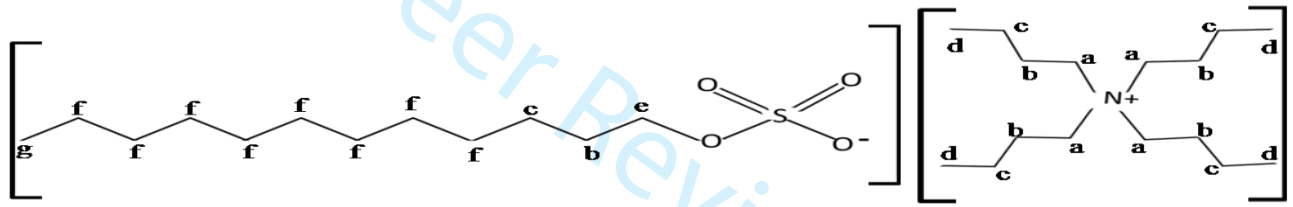
Supporting Information

Temperature Dependent Micellization Behavior of As Synthesized Anionic SAILs in Aqueous Non-Ionic Polymer Solutions: Conductivity, UV-Visible Probe and Antimicrobial Studies

Table S1. ^{1}H NMR spectrum of TPADS with chemical shift values of various protons.



Position	Proton	Chemical Shift (δ), ppm
H_a	$-CH_2-N$	3.07-3.1 (m,8H)
H_b	$-CH_2$	1.48-1.54 (m,10H)
H_c	$-CH_2$	1.22-1.29 (m,10H)
H_d	$-CH_3$	0.81-0.84 (m,12H)
H_e	-CH2-O	3.79-3.81 (br,2H)

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H_f	$-CH_2$	1.14-1.16 (m,16H)
H_g	$-CH_3$	0.73-0.77 (t,3H)

