

Subtractive Process	Material	Mask or Selective Boundary	Reference
Wet etching in HF	Glass	Au/Cr	Zhang, J., and T. H. Gong, "Micromachining Technologies for Capillary Electrophoresis Utilizing Pyrex Glass Etching and Bonding," <i>Proceedings of the SPIE—The International Society for Optical Engineering</i> , Vol. 4174, 2000.
Wet etching in KOH	Silicon	Silicon nitride	Feng, G. -H., and E. S. Kim, "Micropump Based on PZT Unimorph and One-Way Parylene Valves," <i>Journal of Micromechanics and Microengineering</i> , Vol. 14, No. 4, 2004, pp. 429–435.
Wet etching in KOH	Porous silicon	Selectivity to nonporous Si	Steiner, P., A. Richter, and W. Lang, "Using Porous Silicon as a Sacrificial Layer," <i>Journal of Micromechanics and Microengineering</i> , Vol. 3, No. 1, 1993, pp. 32–36.
Wet etching in HF/NH ₄ F	Fused quartz	Sputtered Au/Cr	Jacobson, S. C., A. W. Moore, and J. M. Ramsey, "Fused Quartz Substrates for Microchip Electrophoresis," <i>Analytical Chemistry</i> , Vol. 67, No. 13, 1995, pp. 2059–2063.
Wet etching in HF	Glass	Au/Cr/Au/Cr multilayer	Bu, M., et al., "A New Masking Technology for Deep Glass Etching and Its Microfluidic Application," <i>Sensors and Actuators, A: Physical</i> , Vol. 115, No. 2-3, 2004, pp. 476–482.
Wet etching in TMAH	Silicon	TEOS	Ko, H. S., C. W. Liu, and C. Gau, "Novel Fabrication of a Pressure Sensor with Polymer Material and Evaluation of Its Performance," <i>Journal of Micromechanics and Microengineering</i> , Vol. 17, No. 8, 2007, pp. 1640–1648.
Wet etching in EDP	Silicon	Crystallographic boundaries	Parviz, B. A., and K. Najafi, "A Geometric Etch-Stop Technology for Bulk Micromachining," <i>Journal of Micromechanics and Microengineering</i> , Vol. 11, No. 3, 2001, pp. 277–282.
Wet etching in iron chloride	Copper	Photoresist	Nguyen, N. -T., and X. Huang, "Miniature Valveless Pumps Based on Printed Circuit Board Technique," <i>Sensors and Actuators, A: Physical</i> , Vol. 88, No. 2, 2001, pp. 104–111.
Electrochemical machining	Copper, stain-less steel	Photoresist	Datta, M., "Fabrication of an Array of Precision Nozzles by Through-Mask Electrochemical Micromachining," <i>Journal of the Electrochemical Society</i> , Vol. 142, No. 11, 1995, pp. 3801–3805.
Plasma etching in CF ₄ /Ar or CF ₄ /O ₂	Glass	Evaporated Ni	Zeze, D. A., et al., "Reactive Ion Etching of Quartz and Pyrex for Microelectronic Applications," <i>Journal of Applied Physics</i> , Vol. 92, No. 7, 2002, pp. 3624–3629.
Plasma etching in C ₄ F ₈ or CHF ₃	Glass	Bonded silicon wafer	Akashi, T., and Y. Yoshimura, "Deep Reactive Ion Etching of Borosilicate Glass Using an Anodically Bonded Silicon Wafer as an Etching Mask," <i>Journal of Micromechanics and Microengineering</i> , Vol. 16, No. 5, 2006, pp. 1051–1056.
Plasma etching in SF ₆ /O ₂ or CF ₄ /O ₂	PDMS/PMHS	Sputtered Al	Szmigiel, D., et al., "Deep Etching of Biocompatible Silicone Rubber," <i>Microelectronic Engineering</i> , Vol. 83, No. 4-9, 2006, pp. 1178–1181.
Plasma etching in SF ₆ /O ₂	PDMS	SU-8	Plecis, A., and Y. Chen, "Improved Glass-PDMS-Glass Device Technology for Accurate Measurements of Electro-Osmotic Mobilities," <i>Microelectronic Engineering</i> , Vol. 85, No. 5-6, 2008, pp. 1334–1336.
Plasma etching in CF ₄ /O ₂	PDMS	Evaporated Al	Garra, J., et al., "Dry Etching of Polydimethylsiloxane for Microfluidic Systems," <i>Journal of Vacuum Science and Technology A</i> , Vol. 20, No. 3, 2002, pp. 975–982.
Plasma etching in CF ₄ /Ar, CHF ₃ /Ar	Quartz	SU-8	Chen, H., and C. Fu, "An Investigation into the Characteristics of Deep Reactive Ion Etching of Quartz Using SU-8 as a Mask," <i>Journal of Micromechanics and Microengineering</i> , Vol. 18, No. 10, 2008, p. 105001.
Plasma etching in O ₂	Polyimide	PECVD silicon nitride	Agarwal, N., et al., "Optimized Oxygen Plasma Etching of Polyimide Films for Low Loss Optical Waveguides," <i>Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films</i> , Vol. 20, 2002, No. 5, pp. 1587–1591.
Plasma etching in O ₂	Parylene	Photoresist	Meng, E., and Y. -C. Tai, <i>Parylene Etching Techniques for Microfluidics and BioMEMS</i> , Miami Beach, FL: Institute of Electrical and Electronics Engineers Inc., 2005.
