

Materials List for:

Solution-Processed "Silver-Bismuth-Iodine" Ternary Thin Films for Lead-Free Photovoltaic Absorbers

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Materials

Name	Company	Catalog Number	Comments
Bismuth(III) iodide, Puratronic, 99.999% (metals basis)	Afa Aesar	7787-64-6	stored in N2-filled condition
Silver iodide, Premion, 99.999% (metals basis)	Afa Aesar	7783-96-2	stored in N2-filled condition
Butylamine 99.5%	Sigma-Aldrich	109-73-9	
Triton X-100	Sigma-Aldrich	9002-93-1	
Isopropyl alcohol (IPA)	Duksan	67-63-0	Electric High Purity GRADE
Titanium(IV) isopropoxide	Sigma-Aldrich	546-68-9	≥97.0%
Ethyl alcohol	Sigma-Aldrich	64-17-5	200 proof, ACS reagent, ≥99.5%
Hydrochloric acid	SAMCHUN	7647-01-0	Extra pure
Titanium tetrachloride (TiCl ₄)	sharechem		
50nm-sized TiO ₂ nanoparticle paste	sharechem		
2-propanol	Sigma-Aldrich	67-63-0	anhydrous, 99.5%
Terpineol	Merck	8000-41-7	
Heating oven	WiseTherm		
Oxygen (O ₂) plasma	AHTECH		
X-ray diffraction (XRD)	Rigaku		Rigaku Miniflex 600 diffractometer with a NaI scintillation counter and using monochromatized Cu-Kα radiation (1.5406 Å wavelength).
Fourier transform infrared (FTIR)	Bruker		Bruker Tensor 27
field-emission scanning electron microscope (FE-SEM)	Hitachi		Hitachi SU8230
UV-Vis spectra	PerkinElmer		PerkinElmer LAMBDA 950 Spectrophotometer
Ultraviolet photoelectron spectroscopy (UPS)	RBD Instruments		PHI5500 Multi-Technique system