

SUPPORTING INFORMATION

Asphaltene and Maltene Adsorption into Graphene

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Table S1. Molecular weight determined by size exclusion chromatography of the asphaltenes and asphaltene fractions used in this study.

	Molecular Weight (Da)
Asphaltene A (n-pentane extracted)	647
Asphaltene B	831
Asphaltene D	721
Asphaltene E	930
Asphaltene F	544
Asphaltene Fraction I	793
Asphaltene Fraction II	783
Asphaltene Fraction III	737

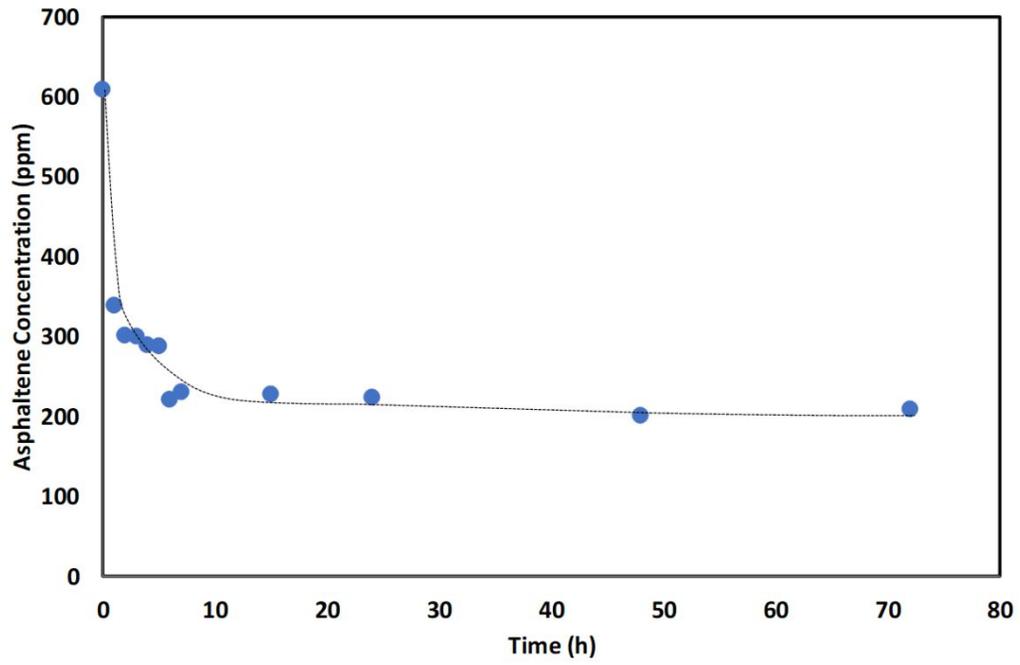


Figure S1. Asphaltene A concentration in solution as a function of time. Initial concentration:
3000 ppm.