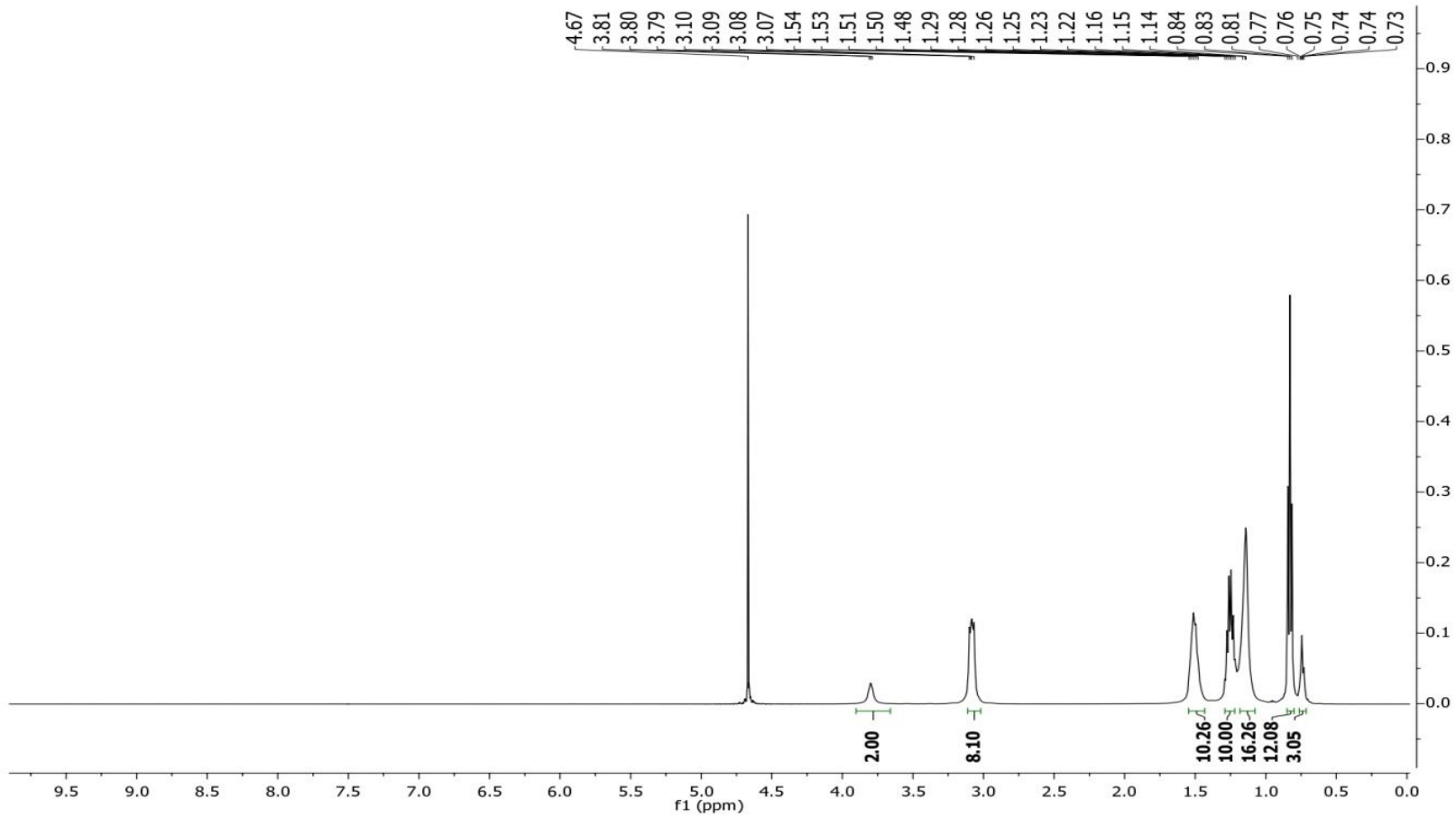
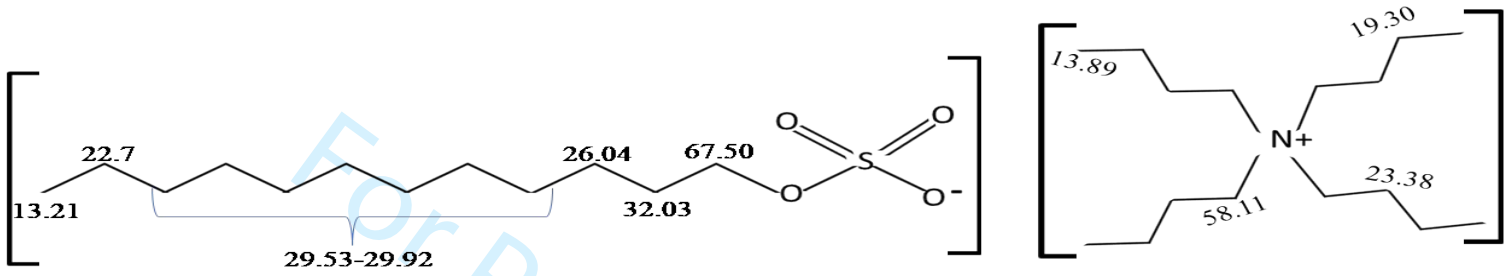


Table S2. ^{13}C NMR spectrum of TPADS with chemical shift values of different carbon atoms.



δ(in ppm) = 13.21(1C), 13.89(4C), 19.30(4C), 22.7(1C), 23.38(4C), 26.04(1C), 29.53-29.92(7C), 32.03(1C), 58.11(4C), 67.50(1C).

