Materials List for:

Fabrication of Silica Ultra High Quality Factor Microresonators

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URL: http://www.jove.com/video/4164/

Materials

Name	Company	Catalog Number	Comments
Fiber scribe	Newport	F-RFS	Optional
Optical fiber	Newport	F-SMF-28	Any type of optical fiber can be used.
Fiber coating stripper	Newport	F-STR-175	Wire strippers can also be used
Ethanol	Any vendor	Solvent-level purity	Methanol or Isopropanol are substitutes
Table 1. Microsphere Fabrication Materials.			
Silicon wafers with 2μm thermally grown silica	WRS Materials	n/a	We use intrinsic[8], <100>, 4" diameter
HMDS (Hexamethyldisilazane)	Aldrich	440191	
Photoresist	Shipley	S1813	
Developer	Shipley	MF-321	
Buffered HF - Improved	Transene	n/a	The improved buffered HF gives a smoother, better quality etch than plain BOE or HF
Acetone, Methanol, Isopropanol	Any vendor	99.8% purity	
Table 2. Microtoroid Fabrication Materials.			
Spinner	Solitec	5110-ND	Any spinner can be used.
Aligner	Suss Microtec	MJB 3	Any aligner can be used.
XeF_2 etcher	Advanced Communication Devices, Inc.	#ADCETCH2007	

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Table 3. Microtoroid Fabrication Equipment.			
CO_2 Laser	Synrad	Series 48	
3-Axis stage	OptoSigma	120-0770	Available from other vendors as well.
Si Reflector 1" diameter)	II-VI	308325	Available from other vendors as well.
Kinematic gimbal mount (for Si reflector)	Thor Labs	KX1G	Available from other vendors as well.
Beam combiner (1" diameter)	Meller Optics	L19100008-B0	Available from other vendors as well.
4" Focal length Lens (1" diameter)	Meller Optics or II-VI		Available from other vendors as well
Assorted posts, lens mounts	Thor Labs, Newport, Edmund Optics or Optosigma		
Zoom 6000 machine vision system	Navitar	n/a	Requires generic USB camera and computer for real-time imaging. This is purchased as a kit.
Focuser for Zoom 6000 system	Edmund Optics	54-792	Available from other vendors as well.
X-Z Axis Positioners for Zoom 6000	Parker Daedal	CR4457, CR4452, 4499	CR4457 is X-axis, CR4452 is Z-axis, 4499 is mounting bracket.

Table 4. CO_2 Laser Reflow Set-up.

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