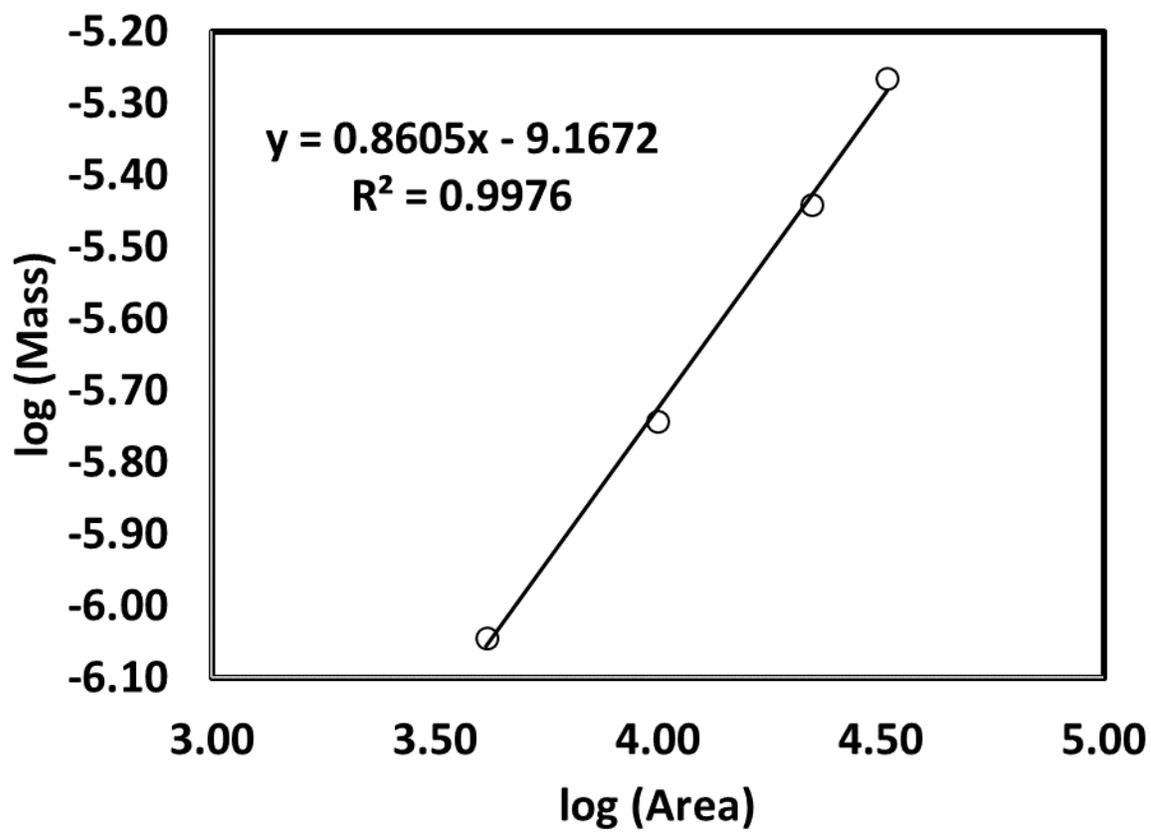


Figure S2. Calibration for Maltenes B obtained using HPLC-ELSD.