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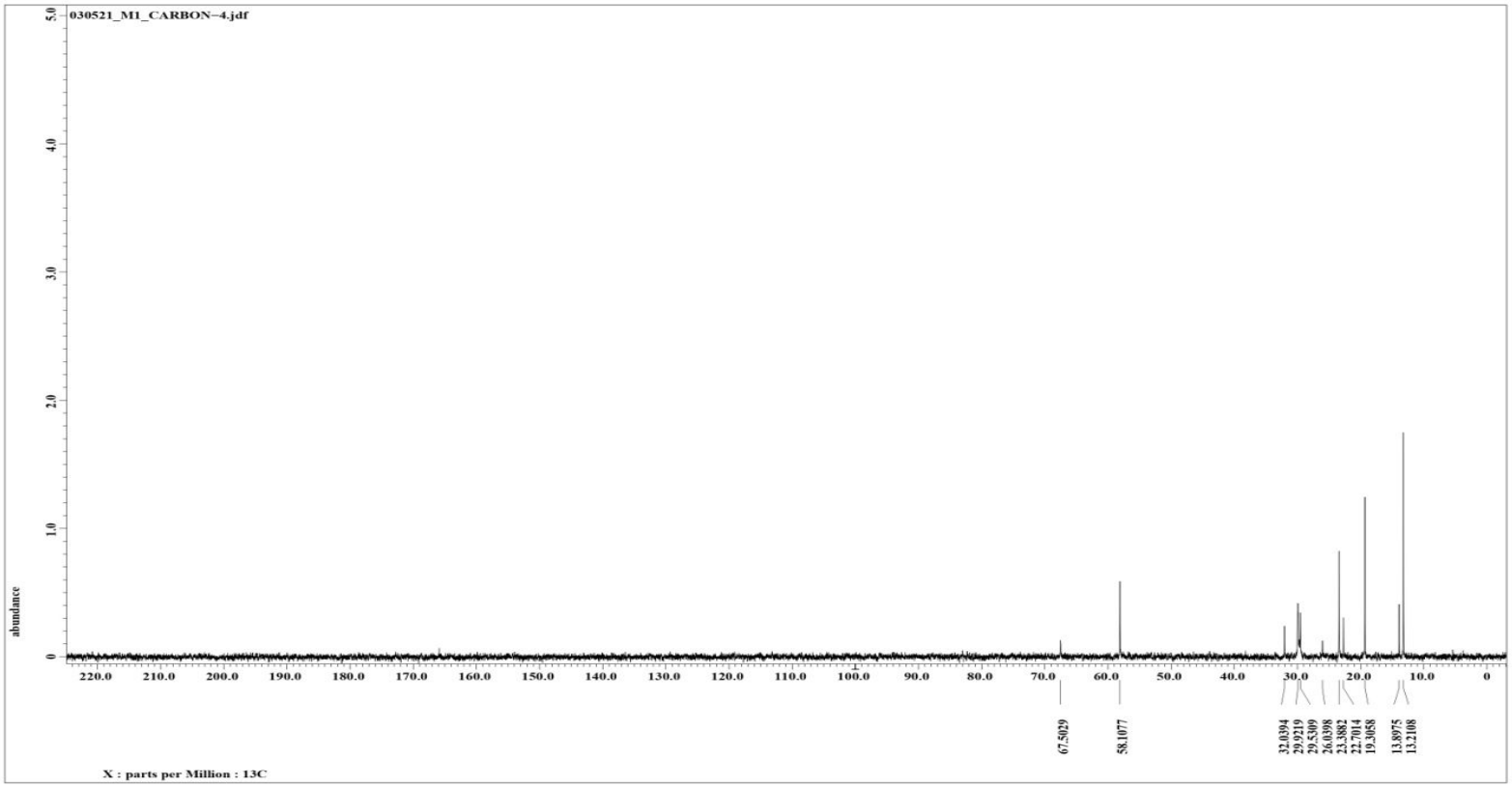

Table S3. Critical micelle concentration (CMC) values of TPADS and TBADS in aqueous solution by using Conductivity and UV-Visible Probe measurements.

Temperature (K)	Conductivity measurements		UV-Visible Probe Study	
	CMC values in mmol·kg^{-1}			
	TPADS	TBADS	TPADS	TBADS
293.15	2.26	1.13 1.13[22]	-	-
298.15	2.18 2.20[46]	1.08 1.08[22]	2.179	1.080 1.090[22]
303.15	2.20	1.10 1.10[22]	-	-
308.15	2.21	1.11 1.11[22]	-	-
313.15	2.24	1.14 1.14[22]	-	-

Standard uncertainties, U, are U(T) = $\pm$ 0.1 K, U(CMC) = $\pm$ 0.1 mmol·kg^{-1}

Table S4. Compensation temperature, T_C and ΔH_m^* for TPADS and TBADS in (a) 0.0 (b) 0.1 (c) 0.2 (d) 0.3% w/w PVP and PEG aqueous solutions.

