

Materials List for:

Hybrid Printing for the Fabrication of Smart Sensors

Lisa-Marie Faller¹, Johanna Zikulnig², Matic Krivec², Ali Roshanghias², Anze Abram³, Hubert Zangl¹

¹Institute for Intelligent Systems Technologies, Alpen-Adria-Universität Klagenfurt

²Carinthian Tech Research AG

³Department for Nanostructured Materials, Jozef Stefan Institute

Correspondence to: Lisa-Marie Faller at Lisa-Marie.Faller@aau.at

URL: <https://www.jove.com/video/58677>

DOI: [doi:10.3791/58677](https://doi.org/10.3791/58677)

Materials

Name	Company	Catalog Number	Comments
PiXDRO LP 50	Meyer Burger AG		Inkjet-Printer with dual-head assembly.
SM-128 Spectra S-class	Fujifilm Dimatix		Printheads with nozzle diameter of 50 µm, 50 pL calibrated dropsizes and 800 dpi maximum resolution.
DMC-11610/DMC-11601	Fujifilm Dimatix		Disposable printheads with nozzle diameter 21.5 µm, 1 or 10 pL calibrated dropsizes
Sycris I50DM-119	PV Nanocell		Conductive silver nanoparticle ink with 50 wt.% silver loading, with an average particle size of 120 nm, in triethylene glycol monomethyl ether.
Solsys EMD6200	SunChemical		Insulating, low-k dielectric ink which is a mixture of acrylate-type monomers. Viscosity is 7-9 cps.
Dycotec DM-IN-7002-I	Dycotec		UV curable insulator, Surface Tension: 37.4 mN/m
Dycotec DM-IN-7003C-I	Dycotec		UV curable insulator, Surface Tension: 29.7 mN/m
Dycotec DM-IN-7003-I	Dycotec		UV curable insulator, Surface Tension: 31.4 mN/m
Dycotec DM-IN-7004-I	Dycotec		UV curable insulator, Surface Tension: 27.9 mN/m
Pulseforge 1200	Novacentrix		Photonic curing/sintering equipment.
DektakXT	Bruker		Stylus Profiler with stylus tip of 12.5 µm diameter and constant force of 4 mg.
C4S	Cascade Microtech		Four-point-probe measurement head.
2000	Keithley		Multimeter to evaluate the measurements using the four-point-probe.
Helios NanoLab600i	FEI		Focused Ion Beam analysis station which provides high-energy gallium ion milling.
SeeSystem	Advex Instruments		Water contact angle measurement device.
Projet 3500 HDMax	3D Systems		Professional high-resolution polymer 3D-printer. See also (accessed Sep. 2018): https://www.3dsystems.com/

			sites/default/files/ projet_3500_plastic_0115_usen_web.pdf
Polytec PU 1000	Polytec PT		Electrically conductive adhesive based on Polyurethane, available
Microdispenser	Musashi		Needle for microdispensing.
Micro-assembly station	Finetech		Equipment for assembly of, e.g., printed circuit boards (PCBs) and placing of chemicals (e.g. solder) and SMD parts.