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Isentropic expansion and related thermodynamic properties of non-ionic amphiphile–water mixtures

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Appendix S1 Derivation of eqn (9) for $E_{S,m}^{id}$

Combining eqn (5) and (8) gives eqn (S1) for $E_{S,m}^{id}$.

$$E_{S,m}^{id} = -(C_{p,m}^{id}/T E_{p,m}^{id})\,[x_A K_{S,A}^{*} + (1 - x_A) K_{S,W}^{*} + x_A (1 - x_A) T (C_{p,A}^{*} C_{p,W}^{*}/C_{p,m}^{id})\,(E_{p,A}^{*}/C_{p,A}^{*} - E_{p,W}^{*}/C_{p,W}^{*})^2] \quad \text{(S1)}$$

Or,

$$E_{S,m}^{id} = -[x_A K_{S,A}^{*} (C_{p,m}^{id}/T E_{p,m}^{id}) + (1 - x_A) K_{S,W}^{*} (C_{p,m}^{id}/T E_{p,m}^{id}) + x_A (1 - x_A) (C_{p,A}^{*} C_{p,W}^{*}/E_{p,m}^{id})\,(E_{p,A}^{*}/C_{p,A}^{*} - E_{p,W}^{*}/C_{p,W}^{*})^2] \quad \text{(S2)}$$

Using eqn (6) and (7), it can be verified that eqn (S3) and (S4) are identities.

$$C_{p,m}^{id}/E_{p,m}^{id} = C_{p,A}^{*}/E_{p,A}^{*} - (1 - x_A)\,\{C_{p,A}^{*} C_{p,W}^{*}/E_{p,A}^{*}\,[x_A E_{p,A}^{*} + (1 - x_A) E_{p,W}^{*}]\}\,(E_{p,A}^{*}/C_{p,A}^{*} - E_{p,W}^{*}/C_{p,W}^{*}) \quad \text{(S3)}$$

$$C_{p,m}^{id}/E_{p,m}^{id} = C_{p,W}^{*}/E_{p,W}^{*} - x_A\,\{C_{p,A}^{*} C_{p,W}^{*}/E_{p,W}^{*}\,[x_A E_{p,A}^{*} + (1 - x_A) E_{p,W}^{*}]\}\,(E_{p,A}^{*}/C_{p,A}^{*} - E_{p,W}^{*}/C_{p,W}^{*}) \quad \text{(S4)}$$

When the alternative eqn (S3) and (S4) are sequentially used for expressing the ratio $C_{p,\mathrm{m}}^{\mathrm{id}}/E_{p,\mathrm{m}}^{\mathrm{id}}$ appearing twice in eqn (S2), the outcome is an intricate expression which, after reorganisation, yields eqn (S5).

$$E_{S,\mathrm{m}}^{\mathrm{id}} = -x_\mathrm{A}\, C_{p,\mathrm{A}}^{*}\, K_{S,\mathrm{A}}^{*}/T E_{p,\mathrm{A}}^{*} - (1-x_\mathrm{A})\, C_{p,\mathrm{W}}^{*}\, K_{S,\mathrm{W}}^{*}/T E_{p,\mathrm{W}}^{*} - x_\mathrm{A}(1-x_\mathrm{A})\{C_{p,\mathrm{A}}^{*}\, C_{p,\mathrm{W}}^{*}/[x_\mathrm{A}\, E_{p,\mathrm{A}}^{*} + (1-x_\mathrm{A})\, E_{p,\mathrm{W}}^{*}]\}\,(K_{S,\mathrm{A}}^{*}/T E_{p,\mathrm{A}}^{*} - K_{S,\mathrm{W}}^{*}/T E_{p,\mathrm{W}}^{*} + E_{p,\mathrm{A}}^{*}/C_{p,\mathrm{A}}^{*} - E_{p,\mathrm{W}}^{*}/C_{p,\mathrm{W}}^{*})\,(E_{p,\mathrm{A}}^{*}/C_{p,\mathrm{A}}^{*} - E_{p,\mathrm{W}}^{*}/C_{p,\mathrm{W}}^{*}) \quad \text{(S5)}$$