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[Polymer]	TPADS				TBADS			
	PVP		PEG		PVP		PEG	
(% w/w)	ΔH_m^* (kJ.mol^{-1})	T_C (K)	ΔH_m^* (kJ.mol^{-1})	T_C (K)	ΔH_m^* (kJ.mol^{-1})	T_C (K)	ΔH_m^* (kJ.mol^{-1})	T_C (K)
0.0	-36.89	306.93	-36.89	306.93	-37.49	306.46	-37.49	306.46
0.1	-40.62	305.02	-40.25	308.79	-43.17	312.10	-42.69	315.32
0.2	-41.84	306.76	-40.59	306.66	-43.62	313.57	-43.25	313.75
0.3	-42.84	307.71	-42.17	307.38	-44.95	310.48	-43.42	311.21

Standard uncertainties, U, are U(T_C) = $\pm$ 0.1 K, U(ΔH_m^*) = $\pm$ 0.04 kJ·mol^{-1} .

Table S5. Zone of inhibition values (in mm) for TPADS and TBADS in 0.2% w/w PVP aqueous solution.

Bacterial Strain	TPADS in water (using stock solution of 8.8×10^{-3}M)				+ve control (10µL Chloramphenicol)
	20 µL	30 µL	40 µL	50 µL	
B.cereus	7	8	9	10	20
S.aureus	8	9	9	10	19
P.aeruginosa	7	8	8	10	19
TBADS in water (using stock solution of 6.6×10^{-3}M)					

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B.cereus	8	11	12	12	21
S.aureus	10	11	12	12	22
P.aeruginosa	7	8	9	10	21
TPADS in PVP (using stock solution of 8.8×10^{-3}M)					
B.cereus	8	9	10	10	22
S.aureus	9	10	11	11	22
P.aeruginosa	7	8	9	10	22
TBADS in PVP(using stock solution of 6.6×10^{-3}M)					
B.cereus	11	13	14	15	22
S.aureus	11	12	13	14	23
P.aeruginosa	10	11	12	13	22

Standard uncertainties, U, are U(Zone of Inhibition) = $\pm$ 1 mm.

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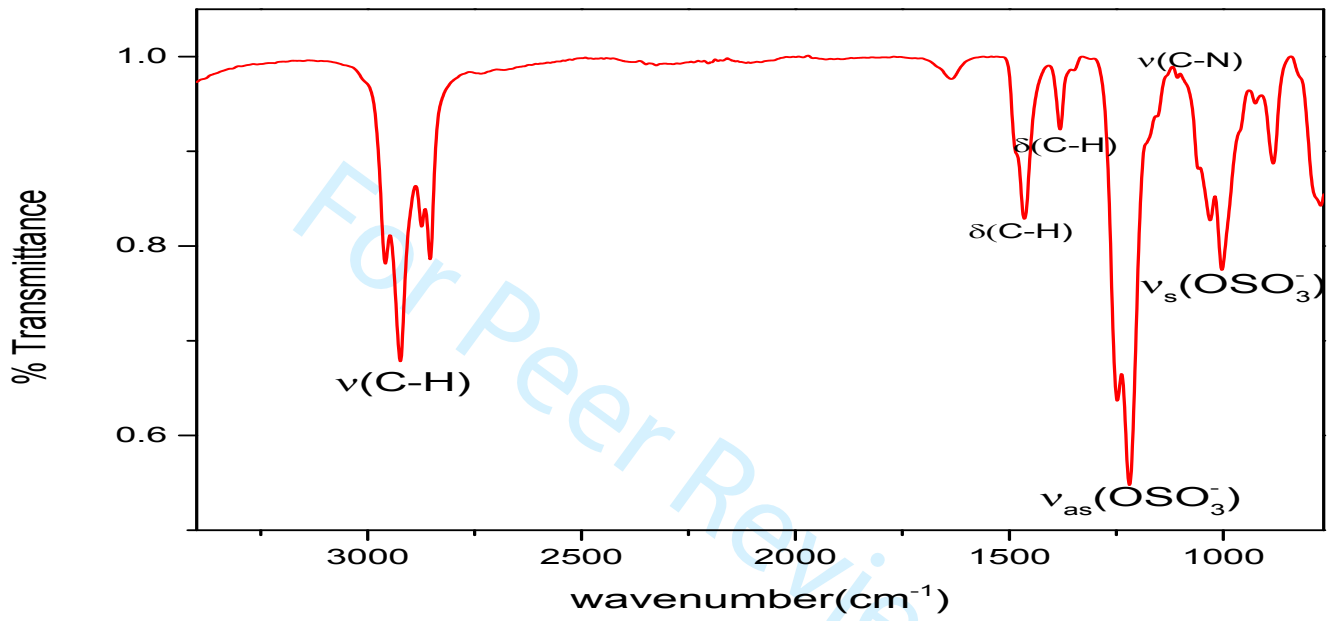