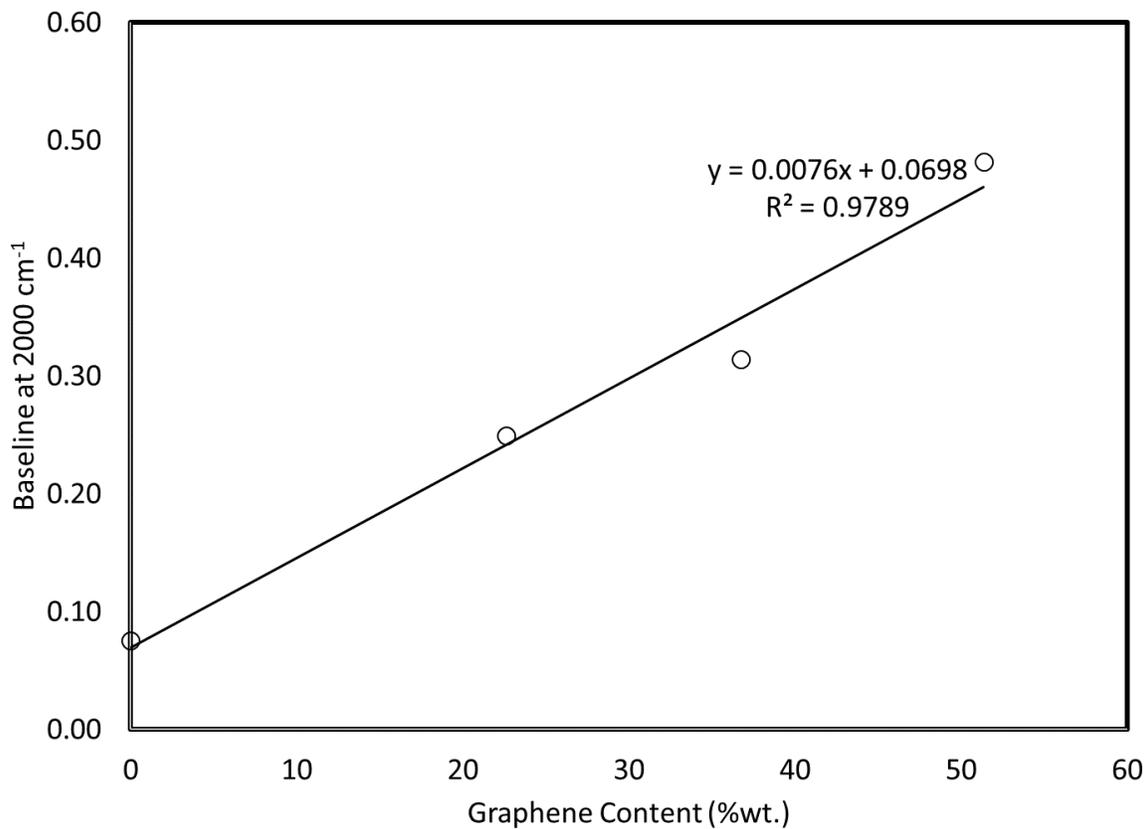


Figure S3. Calibration for Blends of Graphene/Asphaltene A using Fourier Transform Infrared Spectroscopy. Height of baseline at 2000 cm⁻¹ as a function of graphene content

Table S2. Aranovich-Donohue equation fitting parameters for adsorbents.

Adsorbate	K_1	K_2	K_3	α
Maltene B	0.405	4.22E-03	1.52E-04	0.37
Maltene C	2.150	9.83E-04	5.05E-05	0.90
Asphaltene A	0.409	1.25E-01		
Asphaltene B	0.573	1.42E-02	3.25E-04	0.29
Asphaltene D	0.630	2.47E-02		
Asphaltene E	0.695	1.59E-02	1.77E-04	0.89
Asphaltene F	0.387	6.77E-02		
Maltene I	0.850	3.20E-03	9.00E-05	0.34
Asphaltene Fraction I	0.400	6.00E-02	8.98E-05	0.70
Asphaltene Fraction II	0.461	2.36E-02		
Asphaltene Fraction III	0.475	1.43E-02		

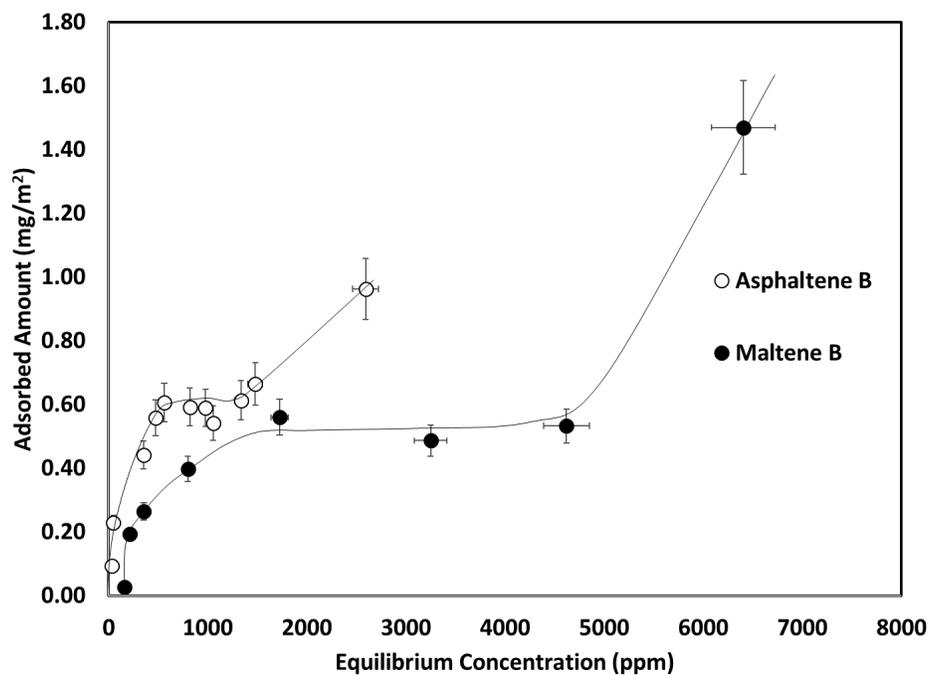


Figure S4. Adsorption isotherms of Maltene B and asphaltene B into graphene. Solid lines were drawn to help with visualization.