Plasma etching in SF ₆ /Ar	Glass	Electroplated nickel	Park, J. H., et al., "Deep Dry Etching of Borosilicate Glass Using SF ₆ and SF ₆ /Ar Inductively Coupled Plasmas," <i>Microelectronic Engineering</i> , Vol. 82, No. 2, 2005, pp. 119–128.
Plasma etching	Polyimide	Copper	Rossier, J. S., et al., "Plasma Etched Polymer Microelectrochemical Systems," <i>Lab on a Chip</i> , Vol. 2, No. 3, 2002, pp. 145–150.
Plasma etching in micro-wave CF ₄ /O ₂	PDMS	Nickel	Sung, J. H., et al., "Dry Etching of Polydimethylsiloxane Using Microwave Plasma," <i>Journal of Micromechanics and Microengineering</i> , Vol. 19, No. 9, 2009, p. 095010.
Plasma etching in SF ₆	Glass	Electroplated nickel	Li, X., T. Abe, and M. Esashi, "Deep Reactive Ion Etching of Pyrex Glass Using SF ₆ Plasma," <i>Sensors and Actuators, A: Physical</i> , Vol. 87, No. 3, 2001, pp. 139–145.
Plasma etching	Glass	Amorphous silicon	Kutchoukov, V. G., et al., "Fabrication of Nanofluidic Devices Using Glass-to-Glass Anodic Bonding," <i>Sensors and Actuators, A: Physical</i> , Vol. 114, No. 2-3, 2004, pp. 521–527.
Deep reactive ion etching	Silicon	Thermally grown silicon dioxide	Olsson, A., et al., "Micromachined Flat-Walled Valveless Diffuser Pumps," <i>Journal of Microelectromechanical Systems</i> , Vol. 6, No. 2, 1997, pp. 161–166.
Vapor-phase etching in XeF ₂	Silicon dioxide	SiO ₂ , Si ₃ N ₄ , SiC	Winters, H. F., and J. W. Coburn, "The Etching of Silicon with XeF ₂ Vapor," <i>Applied Physics Letters</i> , Vol. 34, No. 1, 1979, pp. 70–73.
Laser ablation	Polyimide	(direct-write)	Yin, H., et al., "Microfluidic Chip for Peptide Analysis with an Integrated HPLC Column, Sample Enrichment Column, and Nanoelectrospray Tip," <i>Analytical Chemistry</i> , Vol. 77, No. 2, 2005, pp. 527–533.
Laser ablation (CO ₂)	PMMA	(direct-write)	Snakenborg, D., H. Klank, and J. P. Kutter, "Microstructure Fabrication with a CO ₂ Laser System," <i>Journal of Micromechanics and Microengineering</i> , Vol. 14, No. 2, 2004, pp. 182–189.
Laser ablation (excimer)	Polycarbonate	(direct-write)	Schluter, M., et al., "A Modular Structured, Planar Micro Pump with No Moving Part (NMP) Valve for Fluid Handling in Microanalysis Systems," <i>2nd Annual International IEEE-EMBS Special Topic Conference on Microtechnologies in Medicine and Biology</i> , 2002.
Laser ablation	PDMS	(direct-write)	Liu, H. -B., and H. -Q. Gong, "Templateless Prototyping of Polydimethylsiloxane Microfluidic Structures Using a Pulsed CO ₂ Laser," <i>Journal of Micromechanics and Microengineering</i> , Vol. 19, No. 3, 2009, p. 037002.
Laser ablation (femtosecond)	PMMA, polyimide, glass	(direct-write)	Gomez, D., et al., "Femtosecond Laser Ablation for Microfluidics," <i>Optical Engineering</i> , Vol. 44, No. 5, 2005, p. 51105-1.
Proton beam writing	PMMA	(direct-write)	Mahabadi, K. A., et al., "Fabrication of PMMA Micro- and Nanofluidic Channels by Proton Beam Writing: Electrokinetic and Morphological Characterization," <i>Journal of Micromechanics and Microengineering</i> , Vol. 16, No. 7, 2006, pp. 1170–1180.
Abrasive jet milling	Glass	Metal	Belloy, E., et al., "The Introduction of Powder Blasting for Sensor and Microsystem Applications," <i>Sensors and Actuators A: Physical</i> , Vol. 84, No. 3, 2000, pp. 330–337.
Abrasive jet of Al ₂ O ₃	Glass	PDMS	Sayah, A., et al., "Fabrication of Microfluidic Mixers with Varying Topography in Glass Using the Powder-Blasting Process," <i>Journal of Micromechanics and Microengineering</i> , Vol. 19, No. 8, 2009, p. 085024.
Abrasive jet of SiC	Stainless steel	PDMS	Lomas, T., et al., "A Precision Hot Embossing Mold Fabricated by High-Resolution Powder Blasting with Polydimethylsiloxane and SU-8 Masking Technology," <i>Journal of Micromechanics and Microengineering</i> , Vol. 19, No. 3, 2009, p. 035002.
Chemical-mechanical polishing	Polycarbonate, PMMA	(not applicable)	Zhong, Z. W., Z. F. Wang, and B. M. P. Zirajutheen, "Chemical Mechanical Polishing of Polycarbonate and Poly Methyl Methacrylate Substrates," <i>Microelectronic Engineering</i> , Vol. 81, No. 1, 2005, pp. 117–124.
Razor cutting	Various polymer films	(direct-write)	Bartholomeusz, D. A., R. W. Boutte, and J. D. Andrade, "Xurography: Rapid Prototyping of Microstructures Using a Cutting Plotter," <i>Journal of Microelectromechanical Systems</i> , Vol. 14, No. 6, 2005, pp. 1364–1374.