Figure S1. FTIR spectrum of TBADS

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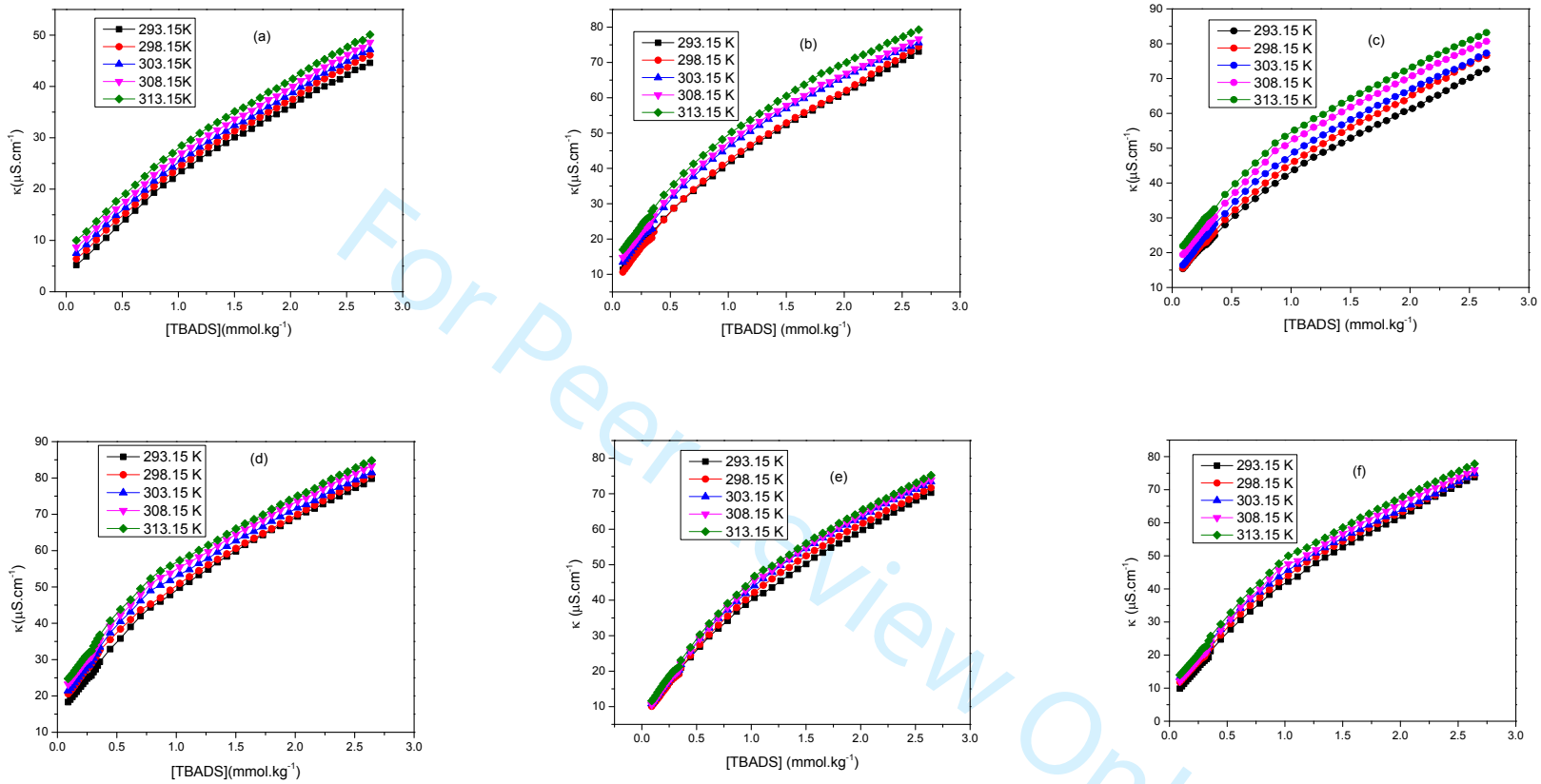