Finally, by noting that $E_{S,\mathrm{A}}^{*} = -C_{p,\mathrm{A}}^{*}\, K_{S,\mathrm{A}}^{*}/T E_{p,\mathrm{A}}^{*}$ and $E_{S,\mathrm{W}}^{*} = -C_{p,\mathrm{W}}^{*}\, K_{S,\mathrm{W}}^{*}/T E_{p,\mathrm{W}}^{*}$ one obtains eqn (S6), which is eqn (9) in the main text.

$$E_{S,\mathrm{m}}^{\mathrm{id}} = x_\mathrm{A}\, E_{S,\mathrm{A}}^{*} + (1-x_\mathrm{A})\, E_{S,\mathrm{W}}^{*} - x_\mathrm{A}(1-x_\mathrm{A})\{C_{p,\mathrm{A}}^{*}\, C_{p,\mathrm{W}}^{*}/[x_\mathrm{A}\, E_{p,\mathrm{A}}^{*} + (1-x_\mathrm{A})\, E_{p,\mathrm{W}}^{*}]\}\,(E_{p,\mathrm{A}}^{*}/C_{p,\mathrm{A}}^{*} - E_{p,\mathrm{W}}^{*}/C_{p,\mathrm{W}}^{*})\,[(E_{p,\mathrm{A}}^{*} - E_{S,\mathrm{A}}^{*})/C_{p,\mathrm{A}}^{*} - (E_{p,\mathrm{W}}^{*} - E_{S,\mathrm{W}}^{*})/C_{p,\mathrm{W}}^{*}] \quad \text{(S6)}$$

Appendix S2 Derivation of eqn (16) for $\phi(E_{S,\mathrm{A}})$

The apparent molar isentropic compression of A, $\phi(K_{S,\mathrm{A}})$, is defined by eqn (S7).

$$\phi(K_{S,\mathrm{A}}) = [K_{S,\mathrm{m}} - (1-x_\mathrm{A})\, K_{S,\mathrm{W}}^{*}]/x_\mathrm{A} \quad \text{(S7)}$$

Or,

$$x_\mathrm{A}\, \phi(K_{S,\mathrm{A}}) = K_{S,\mathrm{m}} - (1-x_\mathrm{A})\, K_{S,\mathrm{W}}^{*} \quad \text{(S8)}$$

Multiplication of the latter equation by $(-C_{p,\mathrm{m}}/T E_{p,\mathrm{m}})$ yields eqn (S9).

$$-x_\mathrm{A}\,(C_{p,\mathrm{m}}/T E_{p,\mathrm{m}})\,\phi(K_{S,\mathrm{A}}) = -C_{p,\mathrm{m}}\, K_{S,\mathrm{m}}/T E_{p,\mathrm{m}} + (1-x_\mathrm{A})\,(C_{p,\mathrm{m}}/T E_{p,\mathrm{m}})\, K_{S,\mathrm{W}}^{*} \quad \text{(S9)}$$

Since $E_{S,\mathrm{m}} = -C_{p,\mathrm{m}}\, K_{S,\mathrm{m}}/T E_{p,\mathrm{m}}$, then eqn (S9) leads to eqn (S10).

$$-x_\mathrm{A}\,(C_{p,\mathrm{m}}/T E_{p,\mathrm{m}})\,\phi(K_{S,\mathrm{A}}) = E_{S,\mathrm{m}} + (1-x_\mathrm{A})\,(C_{p,\mathrm{m}}/T E_{p,\mathrm{m}})\, K_{S,\mathrm{W}}^{*} \quad \text{(S10)}$$

On the other hand, the apparent molar isentropic expansion of A, $\phi(E_{S,\mathrm{A}})$, is defined by eqn (S11).

$$\phi(E_{S,\mathrm{A}}) = [E_{S,\mathrm{m}} - (1-x_\mathrm{A})\, E_{S,\mathrm{W}}^{*}]/x_\mathrm{A} \quad \text{(S11)}$$

Then elimination of $E_{S,\mathrm{m}}$ between eqn (S10) and (S11) yields eqn (S12) which expresses the relationship between $\phi(E_{S,\mathrm{A}})$ and $\phi(K_{S,\mathrm{A}})$ given in eqn (16) of the main text.

