SUPPLEMENTARY DATA

1. Swell ratio of PDMS in 51 different organic solvents

Table S1. Screening of solvents for their swelling capability for PDMS and solubility of PS

Solvents		PDMS Swell Ratio	PS Solubility
#	Name		
1	water	1.00 *	
2	glycerol	1.00 *	
3	ethylene glycol	1.00 *	
4	perfluorotributylamine	1.00 *	
5	perfluorodecalin	1.00 *	
6	gamma-butyrolactone	1.00	+
7	dimethyl sulfoxide	1.00 *	
8	delta-valerolactone	1.00	+
9	gamma-valerolactone	1.00	+
10	nitromethane	1.00 *	
11	tetramethylene sulfone	1.00 *	
12	acetonitrile	1.01 *	
13	propylene carbonate	1.01 *	
14	trifluoroethanol	1.01 *	
15	delta-caprolactone	1.01	+
16	dimethylformamide	1.02 *	+
17	methanol	1.02 *	
18	1,1,3,3-tetramethylurea	1.02 *	+
19	1-methyl-2-pyrrolidone	1.03 *	+
20	dimethyl carbonate	1.03 *	+
21	1-methoxy-2-propanol	1.03	
22	ethanol	1.04 *	
23	1-butanol	1.05	
24	acetone	1.06 *	
25	pyridine	1.06 *	
26	propylene glycol monomethyl ether acetate	1.07	
27	cyclopentanone	1.08	
28	isopropanol	1.09 *	
29	4-methyl-2-pentanone	1.16	
30	1,4-dioxane	1.16*	
31	ethyl acetate	1.18*	
32	2-heptanone	1.20	
33	2-butanone	1.21	
34	tert-butyl alcohol	1.21 *	
35	methylenechloride	1.22 *	
36	butyl acetate	1.22	
37	chlorobenzene	1.22 *	
38	benzene	1.28	
39	toluene	1.31 *	
40	dimethoxyethane	1.32 *	
41	cyclohexane	1.33 *	
42	heptane	1.34 *	
43	trichloroethylene	1.34 *	
44	hexane	1.35 *	
45	diethyl ether	1.38 *	
46	tetrahydrofuran	1.38 *	
47	chloroform	1.39 *	
48	xylene	1.41 *	
49	pentane	1.44 *	
50	triethylamine	1.58 *	
51	diisopropylamine	2.13 *	

** denotes the swell ratio data obtained from reference 26.*

2. Apparent deformation of PDMS mold by solvent

To show that swelling of the PDMS mold will lead to its distortion and is unsuitable for replication, 2 mL PS solution (25 wt% in toluene) was added to a PDMS sheet (75 mm × 50 mm × 0.5 mm). Within 5 min, the PDMS sheet curled due to the swelling caused by the toluene (Fig. S1A). In contrast, when 2 mL of PS solution (25 wt% in GBL) was added to a PDMS sheet (75 mm × 50 mm × 0.5 mm), the PDMS sheet did not show distortion even after 2 h at room temperature (Fig. S1B).

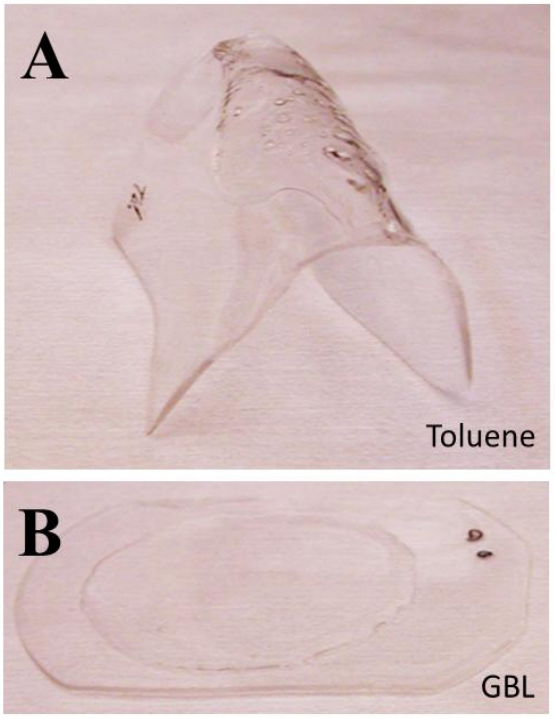

Fig. S1. Swelling test of PDMS by solvents. (A) A PDMS slab exposed to polystyrene dissolved in toluene. (B) A PDMS slab exposed to polystyrene in GBL. In both "A" and "B", 2 mL of polystyrene solution (25 wt% in solvent) was placed on the PDMS surface. The toluene solution swelled and distorted the PDMS slab within 5 min, while the GBL solution showed no swelling or distortion of the PDMS slab after 2 h.

3. Baking temperature for PS solution in GBL

Various temperatures (100°C, 150°C and 200°C) were tested for baking the PS solution (25% in GBL). The remaining weight of PS solution (expressed as relative weight) *vs.* baking time is shown in Fig. S2. The optimal temperature was 150°C with a bake time of 16 h. Very little (~0.6%) GBL was left in PS under these baking conditions. If required, a higher temperature (200°C) can be used to completely evaporate GBL.

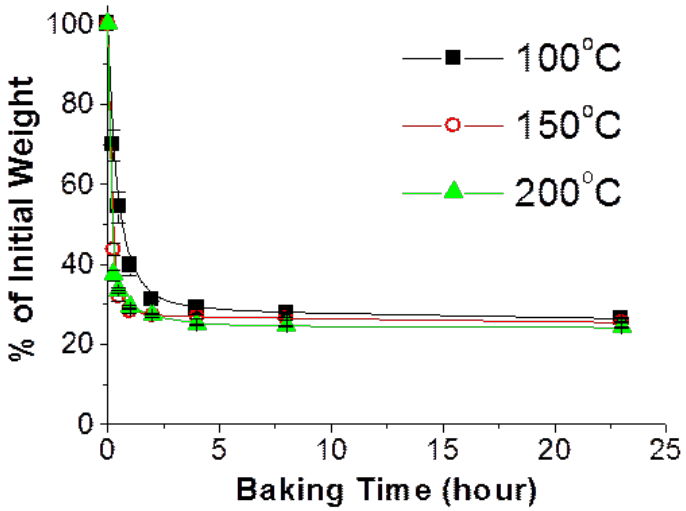

Fig. S2. Weight change (expressed as % of initial weight) vs. baking time for PS solution (25% in GBL).