

## Supplemental Information

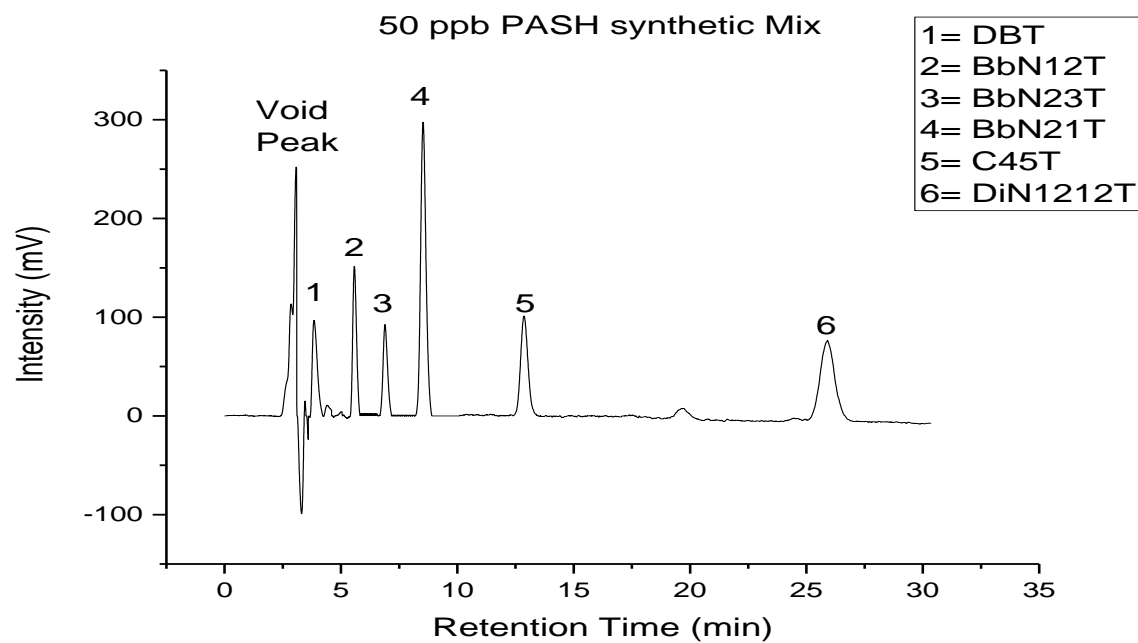


Figure S1: HPLC-FL Chromatogram of the PASH. All PASH concentration is 50 ng/mL.

Table S1: Summary of Fluorescence wavelengths used for HPLC Detection

PASH	Excitation/ Emission Wavelength (nm)	Time Range (min)
DBT	286/342	0-4.7
BbN12T	264/352	4.8-6.4
BbN23T	274/376	6.5-8.0
BbN21T	277/366	8.1-10.0
C45T	359/385	10.1-16.1
DiN1212T	275/381	16.1-25.0

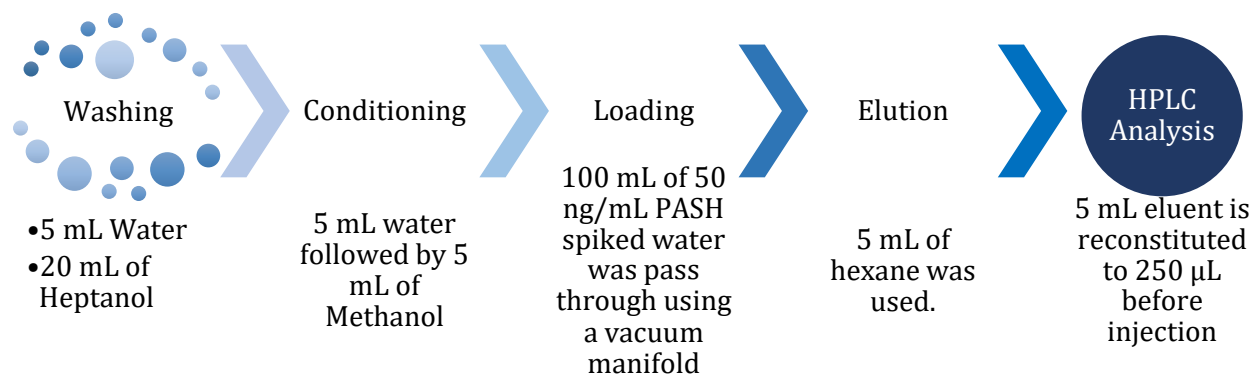


Figure S2: Summary of SPE method used in this study. The flow rate used was 1-2 mL/min.

