

Supporting Information for:
**Multi-responsive polymer nanoparticle from the amphiphilic
poly (dimethylsilane) (PDMS)-containing poly (ether amine)
(PDMS-gPEA) and its potential application in the smart
separation**

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The successful synthesis of PDMS-gPEA was confirmed by FTIR, ^1H NMR and GPC. As shown in the FTIR spectra in Figure S1, the peaks at 3400 and 1020 cm^{-1} are attributed to hydroxyl stretch and Si-O stretch for PDMS-gPEA respectively.

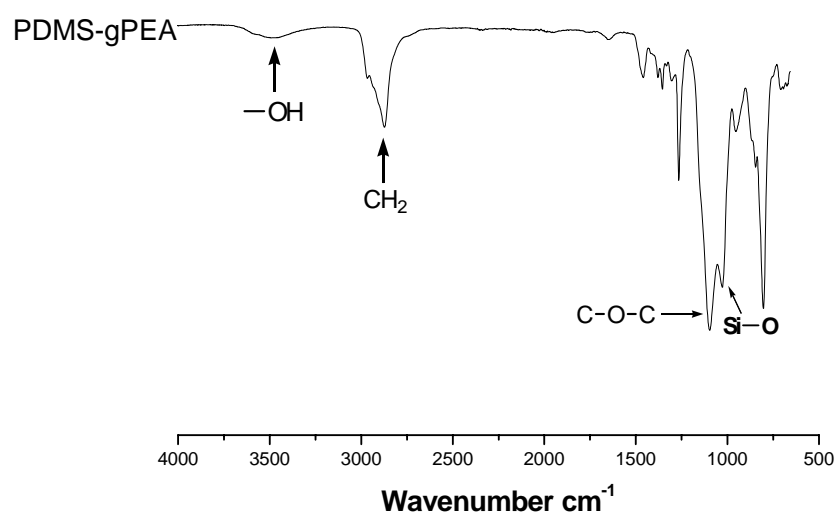


Figure S1. FTIR of PDMS-gPEA

The ^1H NMR spectra of PDMS-gPEA in CDCl_3 (Figure 2) exhibits signals at $\delta=0.14$ and 1.3 ppm, which are assigned to protons of $-\text{CH}_3$ of PDMS and protons of $-\text{CH}_3$ of PPO, respectively. The existence of the two peaks further confirmed the successful synthesis of PDMS-gPEA.

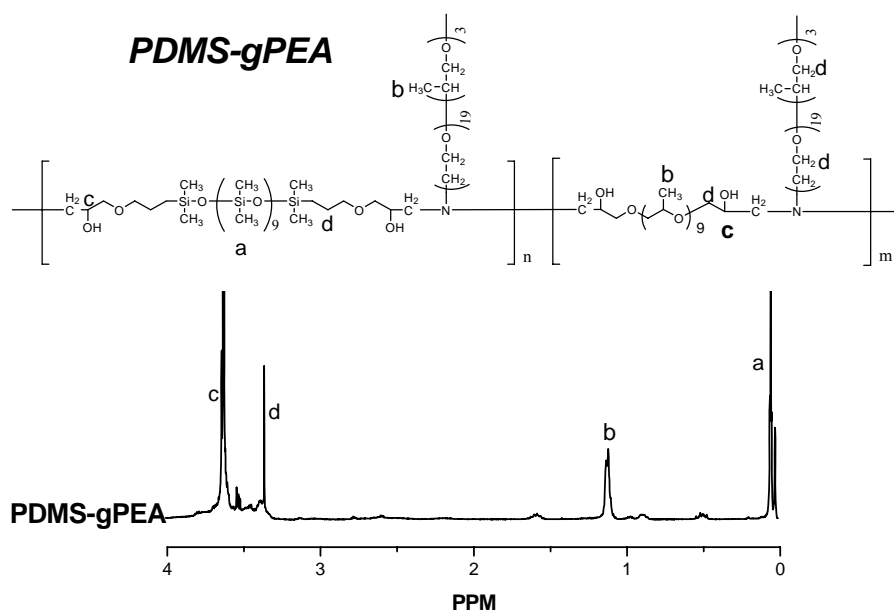


Figure S2. ^1H NMR of PDMS-gPEA in CDCl_3

Table S1. Properties of PDMS-gPEA

	Molar Ratio			M_w^a	M_n^a	M_w/M_n^a
	L100	PDMS-DE	PPO-DE			
PDMS-gPEA	2	1	1	1.1×10^4	7.3×10^3	1.55

a. measured by GPC

b. pH=7.0

The detailed data of GPC are summarized in Table S1.

