Supporting Information for

Nitric Oxide-Releasing Silica Nanoparticle-Doped Polyurethane Electrospun Fibers

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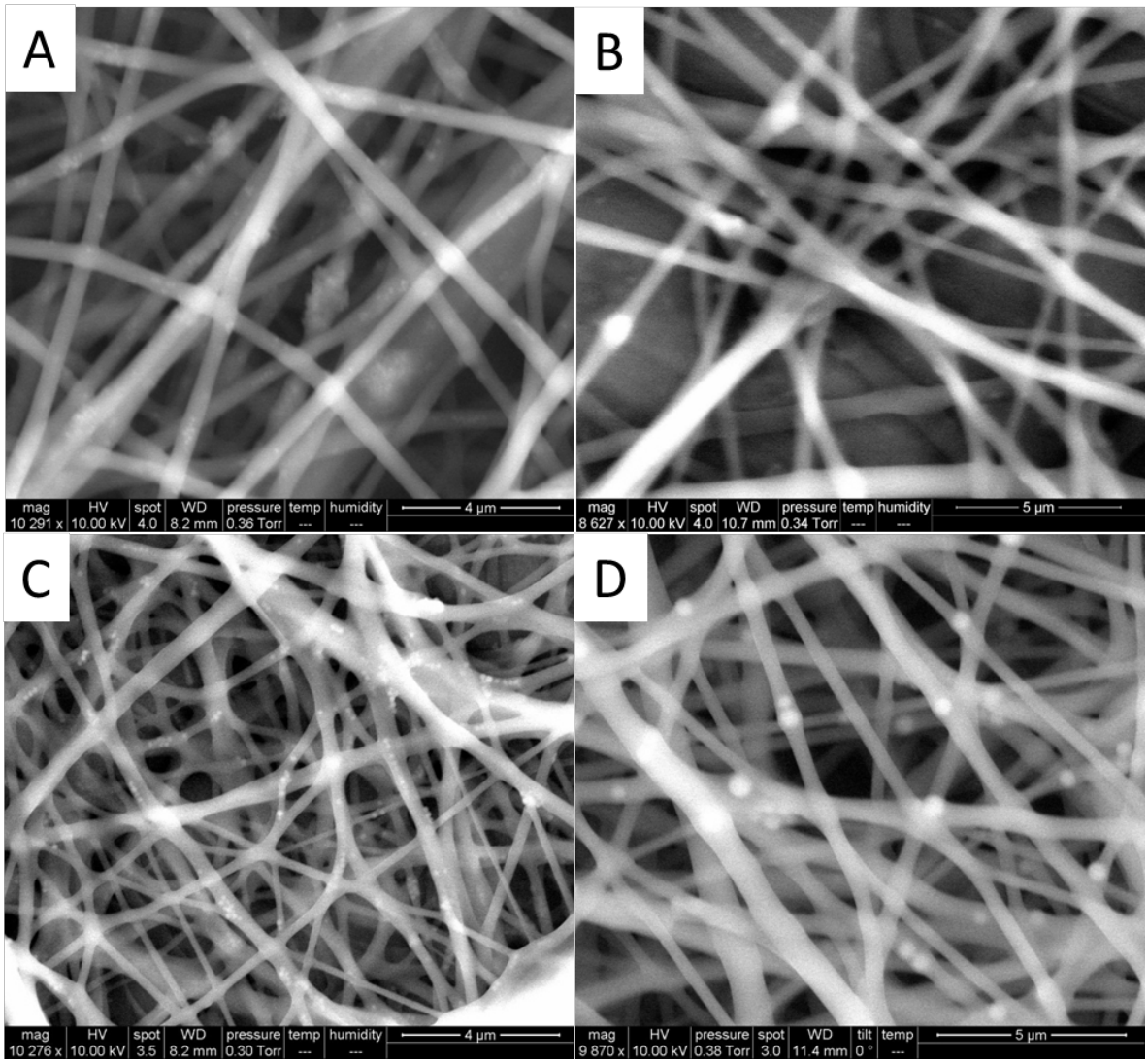
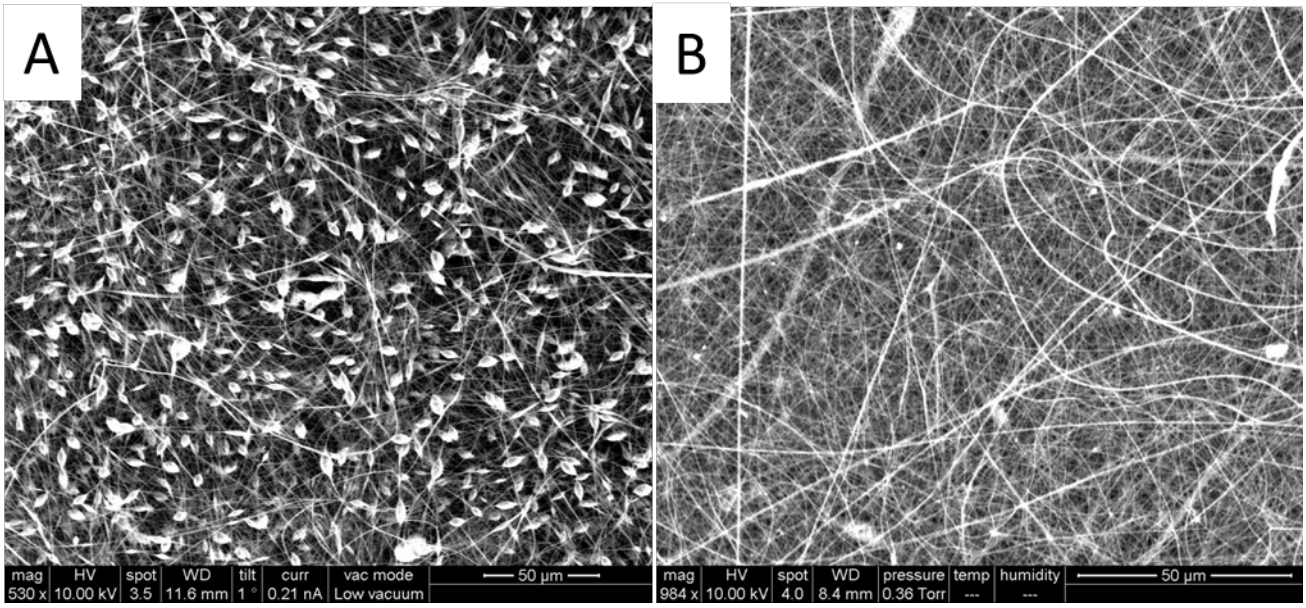
SI Table 1. Characterization of nitric oxide-releasing silica particles.

