

Supporting Information

Investigation of the Stoichiometric Deviation between Mixed Cation, Mixed Halide Lead Perovskite Thin Film and its Precursor Solution

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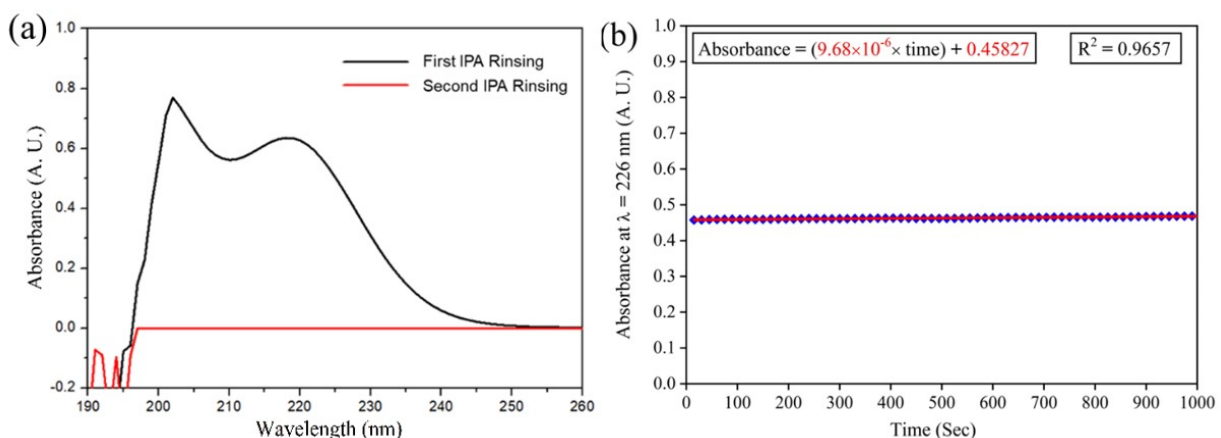


Figure S1. The absorbance spectra of IPA-rinsed perovskite films with (a) two rinses. (b) 1000 seconds rinsing

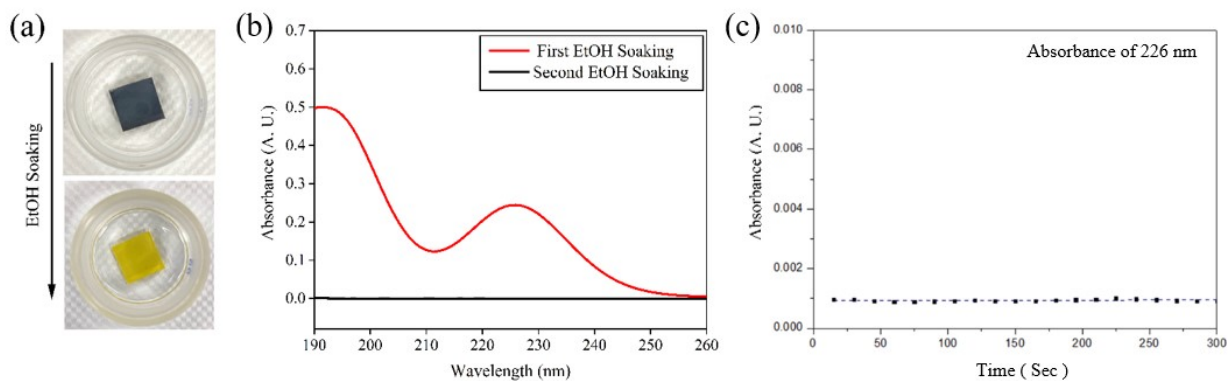


Figure S2. (a) Images and (b) first and second time of absorbance spectra of solution for perovskite films soaked in EtOH.(c) absorbance of solution relative to soaking time of solution for perovskite films soaked in EtOH