$$\phi(E_{S,\mathrm{A}}) = -(C_{p,\mathrm{m}}/T E_{p,\mathrm{m}})\,\phi(K_{S,\mathrm{A}}) + [(1-x_\mathrm{A})/x_\mathrm{A}]\,(K_{S,\mathrm{W}}^{*}/T)\,(C_{p,\mathrm{W}}^{*}/E_{p,\mathrm{W}}^{*} - C_{p,\mathrm{m}}/E_{p,\mathrm{m}}) \quad \text{(S12)}$$

Table S1 Experimental values of ultrasound speed, u, in $(1 - x_A)$ water + x_A 2-methylpropan-2ol mixtures at 298.15 K

x_A	u/m s^{-1}	x_A	u/m s^{-1}	x_A	u/m s^{-1}
0	1496.687	0.06501	1575.966	0.41004	1261.007
0.00401	1512.726	0.06507	1575.665	0.48003	1235.745
0.00799	1527.841	0.06999	1564.589	0.55011	1213.997
0.01199	1543.198	0.07002	1564.799	0.62010	1195.147
0.01600	1557.950	0.07502	1554.137	0.68993	1178.353
0.02001	1571.175	0.07503	1554.269	0.76038	1162.759
0.02501	1586.417	0.08001	1543.484	0.81998	1150.803
0.03006	1599.473	0.09008	1523.468	0.86984	1140.969
0.03499	1608.884	0.10000	1505.666	0.90981	1134.036
0.03503	1608.869	0.11999	1473.396	0.93964	1128.881
0.03999	1613.700	0.14000	1446.182	0.96004	1125.873
0.04000	1613.653	0.15999	1422.218	0.97967	1123.038
0.04497	1613.030	0.18003	1401.080	0.98469	1122.632
0.04499	1612.998	0.19999	1382.603	0.98490	1122.779
0.05002	1607.082	0.22999	1358.287	0.98984	1121.793
0.05003	1607.222	0.25998	1337.374	0.99472	1121.260
0.05504	1597.838	0.29995	1313.282	0.99485	1121.242
0.06000	1587.612	0.34996	1287.390	1	1120.335
0.06001	1587.110				

Table S2 Molar and excess molar isobaric expansions, $E_{p,m}$ and $E_{p,m}^{E}$, molar and excess molar isobaric heat capacities, $C_{p,m}$ and $C_{p,m}^{E}$, molar and excess molar isentropic compressions, $K_{S,m}$ and $K_{S,m}^{E}$, and molar and excess molar isentropic expansions, $E_{S,m}$ and $E_{S,m}^{E}$, at 298.15 K and at 65 rounded mole fractions for the system water–methanol (W + C_1E_0)