Type of NO donor	*Particle composition*	*mol%*[a]	*Particle size*[b] (nm)	$[NO]_{max}$[c] (ppm mg^{-1})	t_{max}[d] (min)	*Total [NO]*[e] (μmol mg^{-1})	t_d[f] (h)
N-diazeniumdiolate	AHAP3/TEOS	65	56 ± 7	23.2 ± 19.9	0.9 ± 0.2	1.5 ± 0.3	15.2 ± 2.1
	AHAP3/TEOS	65	93 ± 14	25.7 ± 2.9	0.6 ± 0.1	1.3 ± 0.2	13.0 ± 3.8
	AEAP3/TMOS	70	152 ± 2	1.9 ± 0.4	0.9 ± 0.1	0.4 ± 0.2	9.6 ± 2.2
S-nitrosothiol	MPTMS/TEOS	75	416 ± 23	1.9 ± 0.4	3.3 ± 0.1	3.2 ± 0.6	> 48

[a] Balance TEOS or TMOS backbone silane; [b] Particle size determined by electron microscope representing non-hydrated diameter of particle; [c] Maximum instantaneous concentration of NO released as measured with NOA; [d] Time required to reach $[NO]_{max}$; [e] Total number of moles of NO released per mg of particle as measured by the Griess assay; [f] Duration of NO release.



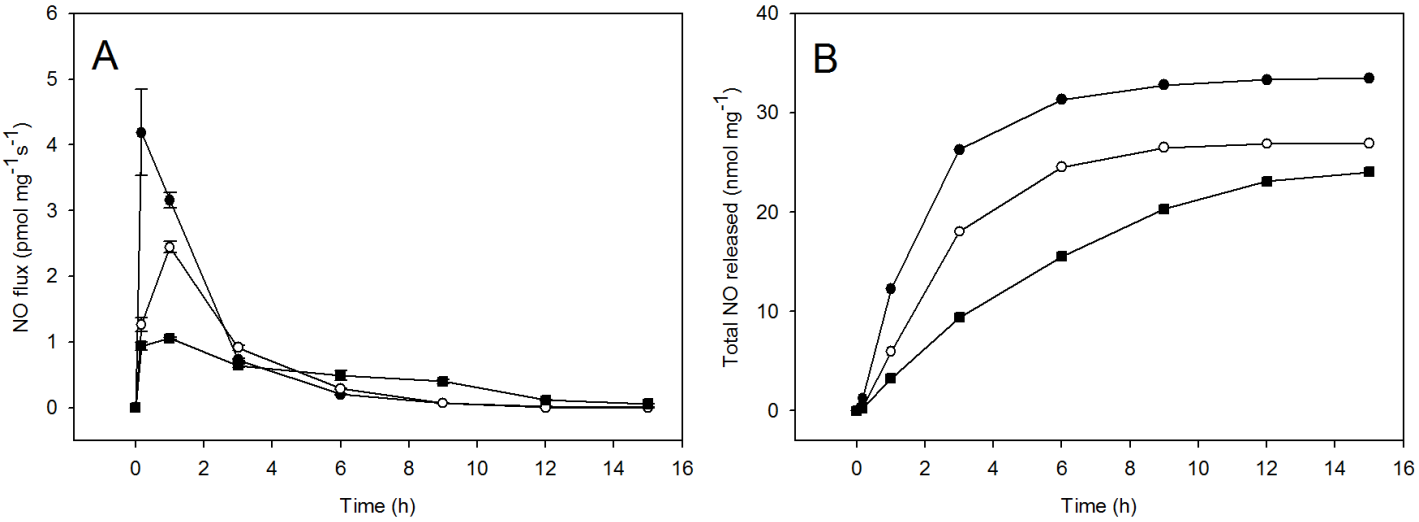
SI Figure 1. Environmental scanning electron microscopy images of 12% (w/v) Tecoflex electrospun fibers doped with 5 wt% of *N*-diazeniumdiolated (A) AHAP3/TEOS (~50 nm), (B) AHAP3/TEOS (~100 nm), and (C) AEAP3/TMOS and (D) *S*-nitrosothiol functionalized MPTMS/TEOS silica nanoparticles.



