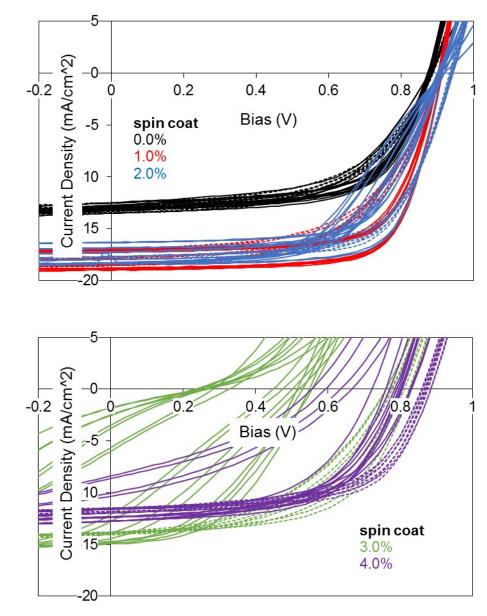
1	Solution engineering in spray-cast organometal halide perovskite solar cell fabrication		
2	Supplementary information		
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12			

HI concentration v%	Perovskite film thickness (nm)		
	Spin-coated	Spray-coated	
0	397 ± 15	311 ± 70	
1	394 ± 11	330 ± 60	
2	433 ± 12	331 ± 60	
3	418 ± 13	572 ± 80	
4	503 ± 25	459 ± 25	

Table S1 – Post annealed film thickness of MAPbI_{3-x}Clx films spray-coated and spin-coated
from precursor solutions containing different HI v% onto ITO/PEDOT measured at five
different locations by profilometry.



25



27 Figure S1 - The effect of HI concentration in spin-coated PSCs. PEDOT:PSS and PCBM layers

- 28 are spin-coated. Solar cell J-V traces measured under 1Sun AM1.5G irradiation whilst cycling
- 29 applied bias from -1V to +1V and back again.

30

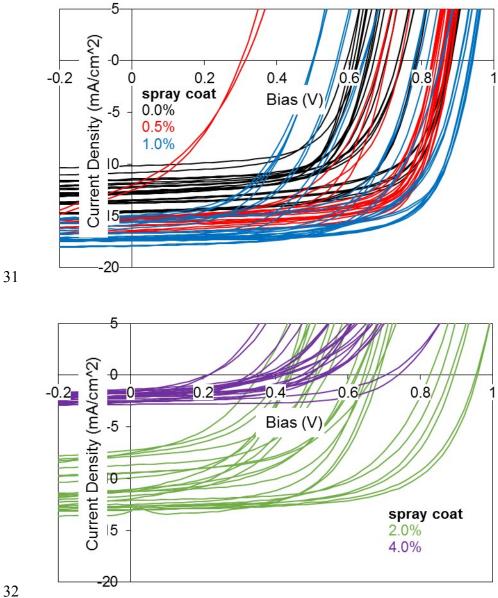


Figure S2 - The effect of HI concentration in spray-coated PSCs. PEDOT:PSS and PCBM 33

- layers are spin-coated. Solar cell J-V traces measured under 1Sun AM1.5G irradiation whilst 34
- 35 cycling applied bias from -1V to +1V and back again.