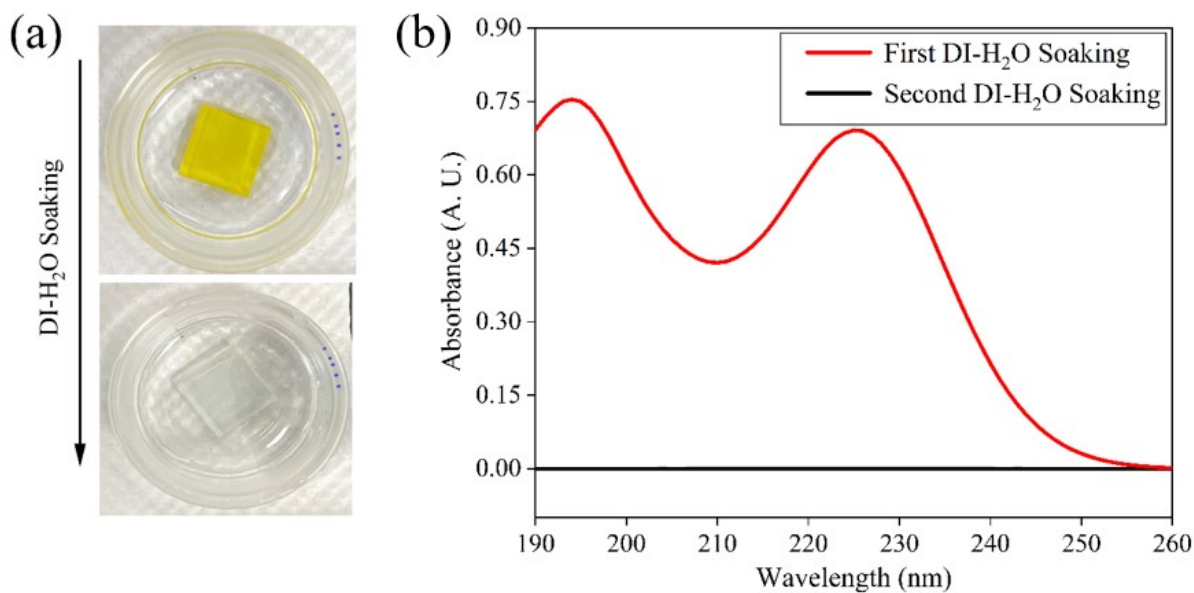


Figure S3. (a) Images and (b) absorbance spectra of PbI₂ films soaked in DI H₂O solution

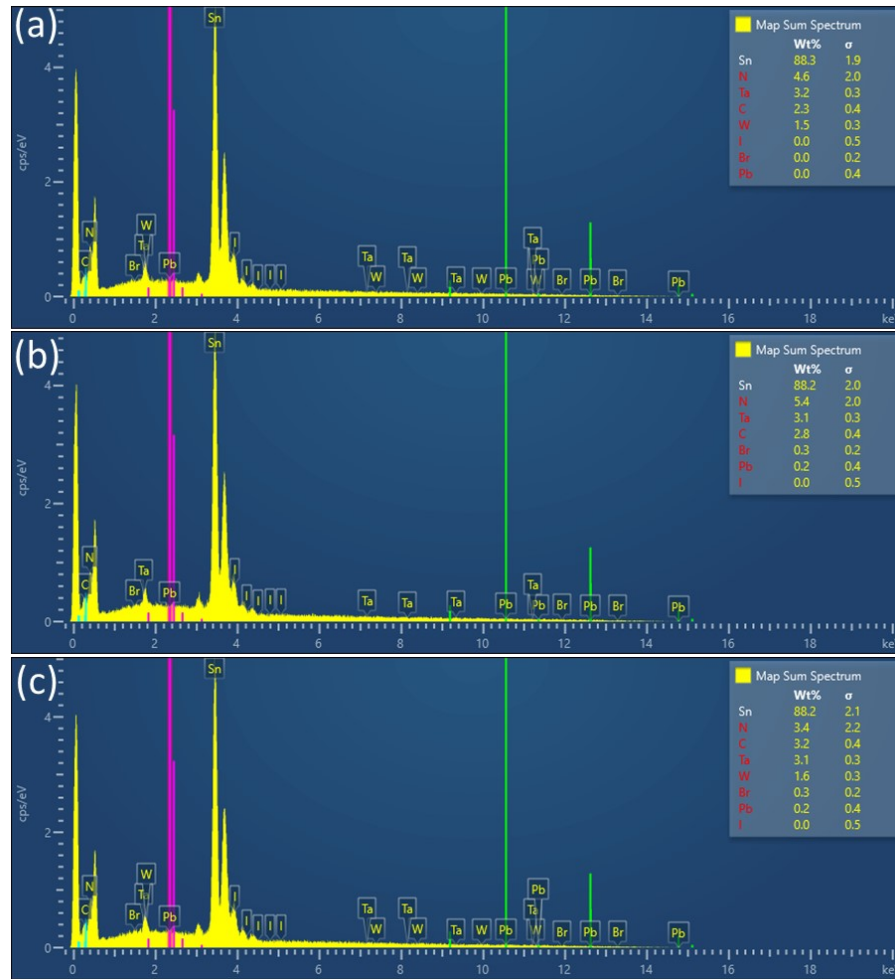


Figure S4. The EDX results of the substrate after breakdown of a PVSK film procedure (a) PVSK-1 (80:20), (b) PVSK-1 (60:40), (c) PVSK-2 (75:25).