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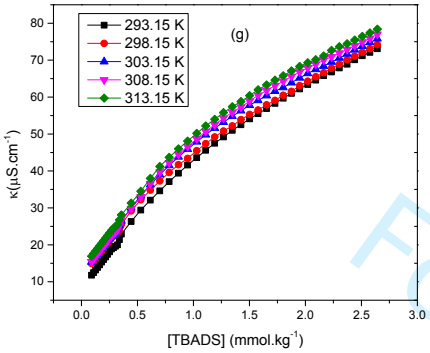
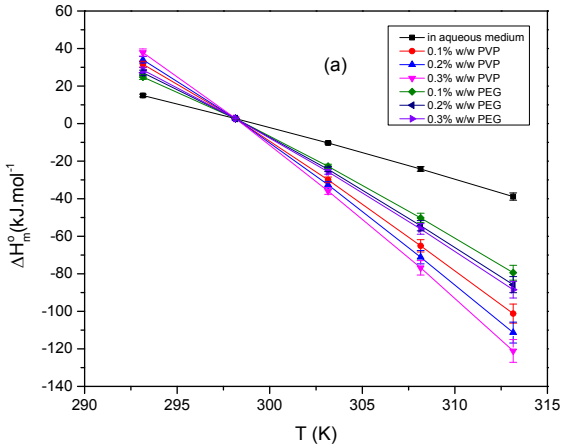


Figure S2. Variation of specific conductance (κ) with [TBADS] in (a) water and aqueous solution of (b) 0.1% w/w PVP (c) 0.2% w/w PVP (d) 0.3% w/w PVP (e) 0.1% w/w PEG (f) 0.2% w/w PEG(g) 0.3% w/w PEG at different temperatures.



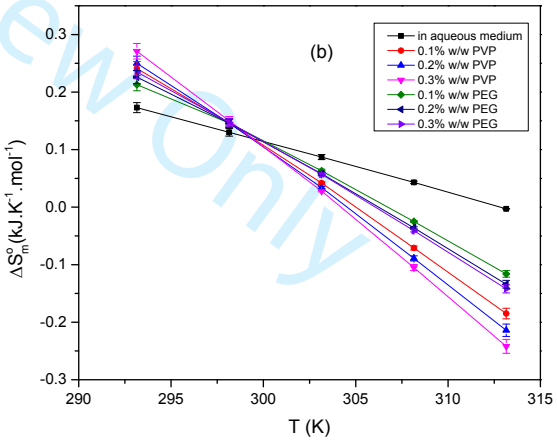


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Figure S3. Variation of (a) ΔH_m^o and (b) ΔS_m^o for TBADS with temperature (T = 293.15K-313.15K) and concentrations (0.1% - 0.3% w/w) of PVP/PEG aqueous solutions.

