

Materials List for:

Multi-step Variable Height Photolithography for Valved Multilayer Microfluidic Devices

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Materials

Name	Company	Catalog Number	Comments
Materials			
Mylar Transparency Masks, 5"	FineLine Plotting		
5" Quartz Plates	United Silica	Custom	
4" Silicon Wafers, Test Grade	University Wafer	452	
SU8 2005, 2025, 2050 photoresist	Microchem	Y111045, Y111069, Y111072	
Az50XT	Integrated Micromaterials	AZ50XT-Q	
SU8 Developer	Microchem	Y020100	
AZ400K 1:3 Developer	Integrated Micromaterials	AZ400K1:3-CS	
Pyrex 150 mm glass dish	Sigma-Aldrich	CLS3140150-1EA	
Wafer Petri Dishes, 150 mm	VWR	25384-326	
Wafer Tweezers	Electron Microscopy Sciences (EMS)	78410-2W	
Trichloro(1H,1H,2H,2H-perfluorooctyl)silane (PFOTS)	Sigma-Aldrich	448931-10G	
2" x 3" glass slides	Thomas Scientific	6686K20	
RTV 615 elastomeric base and curing agent PDMS set	Momentive	RTV615-1P	
Tygon Tubing, 0.02" O.D.	Fischer Scientific	14-171-284	
Capillary PEEK tubing, 510 µm OD, 125 µm ID	Zeus	Custom	360 µm PEEK is readily available by Idex (catalog number: 1571)
Cyro 4 ml tube	Greiner Bio-One	127279	
Epoxy, 30 min	Permatex	84107	
Metal Pins, 0.025" OD, .013" ID	New England Small Tube	NE-1310-02	
Poly(ethylene glycol) diacrylate, Mn 700	Sigma-Aldrich	455008-100ML	
Lithium Phenyl(2,4,6-trimethylbenzoyl)phosphinate photoinitiator	Tokyo Chemical Industry Co.	L0290	We typically synthesize LAP in-house.
HEPES	Sigma-Aldrich	H4034-25G	
Light mineral oil	Sigma-Aldrich	330779-1L	
Span-80	Sigma-Aldrich	85548	
ABIL EM 90	UPI Chem	420095	

Name	Company	Catalog Number	Comments
Equipment	Equivalent equipment or homebuilt setups will work equally as well		
Mask Aligner	Karl Suss	MA6	
Profilometer	KLA-Tencor	Alpha-Step D500	
Spin Coater	Laurell Technologies	WS-650-23	Any spincoater can be used that accepts 100 mm wafers
Vacuum Dessicator, Bell-Jar Style	Bel-Art	420100000	
Oven	Cole-Palmer	WU-52120-02	
UV Spot Curing System with 3 mm LLG option	Dymax	41015	UV LEDs, Xenon Arc Lamps, or other UV sources of the same intensity work equally as well
MFCS Microfluidic Fluid Control System	Fluidgent	MFCS-EZ	Syringe pumps, custom pneumatics or other control systems can also be used
Automated control scripting	MATLAB		
Hotplate	Tory Pines Scientific	HP30	Any hotplate with uniform heating (<i>i.e.</i> , aluminum or ceramic plates) will suffice.