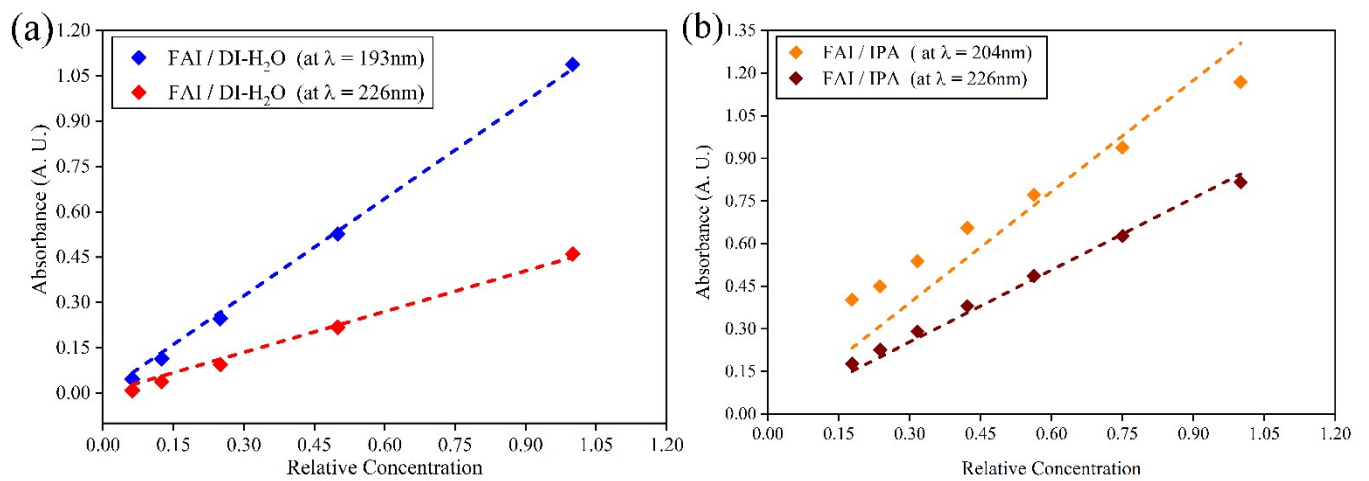


Figure S5. Linear regression trend line of maximum absorbance for (a) FAI/DI-H₂O (b) FAI/IPA