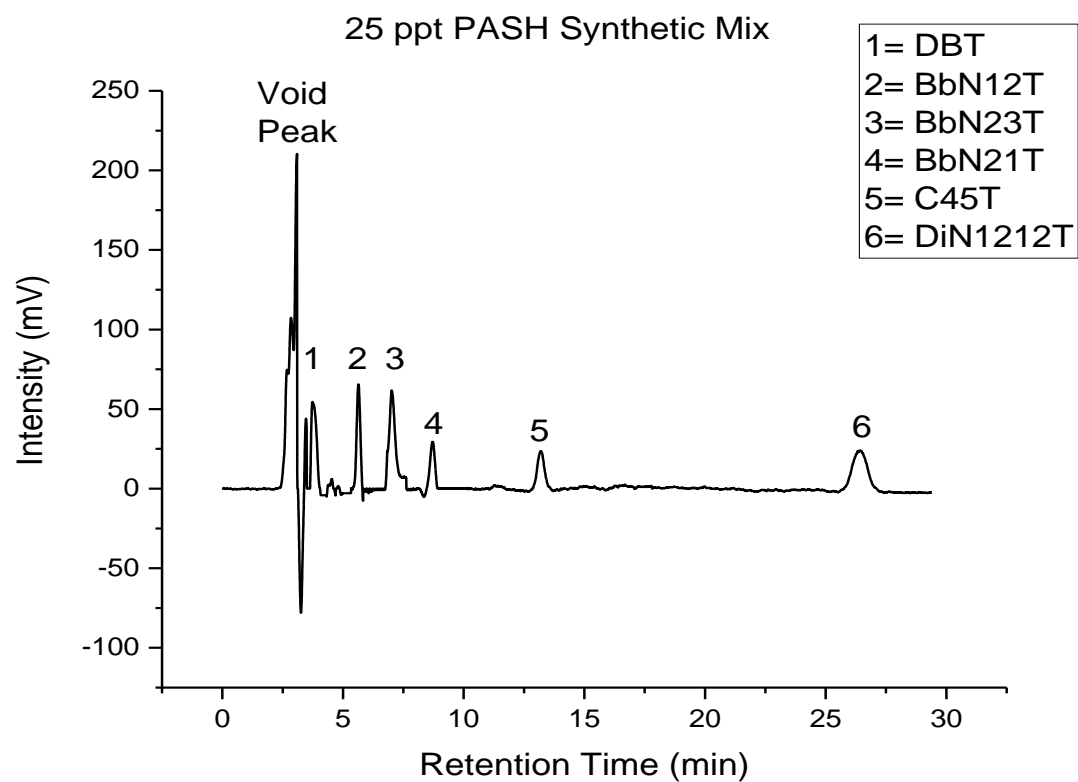


Figure S3: HPLC-FL Chromatogram following SPE extraction procedure, where the concentration of all PASH were 25 pg/mL prior to extraction.

Table S2: Values used for the calculation of the maximum sorption uptake with corresponding standard deviations.

Nylon Type	PASH	Time (hr)	C <sub>T</sub> (ng/L)	S <sub>CT</sub>	C <sub>aq</sub> (ng/L)	S <sub>Caq</sub>	C <sub>T</sub> -C <sub>aq</sub> (ng/L)	S <sub>(CT-Caq)</sub>	q <sub>p</sub> (ng/g)	S <sub>qp</sub>
Nylon 11	BbN12T	2.5	81.99	2.91	40.11	2.19	41.88	3.64	27.82	2.43
	BbN23T	4.0	99.51	5.69	48.05	4.75	51.46	7.40	31.41	4.61
	BbN21T	2.5	64.64	4.11	33.94	3.62	30.70	5.48	20.20	3.64
Nylon 6,12	BbN12T	0.5	79.80	2.84	39.40	2.19	40.40	3.59	38.11	3.52
	BbN23T	1.5	88.11	4.81	46.38	4.79	41.73	6.97	46.19	7.72
	BbN21T	0.5	56.51	3.63	34.72	3.75	21.79	5.22	26.61	5.12

Equations used for error Propagation used in this study:

**Equation S1:** Error of measurement from the calibration curve (for both  $c_t$  and  $c_{aq}$ )

$$s_c = \frac{S_{y/x}}{b} \sqrt{\frac{1}{m} + \frac{1}{n} + \frac{(y_o - \bar{y})^2}{b^2 \sum_i (x_i - \bar{x})^2}}$$

