDF filter (Ossila C105)  
Dispense 35 µl of the filtered PEDOT:PSS solution onto ITO spinning at 6000 rpm for 30s  
Place substrate onto a hotplate at ~120°C  
After all ITO substrates have been coated, reduce hotplate temperature to ~ 90°C

#### 3. Perovskite deposition

Heat and stir I101 perovskite ink for 2 hours at ~70°C (keep heated)  
Rapidly transfer the ITO/PEDOT:PSS substrate from the hot plate onto the spin-coater  
Spin substrate at 3000 RPM  
Dispense 30 µl of I101 perovskite ink and spin for 30s  
Place substrate back onto the hot-plate (in air) at ~ 90°C.  
Use a dry micro-precision cleaning swab (Ossila C201) to wipe the cathode stripe clean  
Place the substrates back onto the hot plate and anneal for 120 minutes

#### 4. PC<sub>70</sub>BM deposition

Prepare a solution of PC<sub>70</sub>BM (Ossila M113) at 50 mg / ml in chlorobenzene and stir for 3 to 5 hours  
Transfer perovskite-coated substrates into the glove-box  
Dispense 20 µl of PC<sub>70</sub>BM solution onto the spinning substrate at 1000 rpm and spin for 30s

#### 5. Cathode deposition

Thermally evaporate a calcium/aluminium cathode (5 and 100 nm respectively) through shadow-mask (Ossila E341)  
Encapsulate devices using a glass coverslip (Ossila C181) and encapsulation epoxy (Ossila E131)  
Expose to UV radiation (350nm) for 30 mins to cure epoxy