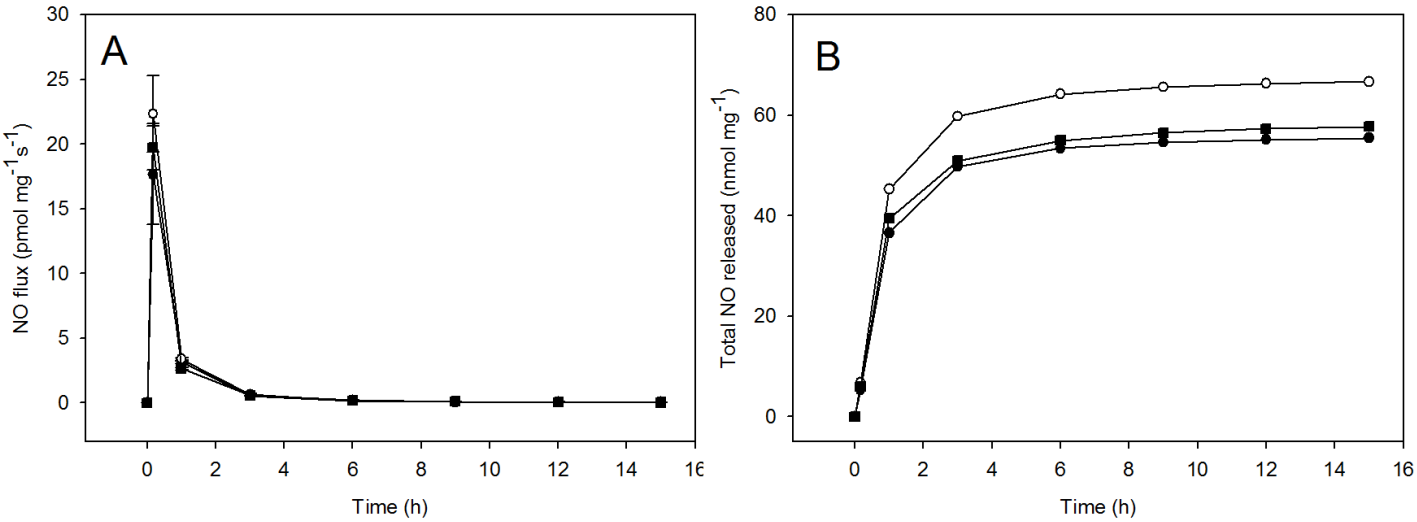
SI Figure 2. Environmental scanning electron microscopy images of 12% (w/v) Tecoplast electrospun fiber mat (A) without and (B) with 5 wt% of *N*-diazeniumdiolated AEAP3/TMOS particles.

SI Table 2. Silica particle leaching from NO-releasing silica particle-doped polyurethane electrospun fiber mats as a function of type of polyurethane and dopant after 7 d soaking in PBS at 37 ^{o}C.