**Equation S2:** Linear propagation ( $q_t - q_{aq}$ )

$$s_{(c_t - c_{aq})} = \sqrt{s_{c_t}^2 + s_{c_{aq}}^2}$$

**Equation S3:** Scaling the standard deviation

$$S_{q_p} = \frac{(s_{(c_t - c_{aq})}) \times 100 L}{m_p}$$

#### Legend

$s_c$ = The standard deviation of the concentration

$S_{y/x}$ = standard deviation of the residual

$b$ = slope

$m$ = number of measurements

$n$ = number of calibration curve points

$y_o - \bar{y}$  = error of the average intensity

$x_i - \bar{x}$ = error from the centroid point of the calibration curve

$s_{(c_t - c_{aq})}$ = standard deviation of the difference between the total concentration and the aqueous concentration

$s_{c_t}^2$ = standard deviation of the total concentration squared

$s_{c_{aq}}^2$ =standard deviation of the aqueous concentration squared

$S_{q_p}$  = standard deviation of the mass on the pellet per gram of pellet

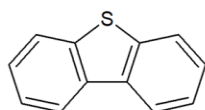
$m_p$ = mass of pellets

Table S3: Maximum Sorption Uptake Masses and Statistical Comparison.

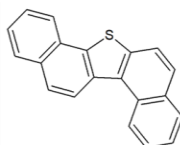
<b>PASH</b>	<b>Nylon 11 (ng/g)</b>	<b>Nylon 6,12 (ng/g)</b>	<b>Statistically Equivalent<sup>1</sup></b>
BbN12T	27.82 ± 2.43	38.11 ± 3.52	No (T <sub>exp</sub> = 4.17)
BbN23T	31.41 ± 4.61	46.19 ± 7.72	No (T <sub>exp</sub> = 2.85)
BbN21T	20.20 ± 3.64	26.61 ± 5.12	Yes (T <sub>exp</sub> = 1.70)

1. T crit= 2.276 (P = 95%; N = 3)

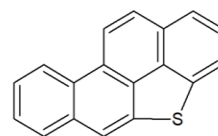




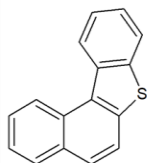
Dibenzothiophene  
(DBT)



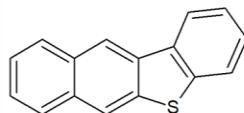
Dinaphtho[1,2-b:1',2'-d]thiophene  
(DiN1212T)



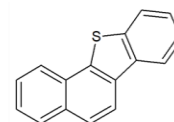
Chryseno[4,5-bcd]thiophene  
(C45T)



Benzo(b)naphtho[1,2-b]thiophene  
(BbN12T)

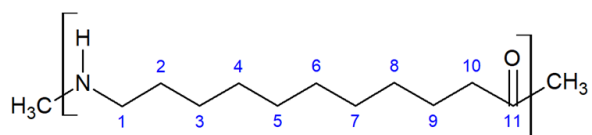


Benzo(b)naphtho[2,3-b]thiophene  
(BbN23T)

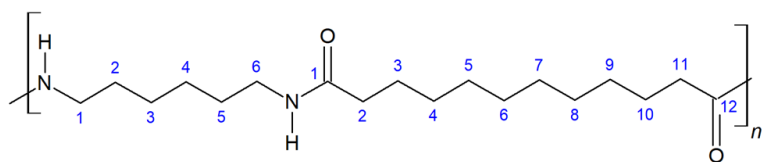


Benzo(b)naphtho[2,1-b]thiophene  
(BbN21T)

Figure S4: Structures of PASH used in this study



Nylon 11



Nylon 6,12

Figure S5: Structures of Nylon 11 and Nylon 6,12 used in this study.

Table S4: Physicochemical Properties for Nylon 11 and Nylon 6,12

Physicochemical Properties	Nylon 11	Nylon 6,12
Particle Size	3 mm <sup>1</sup>	2 mm <sup>2</sup>
Density (at 25 °C)	1.026 g/mL <sup>1</sup>	1.300 g/mL <sup>2</sup>
Melting Temperature	198 °C <sup>1</sup>	218 °C <sup>2</sup>
Glass Transition Temperature	46 °C <sup>2</sup>	46 °C <sup>2</sup>
Length of Monomer	12.24 Å <sup>3</sup>	8.83 Å <sup>3,4</sup> / 13.31 Å <sup>3,5</sup>

1. Reference 22

2. Reference 23

3. Reference 24

4. Represents the length between the diamines section.

5. Represents the length between the dicarboxylic section.

Table S5: Dimensions of 10 Randomly Selected Nylon Pellets

Nylon Type	Length (mm)	Diameter (mm)	Width (mm)	Mass (g)
Nylon 11	$4.4 \pm 0.48$	$2.7 \pm 0.46$	$3.8 \pm 0.40$	$0.027 \pm 0.002$
Nylon 6,12	$2.8 \pm 0.40$	$2.0 \pm 0.00$	$3.2 \pm 0.40$	$0.016 \pm 0.001$