

Materials List for:

# Low Pressure Vapor-assisted Solution Process for Tunable Band Gap Pinhole-free Methylammonium Lead Halide Perovskite Films

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## Materials

Name	Company	Catalog Number	Comments
Lead (II) bromide, 99.999%	Sigma-Aldrich	398853	Acute toxicity, Carcinogenicity
Lead (II) Iodide, 99.9985%	Alfa Aesar	12724	Acute toxicity, light sensitive
N, N-Dimethylformamide, > 99.9%	Sigma-Aldrich	270547	Acute toxicity, flammable; store in well ventilated place
Isopropyl alcohol, 99.5%	BDH	BDH1133-4LP	Flamable
Methylamine ca. 40% in water	TCI	M0137	Acute toxicity, flammable; Corrosive
Hydrobromic acid 48 wt. % in H <sub>2</sub> O, ≥99.99%	Sigma-Aldrich	339245	Acute toxicity, Corrosive; air and light sensitive; store in well ventilated place
Hydroiodic acid 57 wt. % in H <sub>2</sub> O, distilled, stabilized, 99.95%	Sigma-Aldrich	210021	Corrosive; air and light sensitive; store in well ventilated place Recommended storage temperature 2/8 °C; air and light sensitiv
Ethyl Ether Anhydrous BHT Stabilized/Certified ACS	Fisher Chemicals	E 138-4	Acute toxicity, flammable
Ethanol Denatured (Reagent Alcohol), ACS	BDH	BDH1156-4LP	Flamable
Alconoxdetergent	Sigma-Aldrich	242985	Soap utilized for substrate cleaning
Milli-QIntegral 3 Water Purification System	EMD Millipore	ZRXQ003WW	Dispenser of ultrapure water
Fluorine-doped Thin Oxide (FTO) coated glass	Thin Film Devices	Custom	Glass: dimensions 13.8mm x 15.8mm ± 0.2mm, thickness 2.3mm ± 0.1mm; FTO: dimensions 3000Å ± 100Å, resistivity 7-10 ohms/sq, transmission 82% @ 550nm)
Glass substrates	C & A Scientific - Premiere	9101-E	Plain. Length: 75 mm, Width: 25 mm, Thickness: 1 mm
Ultrasonic Cleaner with Digital Timer and Heater	VWR	97043-992	2.8 L (0.7 gal.)24L x 14W x 10D cm (97/16x 51/2x 315/16")

Nuclear Magnetic Resonance Advance 500	Bruker	Z115311	
Quanta 250 FEG Scanning Electron Microscope	FEI	743202032141	Equipped with a Bruker Xflash 5030 Energy-dispersive X-ray detector
SmartLab X-ray diffractometer	Rigaku	2080B411	Using Cu K $\alpha$ radiation at 40 kV and 40 mA