x_A	$E_{p,m}$ / mm^3 K^{-1} mol^{-1}	$E_{p,m}^{E}$ / mm^3 K^{-1} mol^{-1}	$C_{p,m}$ / J K^{-1} mol^{-1}	$C_{p,m}^{E}$ / J K^{-1} mol^{-1}	$K_{S,m}$ / mm^3 MPa^{-1} mol^{-1}	$K_{S,m}^{E}$ / mm^3 MPa^{-1} mol^{-1}	$E_{S,m}$ / mm^3 K^{-1} mol^{-1}	$E_{S,m}^{E}$ / mm^3 K^{-1} mol^{-1}
0	4.635	0	75.292	0	8.090	0	–440.77	0
0.0025	4.654	–0.092	75.50	0.19	8.101	–0.094	–440.74	–4.58
0.0050	4.679	–0.177	75.70	0.38	8.111	–0.189	–440.11	–8.35
0.0075	4.700	–0.267	75.90	0.56	8.122	–0.283	–439.89	–12.33
0.0100	4.727	–0.351	76.10	0.75	8.132	–0.377	–439.09	–15.56
0.0125	4.759	–0.429	76.29	0.93	8.142	–0.472	–437.79	–18.12
0.0150	4.804	–0.495	76.48	1.10	8.151	–0.567	–435.28	–19.30
0.0175	4.848	–0.562	76.68	1.28	8.161	–0.662	–432.92	–20.49
0.0200	4.891	–0.629	76.86	1.45	8.170	–0.757	–430.66	–21.64
0.0225	4.939	–0.692	77.06	1.63	8.180	–0.852	–428.04	–22.30
0.0250	4.985	–0.757	77.24	1.80	8.189	–0.946	–425.56	–22.98
0.0275	5.037	–0.815	77.42	1.97	8.198	–1.041	–422.62	–23.07
0.0300	5.092	–0.871	77.59	2.12	8.207	–1.136	–419.40	–22.78
0.0325	5.148	–0.925	77.76	2.27	8.216	–1.231	–416.21	–22.41
0.0350	5.214	–0.970	77.93	2.43	8.225	–1.326	–412.29	–21.21
0.0375	5.271	–1.024	78.10	2.58	8.234	–1.421	–409.18	–20.73
0.0400	5.332	–1.073	78.26	2.74	8.242	–1.516	–405.77	–19.87
0.0425	5.412	–1.104	78.43	2.88	8.251	–1.610	–401.03	–17.58
0.0450	5.451	–1.176	78.59	3.03	8.260	–1.705	–399.40	–18.33
0.0475	5.502	–1.235	78.74	3.17	8.269	–1.799	–396.92	–18.15
0.050	5.573	–1.275	78.90	3.31	8.278	–1.893	–393.06	–16.51
0.060	5.891	–1.400	79.49	3.84	8.316	–2.267	–376.35	–8.06
0.070	6.252	–1.481	80.03	4.32	8.358	–2.635	–358.80	2.15
0.080	6.694	–1.482	80.52	4.75	8.404	–2.998	–339.01	15.37
0.090	7.142	–1.476	80.94	5.12	8.455	–3.354	–321.39	27.07
0.100	7.553	–1.508	81.33	5.44	8.512	–3.703	–307.39	35.70
0.110	8.032	–1.471	81.67	5.73	8.576	–4.043	–292.47	45.72
0.120	8.584	–1.362	81.95	5.95	8.645	–4.376	–276.81	56.91
0.130	9.050	–1.339	82.20	6.14	8.721	–4.701	–265.69	63.91
0.140	9.524	–1.307	82.42	6.30	8.805	–5.017	–255.57	70.24
0.150	9.957	–1.317	82.62	6.44	8.897	–5.324	–247.61	74.67
0.175	11.160	–1.220	83.03	6.70	9.160	–6.050	–228.56	85.95
0.200	12.381	–1.106	83.24	6.77	9.477	–6.713	–213.71	94.19
0.225	13.530	–1.063	83.38	6.76	9.843	–7.317	–203.46	98.74
0.250	14.747	–0.953	83.46	6.68	10.237	–7.885	–194.30	102.92
0.275	15.867	–0.939	83.44	6.52	10.702	–8.374	–188.76	104.06
0.300	16.921	–0.992	83.36	6.29	11.197	–8.822	–185.00	103.88
0.325	17.943	–1.076	83.28	6.07	11.732	–9.222	–182.65	102.68
0.350	18.994	–1.132	83.21	5.85	12.312	–9.568	–180.91	101.19
0.375	19.987	–1.245	83.12	5.61	12.921	–9.877	–180.22	98.92
0.400	20.973	–1.365	83.10	5.44	13.572	–10.134	–180.37	96.05
0.425	21.962	–1.483	83.01	5.20	14.266	–10.340	–180.85	93.04
0.450	23.017	–1.535	82.94	4.99	15.007	–10.491	–181.38	90.16
0.475	24.097	–1.561	82.86	4.76	15.778	–10.603	–181.97	87.37

Table S2 (continued)