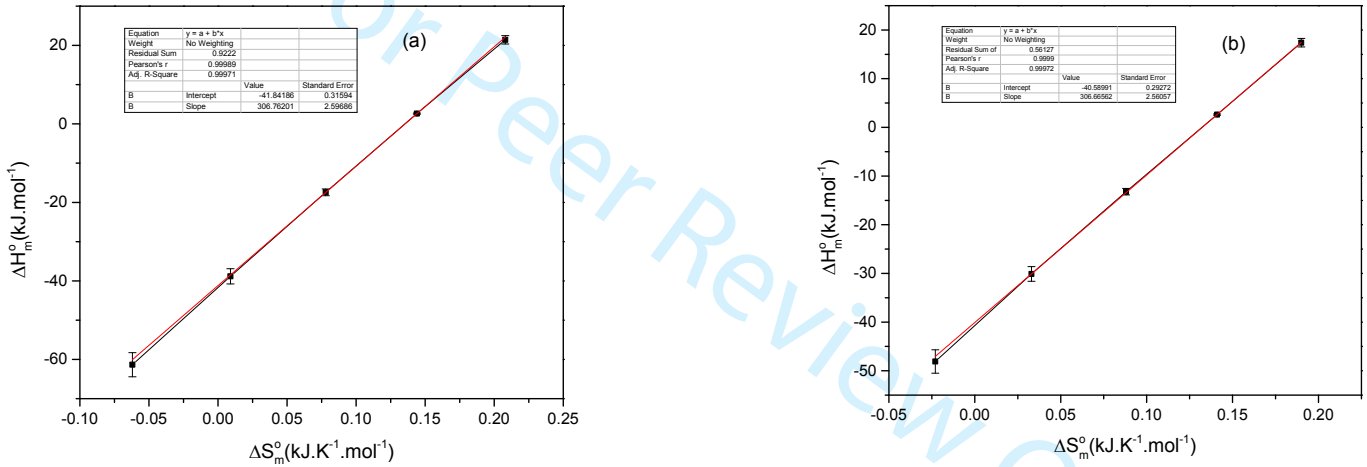

Figure S4. Enthalpy-Entropy compensation curves for TPADS in aqueous solution of 0.2% w/w (a) PVP and (b) PEG.

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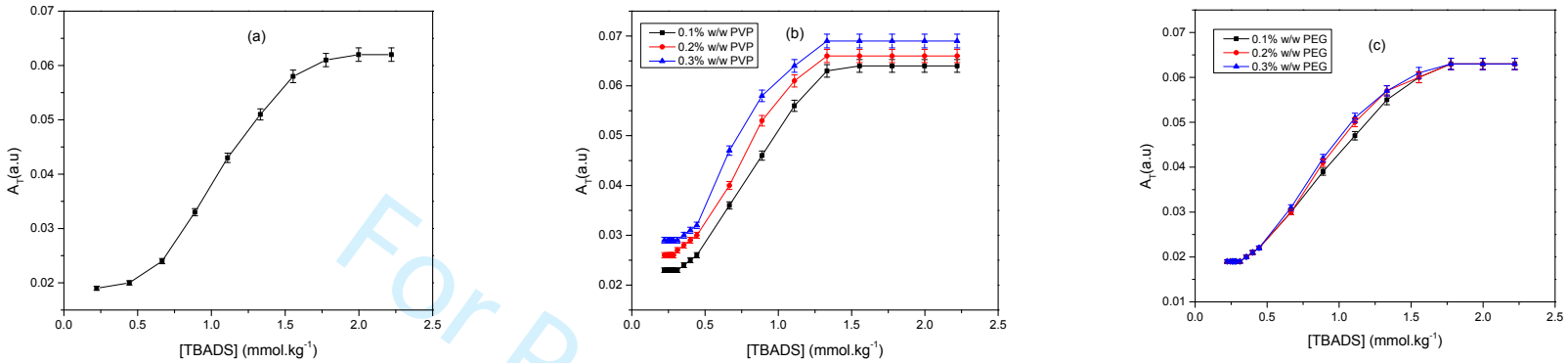

Figure S5. Variation of Total Absorbance (A_T) with [TBADS] in (a) water and different concentrations (0.1% - 0.3% w/w) of (b) PVP (c) PEG in aqueous solution at 298.15K.

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