NO-releasing silica nanoparticles (5 wt% of polyurethane mass)	*Polyurethane (12% (w/v) polyurethane)*	*Silica particle leaching (%)*
AHAP3/TEOS (~ 50 nm)	Tecophilic	105.8 ± 12.9
	Tecoflex	105.2 ± 10.3
	Tecoplast	97.2 ±9.7
AHAP3/TEOS (~ 100 nm)	Tecophilic	79.7 ± 5.5
	Tecoflex	84.6 ± 1.1
	Tecoplast	58.9 ± 0.3
AEAP3/TMOS (~ 200 nm)	Tecophilic	66.8 ± 14.3
	Tecoflex	39.3 ± 3.2
	Tecoplast	35.9 ± 9.2
MPTMS/TEOS (~ 400 nm)	Tecophilic	2.1 ± 0.1
	Tecoflex	0.8 ± 0.1
	Tecoplast	0.7 ± 0.1



SI Figure 3. (A) Nitric oxide flux and (B) NO totals from 5 wt% AHAP3/TEOS (~50 nm) particle-doped electrospun polyurethane fiber mats with 12% (w/v) of (●) Tecophilic, (○) Tecoflex, and (■) Tecoplast polyurethane.

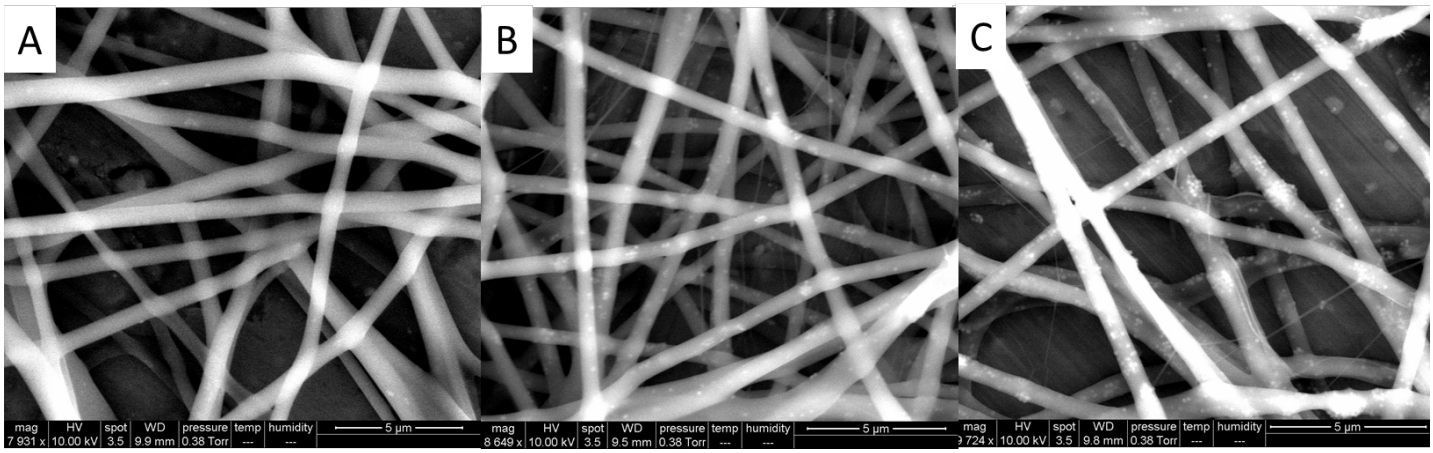


SI Figure 4. (A) Nitric oxide flux and (B) NO totals from 5 wt% AHAP3/TEOS (~100 nm) particle-doped electrospun polyurethane fiber mats with 12% (w/v) (●) Tecophilic, (○) Tecoflex, and (■) Tecoplast polyurethane.

SI Table 3. Nitric oxide release characteristics of 5 wt% *N*-diazeniumdiolated AEAP3/TMOS silica particle-doped Tecoplast electrospun fiber mats as a function of polyurethane solution concentration.

Concentration of polyurethane (% (w/v))	*Fiber diameter (nm)*	*$[NO]_{max}$[a] (pmol mg^{-1} s^{-1})*	*t_{max}[b] (min)*	*Total NO released[c] (nmol mg^{-1})*	*t_d[d] (h)*
12	156 ± 30	1.3 ± 0.3	3.1 ± 2.7	7.5 ± 2.8	14.3 ± 1.6
16	248 ± 107	1.3 ± 0.6	1.7 ± 0.8	6.1 ± 0.2	14.4 ± 1.5
20	388 ± 59	1.4 ± 0.2	7.2 ± 4.9	7.9 ± 0.2	13.7 ± 0.9

[a] Maximum instantaneous concentration of NO released as measured with NOA; [b] Time required to reach $[NO]_{max}$; [c] Total number of moles of NO released per mg of particle-doped fiber mat as measured by the Griess assay; [d] Duration of NO release.



SI Figure 5. Environmental scanning electron microscopy images of AEAP3/TMOS particle-doped 12% (w/v) Tecophilic electrospun fiber mats as a function of dopant concentration, (A) 1, (B) 5, and (C) 10 wt%. Scale bar indicates 5 µm.