x_A	$E_{p,m}$ / mm^3 K^{-1} mol^{-1}	$E_{p,m}^E$ / mm^3 K^{-1} mol^{-1}	$C_{p,m}$ / J K^{-1} mol^{-1}	$C_{p,m}^E$ / J K^{-1} mol^{-1}	$K_{S,m}$ / mm^3 MPa^{-1} mol^{-1}	$K_{S,m}^E$ / mm^3 MPa^{-1} mol^{-1}	$E_{S,m}$ / mm^3 K^{-1} mol^{-1}	$E_{S,m}^E$ / mm^3 K^{-1} mol^{-1}
0.500	25.108	–1.657	82.80	4.55	16.582	–10.673	–183.41	83.85
0.525	26.066	–1.805	82.75	4.35	17.444	–10.676	–185.73	79.57
0.550	27.067	–1.911	82.67	4.13	18.325	–10.652	–187.73	75.72
0.575	28.078	–2.006	82.60	3.91	19.251	–10.576	–189.95	71.73
0.600	29.094	–2.097	82.51	3.67	20.228	–10.439	–192.42	67.58
0.625	30.127	–2.170	82.45	3.46	21.252	–10.246	–195.08	63.31
0.650	31.151	–2.253	82.36	3.22	22.322	–10.001	–197.95	58.89
0.675	32.204	–2.306	82.26	2.97	23.447	–9.692	–200.87	54.49
0.725	34.289	–2.433	82.10	2.52	25.826	–8.920	–207.39	45.15
0.750	35.404	–2.425	81.98	2.25	27.108	–8.429	–210.54	40.67
0.775	36.612	–2.324	81.86	1.98	28.443	–7.877	–213.29	36.62
0.800	37.842	–2.200	81.75	1.73	29.844	–7.251	–216.26	32.40
0.825	39.078	–2.069	81.75	1.57	31.295	–6.568	–219.56	27.88
0.850	40.271	–1.984	81.66	1.34	32.797	–5.826	–223.06	23.18
0.875	41.463	–1.899	81.42	0.95	34.338	–5.036	–226.16	18.92
0.900	42.675	–1.793	81.36	0.74	35.975	–4.143	–230.03	13.91
0.925	44.013	–1.562	81.34	0.57	37.680	–3.174	–233.56	9.27
0.950	45.485	–1.196	81.26	0.34	39.403	–2.179	–236.09	5.65
0.975	47.101	–0.687	81.17	0.11	41.148	–1.155	–237.84	2.84
1	48.894	0	81.21	0	43.016	0	–239.63	0

Table S3 Molar and excess molar isobaric expansions, $E_{p,m}$ and $E_{p,m}^E$, molar and excess molar isobaric heat capacities, $C_{p,m}$ and $C_{p,m}^E$, molar and excess molar isentropic compressions, $K_{S,m}$ and $K_{S,m}^E$, and molar and excess molar isentropic expansions, $E_{S,m}$ and $E_{S,m}^E$, at 298.15 K and at 65 rounded mole fractions for the system water–ethanol (W + C_2E_0)

x_A	$E_{p,m}$ / mm^3 K^{-1} mol^{-1}	$E_{p,m}^E$ / mm^3 K^{-1} mol^{-1}	$C_{p,m}$ / J K^{-1} mol^{-1}	$C_{p,m}^E$ / J K^{-1} mol^{-1}	$K_{S,m}$ / mm^3 MPa^{-1} mol^{-1}	$K_{S,m}^E$ / mm^3 MPa^{-1} mol^{-1}	$E_{S,m}$ / mm^3 K^{-1} mol^{-1}	$E_{S,m}^E$ / mm^3 K^{-1} mol^{-1}
0	4.635	0	75.292	0	8.090	0	–440.77	0
0.0025	4.655	–0.129	75.76	0.37	8.094	–0.141	–441.80	–6.54
0.0050	4.690	–0.242	76.22	0.74	8.097	–0.283	–441.34	–11.24
0.0075	4.735	–0.346	76.68	1.11	8.099	–0.425	–439.90	–14.66
0.0100	4.794	–0.435	77.14	1.48	8.101	–0.567	–437.19	–16.51
0.0125	4.859	–0.519	77.60	1.84	8.103	–0.710	–433.99	–17.62
0.0150	4.926	–0.600	78.05	2.20	8.104	–0.853	–430.67	–18.36
0.0175	5.009	–0.666	78.51	2.56	8.105	–0.995	–426.08	–17.62
0.0200	5.100	–0.724	78.96	2.92	8.107	–1.138	–420.95	–16.12
0.0225	5.203	–0.769	79.41	3.27	8.108	–1.280	–415.03	–13.65
0.0250	5.314	–0.807	79.85	3.63	8.109	–1.422	–408.71	–10.60
0.0275	5.434	–0.835	80.30	3.98	8.111	–1.563	–402.00	–7.00
0.0300	5.554	–0.864	80.74	4.33	8.113	–1.705	–395.57	–3.53
0.0325	5.690	–0.877	81.18	4.67	8.115	–1.846	–388.31	0.91
0.0350	5.828	–0.887	81.62	5.02	8.117	–1.986	–381.28	5.26
0.0375	5.970	–0.894	82.05	5.36	8.120	–2.125	–374.33	9.64
0.0400	6.124	–0.888	82.48	5.69	8.124	–2.264	–366.98	14.55
0.0425	6.279	–0.882	82.90	6.02	8.128	–2.402	–359.96	19.23
0.0450	6.461	–0.848	83.32	6.35	8.134	–2.539	–351.81	25.14
0.0475	6.620	–0.838	83.74	6.68	8.140	–2.675	–345.36	29.46

