

Materials List for:

The Effect of Anodization Parameters on the Aluminum Oxide Dielectric Layer of Thin-Film Transistors

Tiago C. Gomes^{*1}, Dinesh Kumar^{*2}, Neri Alves^{*1}, Jeff Kettle^{*2}, Lucas Fugikawa-Santos^{*3}

¹School of Technology and Sciences, São Paulo State University - UNESP

²Scholl of Electronic Engineering, Bangor University

³Institute of Geosciences and Exact Sciences, São Paulo State University - UNESP

*These authors contributed equally

Correspondence to: Lucas Fugikawa-Santos at lucas.fugikawa@unesp.br

URL: <https://www.jove.com/video/60798>

DOI: [doi:10.3791/60798](https://doi.org/10.3791/60798)

Materials

Name	Company	Catalog Number	Comments
Acetone	LabSynth	A1017	ACS reagent grade
Aluminum (Al) Wire Evaporation	Kurt J. Lesker Company	EVMAL40060	1.5 mm (0.060") Dia.; 1lb; 99.99%
Ammonium hydroxide solution	Sigma Aldrich	338818	ACS reagent, 28.0-30.0% NH3 basis
Chemoface - Software to set a design of experiment (DOE)	Federal University of Lavras (UFLA), Brazil		Free software developed by Federal University of Lavras (UFLA), Brazil - http://www.ufla.br/chemoface/
Cleaning detergent	Sigma Aldrich	Alconox	Alkaline detergent for substrate cleaning
Ethylene glycol	Sigma Aldrich	102466	ReagentPlus, ≥99%
Isopropanol	LabSynth	A1078	ACS reagent grade
Glass substrates	Sigma Aldrich	CLS294775X50	Corning microscope slides, plain
L-(+)-Tartaric acid	Sigma Aldrich	T109	≥99.5%
Mechanical shadow mask for deposition of the sputtered ZnO active layer	Lasertools, Brazil	custom mask	10 mm x 10 mm square.
Mechanical shadow mask for TFT gate electrode	Lasertools, Brazil	custom mask	25 mm long stripe, 3 mm wide.
Mechanical shadow mask for TFT source/drain electrodes	Lasertools, Brazil	custom mask	100 μm stripes, separated by 100 μm gap, overlapping of 5 mm
Plasma cleaner	MTI	PDC-32G	Compact plasma cleaner with vacuum pump
Sputter coating system	HHV	Auto 500	RF sputtering system with thickness and deposition rate control
Stiring plate	Sun Valley	MS300	Stiring plate with heating control
Thermal evaporator	HHV	Auto 306	it has a high precision sensor for measure the thickness and rate of deposition of thin films
Two-channel source-measuring unit	Keithley	2410	Keithley model 2410 or similar/for anodization process
Two-channel source-measuring unit	Keithley	2612B	Dual channel source-measure unit (SMU) for TFT measurements
Ultrasonic bath	Soni-tech	Soni-top 402A	Ultrasonic bath with heating control
Zinc Oxide (ZnO) Sputtering Targets	Kurt J. Lesker Company	EJTZNOX304A3	3.0" Dia. x 0.250" Thick; 99.9%