Supporting Information for Analytical Methods

A visible-light-responsive molecularly imprinted polyurethane for specific detection of dibenzothiophene in gasoline

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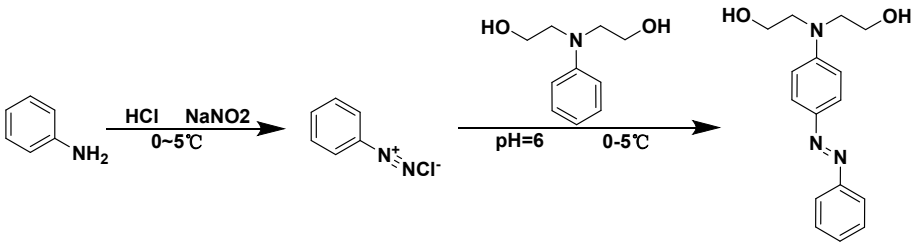
S1. Synthesis of HPB



Scheme S1. Synthetic route for HPB.

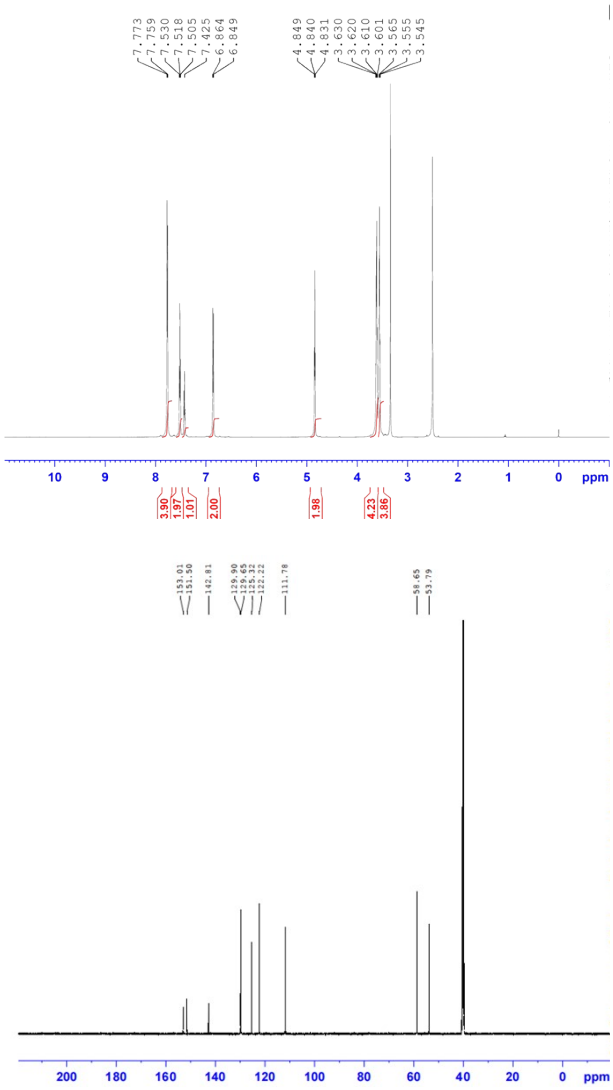


Fig. S1. ^{1}H NMR (top) and ^{13}C NMR (bottom) spectra of HPB.

S2. FT-IR spectra

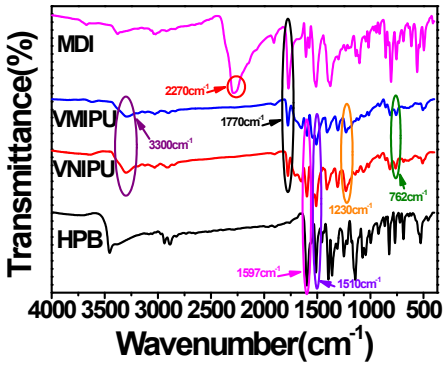


Fig. S2. FT-IR spectra of MDI, VMIPU, VNIPU and HPB.