Table S3 (continued)

x_A	$E_{p,m}$ / mm^3 K^{-1} mol^{-1}	$E_{p,m}^E$ / mm^3 K^{-1} mol^{-1}	$C_{p,m}$ / J K^{-1} mol^{-1}	$C_{p,m}^E$ / J K^{-1} mol^{-1}	$K_{S,m}$ / mm^3 MPa^{-1} mol^{-1}	$K_{S,m}^E$ / mm^3 MPa^{-1} mol^{-1}	$E_{S,m}$ / mm^3 K^{-1} mol^{-1}	$E_{S,m}^E$ / mm^3 K^{-1} mol^{-1}
0.050	6.797	–0.810	84.16	7.00	8.147	–2.810	–338.30	34.46
0.060	7.548	–0.653	85.74	8.21	8.184	–3.338	–311.83	53.54
0.070	8.474	–0.321	87.25	9.35	8.243	–3.844	–284.64	74.42
0.080	9.647	0.258	88.66	10.38	8.323	–4.324	–256.55	97.10
0.090	10.767	0.783	89.95	11.29	8.430	–4.776	–236.19	112.76
0.100	11.996	1.418	91.10	12.08	8.564	–5.199	–218.15	126.71
0.110	12.797	1.625	92.14	12.74	8.728	–5.589	–210.78	130.49
0.120	13.824	2.058	93.03	13.26	8.921	–5.948	–201.37	136.75
0.130	14.526	2.165	93.79	13.65	9.142	–6.278	–197.98	137.35
0.140	15.378	2.423	94.43	13.91	9.386	–6.582	–193.32	139.55
0.150	16.259	2.709	95.00	14.10	9.653	–6.860	–189.17	141.50
0.175	18.134	3.099	96.03	14.20	10.402	–7.467	–184.74	141.43
0.200	20.050	3.529	96.87	14.11	11.230	–7.982	–181.97	140.82
0.225	21.754	3.747	97.53	13.83	12.125	–8.417	–182.32	137.93
0.250	23.343	3.851	98.22	13.59	13.075	–8.787	–184.52	133.82
0.275	24.806	3.828	98.82	13.26	14.070	–9.099	–188.00	128.94
0.300	26.212	3.748	99.31	12.82	15.094	–9.371	–191.82	124.14
0.325	27.603	3.653	99.89	12.46	16.149	–9.602	–196.01	119.29
0.350	29.032	3.597	100.52	12.15	17.274	–9.753	–200.60	114.32
0.375	30.364	3.443	101.12	11.82	18.428	–9.864	–205.83	108.92
0.400	31.844	3.437	101.67	11.44	19.569	–9.980	–209.56	105.24
0.425	33.155	3.262	102.33	11.17	20.741	–10.054	–214.71	100.28
0.450	34.561	3.182	103.02	10.92	21.903	–10.129	–218.97	96.36
0.475	35.990	3.126	103.59	10.55	23.102	–10.159	–223.02	92.78
0.500	37.403	3.053	104.13	10.17	24.343	–10.138	–227.31	89.05
0.525	38.838	3.003	104.68	9.78	25.595	–10.097	–231.39	85.63
0.550	40.292	2.970	105.29	9.45	26.887	–10.009	–235.65	82.12
0.575	41.653	2.846	105.88	9.12	28.216	–9.876	–240.58	78.00
0.600	43.072	2.779	106.46	8.76	29.580	–9.700	–245.21	74.24
0.625	44.488	2.709	107.03	8.39	30.978	–9.484	–249.96	70.43
0.650	45.796	2.531	107.60	8.03	32.408	–9.227	–255.39	65.98
0.675	47.040	2.290	108.28	7.77	33.867	–8.934	–261.47	60.94
0.700	48.315	2.079	108.68	7.24	35.367	–8.594	–266.83	56.65
0.725	49.652	1.930	109.18	6.81	36.907	–8.208	–272.19	52.40
0.750	51.035	1.827	109.67	6.36	38.490	–7.771	–277.41	48.32
0.775	52.221	1.528	110.18	5.95	40.117	–7.285	–283.90	43.01
0.800	53.531	1.352	110.56	5.39	41.795	–6.741	–289.53	38.58
0.825	54.628	0.964	110.97	4.87	43.529	–6.136	–296.57	32.78
0.850	56.009	0.858	111.36	4.32	45.314	–5.473	–302.17	28.43
0.875	57.420	0.784	111.60	3.63	47.166	–4.738	–307.47	24.41
0.900	58.837	0.715	111.85	2.95	49.077	–3.939	–312.93	20.25
0.925	60.241	0.633	112.14	2.30	51.059	–3.064	–318.78	15.72
0.950	61.611	0.517	112.23	1.46	53.110	–2.114	–324.50	11.34
0.975	62.891	0.312	112.37	0.66	55.229	–1.091	–330.97	6.22
1	64.065	0	112.64	0	57.410	0	–338.55	0