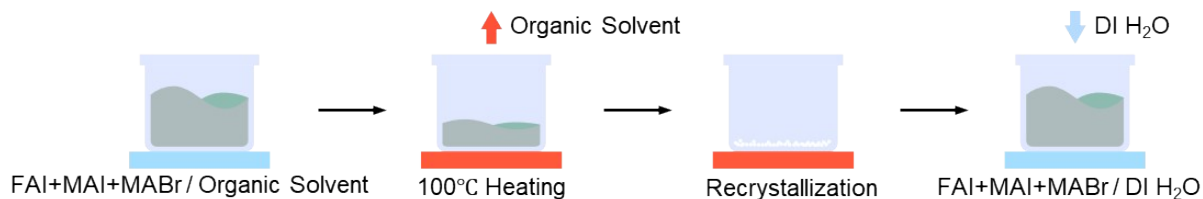


Figure S6. The process of substituting DI-H₂O for organic solvent

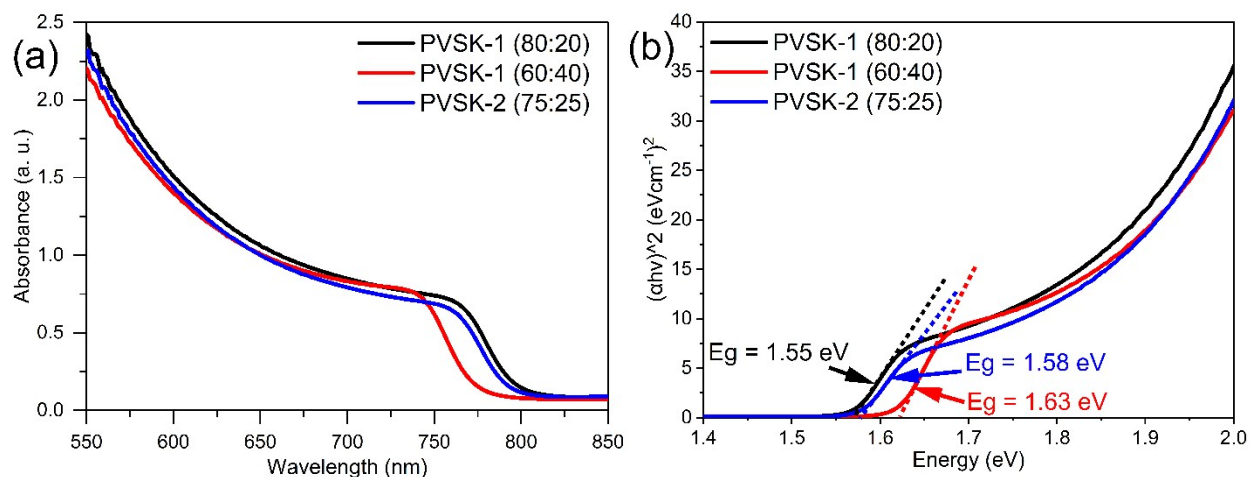


Figure S7. UV-visible absorbance (a) and calculated bandgap (b) of PVSK-1 (80:20), PVSK-1 (60:40), and PVSK-2 (75:25) perovskite film

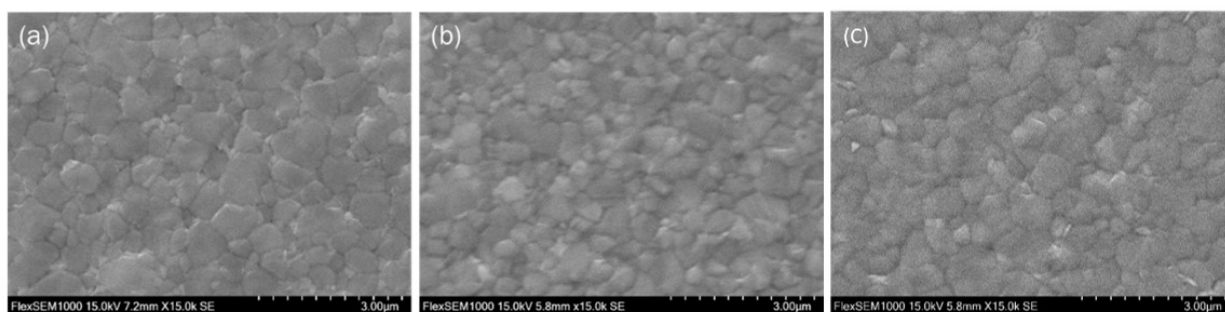


Figure S8. SEM images of perovskite film synthesized by the one-step and two-step methods at different ratios; a) PVSK-1 (80:20), b) PVSK-1 (60:40), c) PVSK-2 (75:25)