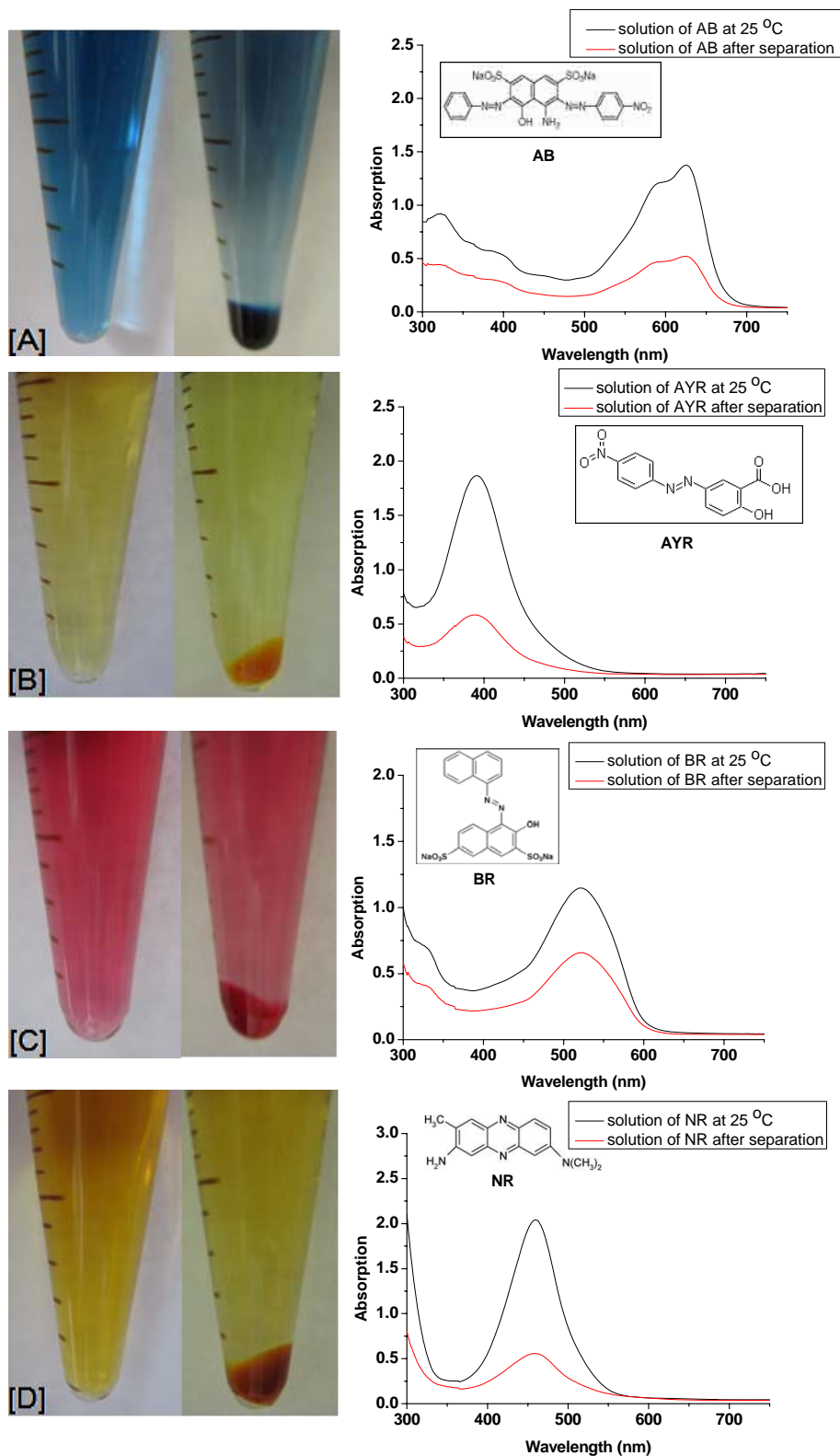


Figure S3. Separation of dyes using PDMS-gPEA. Left: photo graphs of dyes' solution before and after separation; right: UV-vis spectra of four water soluble dye solutions before and after separation.

([A] Amido black 10B , [B] Alizarin yellow R , [C] R Bordeaux red , [D] Neutral red)