S3. Gas chromatography analysis

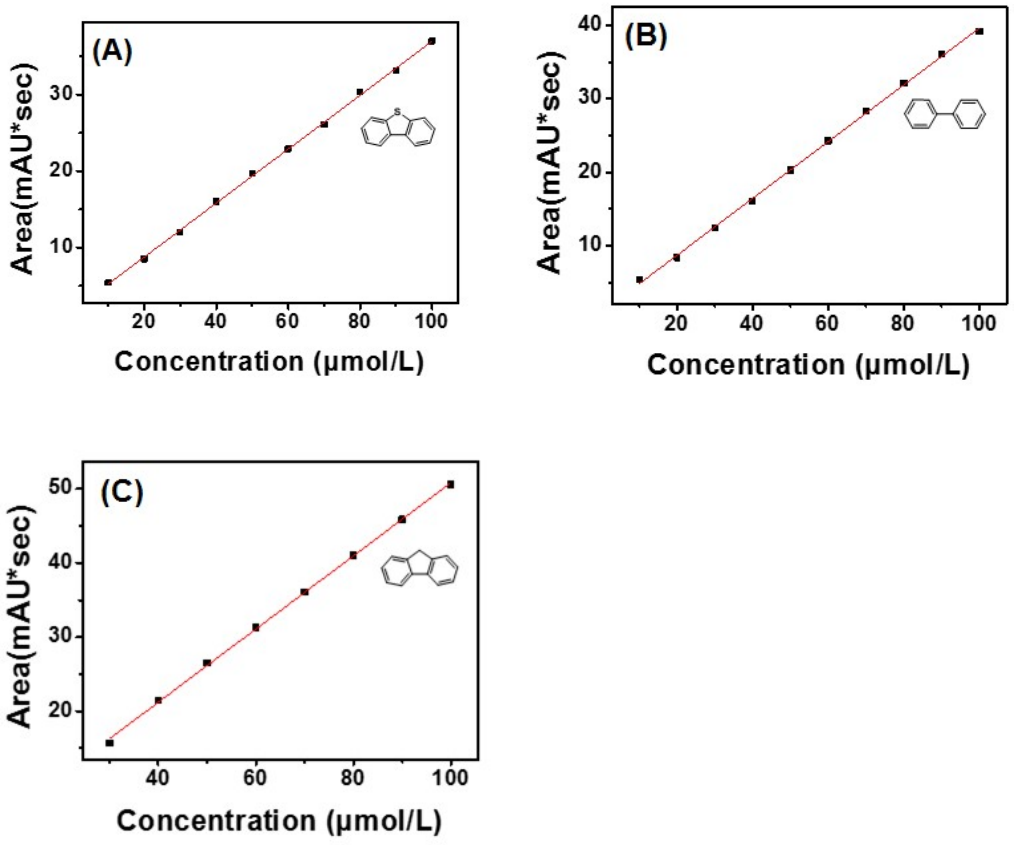


Fig. S3. Variation of the peak area of DBT (A), biphenyl (b) and fluorine (c) with concentration in DMSO. The peak area was measured by an Agilent 6890A gas chromatogram.

S4. Reversibility of photoisomerization for HPB

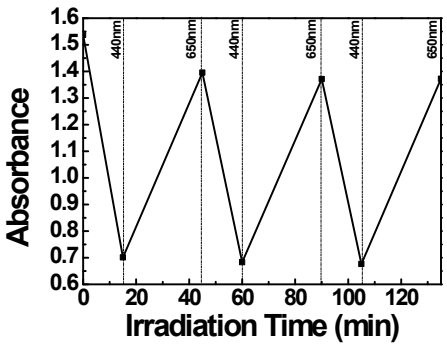


Fig. S4. Reversibility of the photoisomerization processes of azobenzene chromophores in the HPB in DMSO upon alternate irradiation at 440 and 650 nm.

S5. Selective adsorption of DBT, biphenyl and fluorene by VMIPU and VNIPU

Table S1 The selectivity parameters of VMIPU and VNIPU.

Materials	Adsorbents	K_D (L g^{-1})		k	k′
		$K_{D(DBT)}$	$K_{D(Analogue)}$		
DBT/Biphenyl	VMIPU	0.1629	0.0280	5.8179	5.5968
	VNIPU	0.0368	0.0354	1.0395	
DBT/Fluorene	VMIPU	0.1519	0.0164	9.2622	4.7729
	VNIPU	0.0392	0.0202	1.9406	

K_D, distribution coefficient; $K_D = \{(C_0 - C_e)/C_e\} \times (V/W)$, where C_0 is the initial concentration, C_e is the final concentration solution, V is the volume of the solution, and W is the mass of the adsorbent; k, selectivity coefficient, $k = K_{D(template)}/K_{D(analogue)}$; k′, relative selectivity coefficient, $k' = k_{imprinted}/k_{nonimprinted}$.[1]

References

[1] D.M. Han, G.Z. Fang, X.P. Yan. Preparation and evaluation of a molecularly imprinted sol‐gel material for on-line solid-phase extraction coupled with high performance liquid chromatography for the determination of trace pentachlorophenol in water samples. *J. Chromatogr. A* 1100 (2005) 131‐136.