36

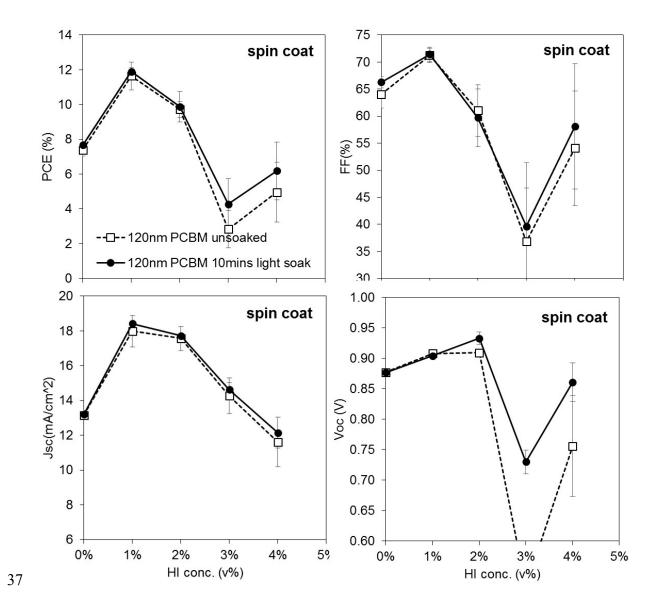
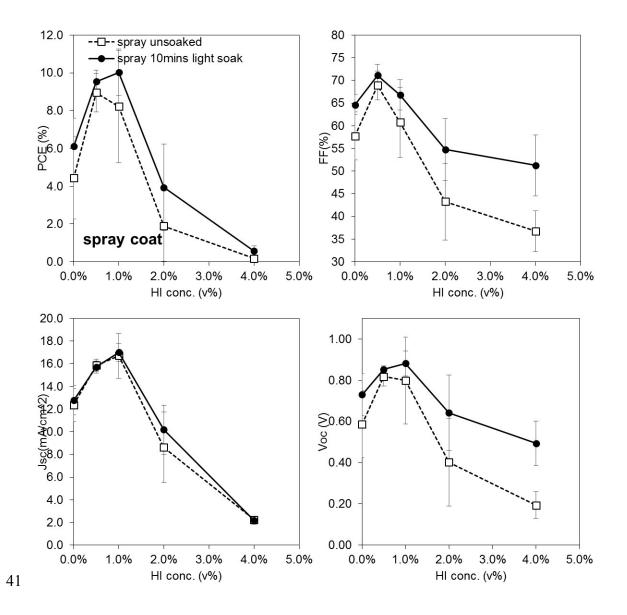
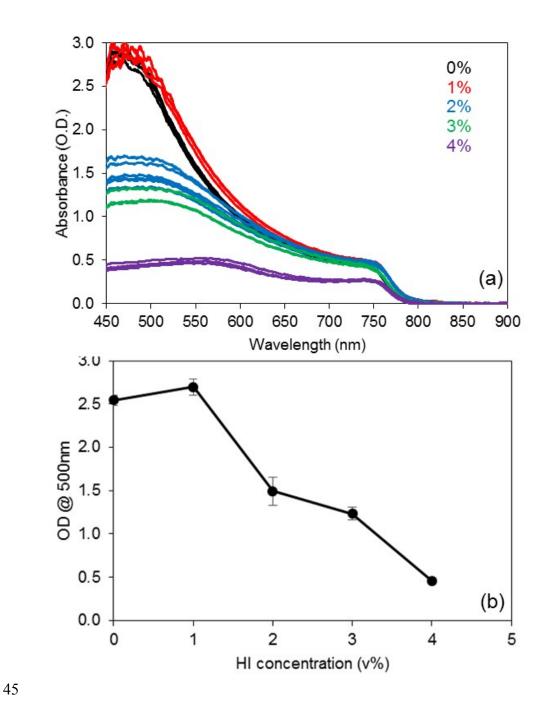


Figure S3 – The effect of HI concentration on performance metrics measured from spin-coated
PSCs under 1Sun AM1.5 irradiation before (open squares) and after (closed circles) light
soaking. Lines are a guide for the eye.

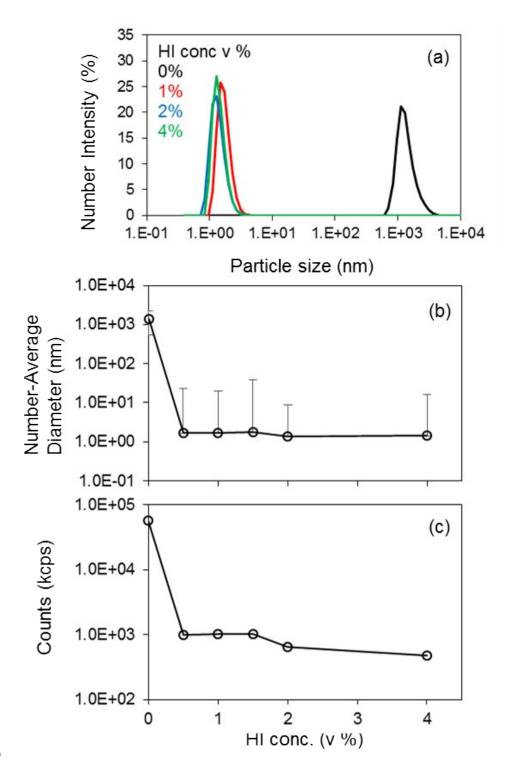


42 **Figure S4** – The effect of HI concentration on performance metrics measured from spray-43 coated PSCs under 1Sun AM1.5 irradiation before (open squares) and after (closed circles)

44 light soaking. Lines are a guide for the eye.



46 **Figure S5** – Part (a): Absorption spectra measured from MAPbI_{3-x}Cl_x thin-films prepared on 47 ITO/PEDOT surfaces with varying amounts of HI added to the precursor solution (*see* legend 48 inset). Part (b): Summary of data from part (a) showing optical density at 500nm *vs* HI v%.





50 **Figure S6** – Part (a): size distribution of chloride-based aggregates measured by dynamic light 51 scattering from precursor solutions, showing decrease in fitted particle size as the large 52 aggregates which are initially present become dispersed and solvated as more HI is added; part 53 (b): Fitted intensity-average aggregated diameter (lines are a guide to the eye). Note that these 54 statistical fits attempt to interpret systems that may contain broad distributions of aggregate 55 sizes. Furthermore, particle sizes inferred from samples containing more than 1% HI 56 concentration are tentative due to the low overall scattering signal (part (c)).