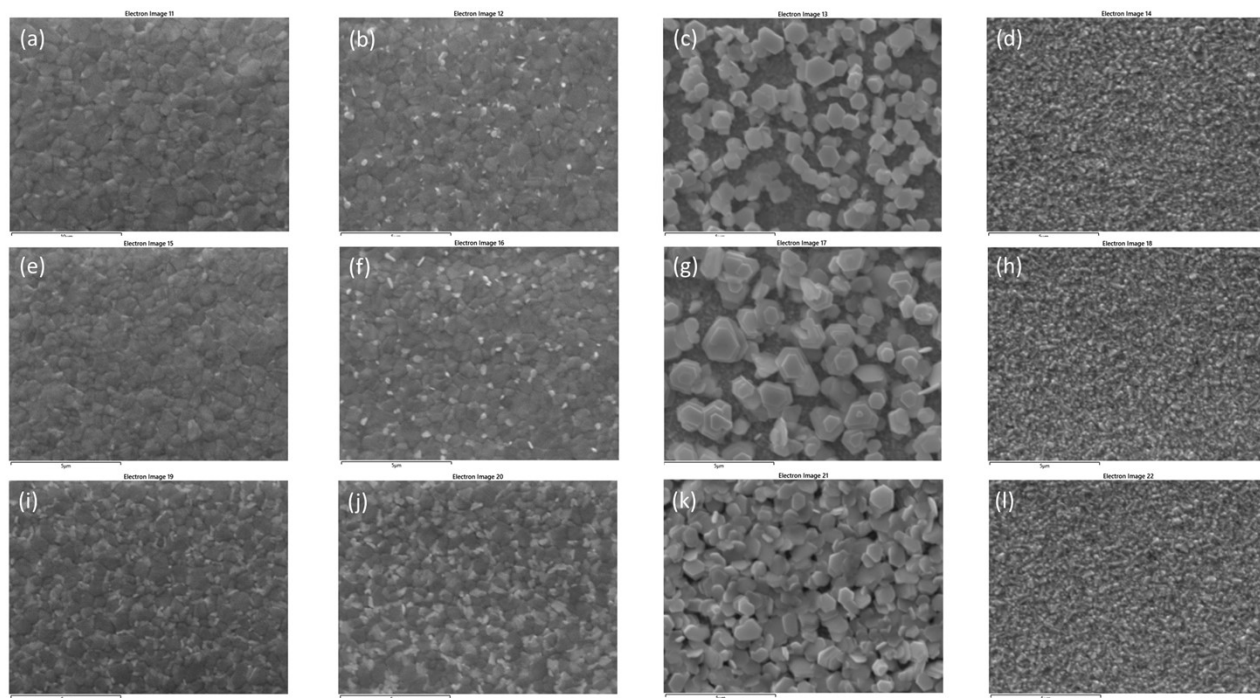


Figure S9. The SEM images of perovskite made by PVSK-1 (80:20) (a) as prepared, (b) IPA rinsing, (c) EtOH soaking, (d) DI-H₂O soaking, PVSK-1 (60:40) (e) as prepared, (f) IPA rinsing, (g) EtOH soaking, (h) DI-H₂O soaking and PVSK-2 (75:25) (i) as prepared, (j) IPA rinsing, (k) EtOH soaking, (l) DI-H₂O soaking

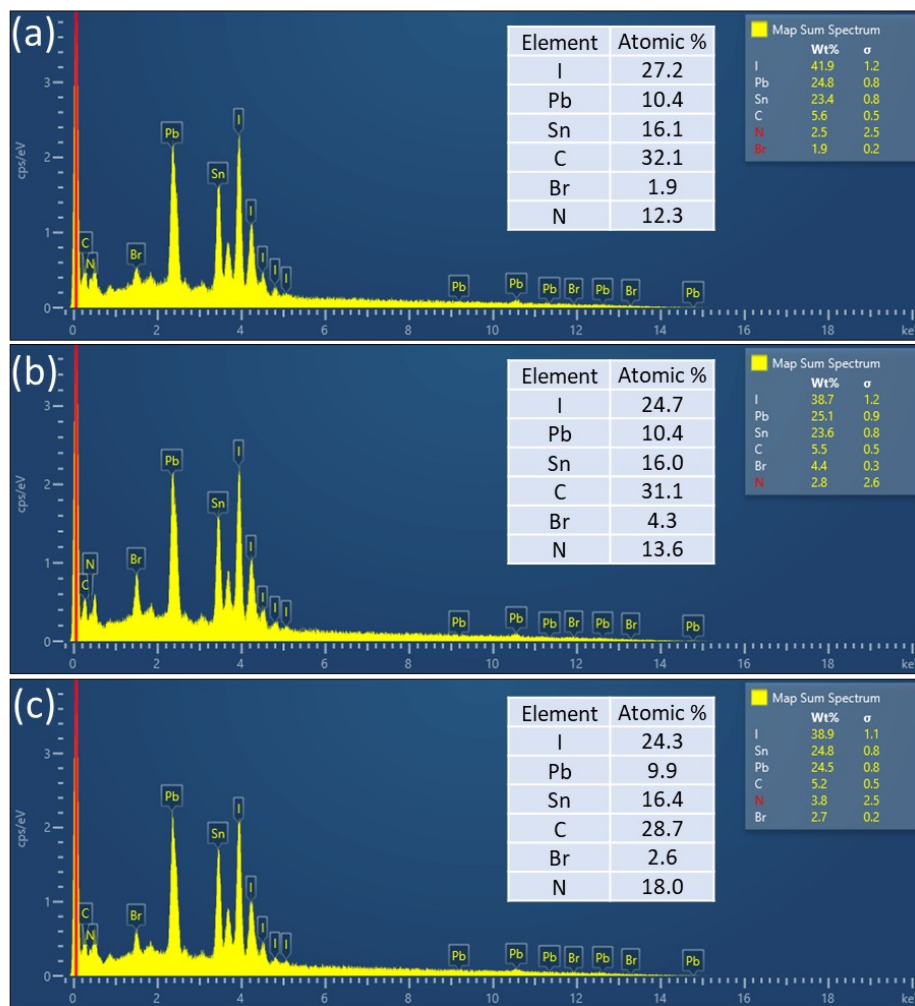


Figure S10. The EDX results of the PVSK film after IPA rinsing (a) PVSK-1 (80:20), (b) PVSK-1 (60:40), (c) PVSK-2 (75:25)