Table S4 Molar and excess molar isobaric expansions, $E_{p,m}$ and $E_{p,m}^{E}$, molar and excess molar isobaric heat capacities, $C_{p,m}$ and $C_{p,m}^{E}$, molar and excess molar isentropic compressions, $K_{S,m}$ and $K_{S,m}^{E}$, and molar and excess molar isentropic expansions, $E_{S,m}$ and $E_{S,m}^{E}$, at 298.15 K and at 65 rounded mole fractions for the system water–propan-1-ol (W + C_3E_0)

x_A	$E_{p,m}$ / mm^3 K^{-1} mol^{-1}	$E_{p,m}^{E}$ / mm^3 K^{-1} mol^{-1}	$C_{p,m}$ / J K^{-1} mol^{-1}	$C_{p,m}^{E}$ / J K^{-1} mol^{-1}	$K_{S,m}$ / mm^3 MPa^{-1} mol^{-1}	$K_{S,m}^{E}$ / mm^3 MPa^{-1} mol^{-1}	$E_{S,m}$ / mm^3 K^{-1} mol^{-1}	$E_{S,m}^{E}$ / mm^3 K^{-1} mol^{-1}
0	4.647	0	75.292	0	8.090	0	–439.63	0
0.0025	4.720	–0.104	75.98	0.52	8.084	–0.169	–436.53	–3.47
0.0050	4.817	–0.183	76.68	1.04	8.080	–0.337	–431.37	–4.40
0.0075	4.934	–0.244	77.37	1.57	8.076	–0.504	–424.77	–3.44
0.0100	5.067	–0.288	78.07	2.09	8.071	–0.671	–417.13	–1.05
0.0125	5.214	–0.317	78.77	2.62	8.068	–0.838	–408.77	2.43
0.0150	5.378	–0.331	79.47	3.14	8.056	–1.011	–399.31	7.33
0.0175	5.560	–0.325	80.16	3.66	8.055	–1.175	–389.48	12.90
0.0200	5.760	–0.302	80.86	4.19	8.055	–1.337	–379.24	19.14
0.0225	5.978	–0.261	81.56	4.72	8.059	–1.495	–368.79	25.85
0.0250	6.226	–0.190	82.27	5.26	8.065	–1.650	–357.47	33.66
0.0275	6.474	–0.119	82.98	5.79	8.077	–1.800	–347.17	40.66
0.0300	6.747	–0.023	83.68	6.33	8.086	–1.952	–336.41	48.31
0.0325	7.037	0.091	84.39	6.87	8.104	–2.095	–325.97	55.80
0.0350	7.339	0.215	85.11	7.41	8.130	–2.230	–316.26	62.75
0.0375	7.705	0.405	85.81	7.93	8.164	–2.357	–304.94	71.45
0.0400	8.026	0.549	86.48	8.43	8.192	–2.489	–296.04	77.88
0.0425	8.396	0.742	87.14	8.92	8.235	–2.606	–286.67	84.90
0.0450	8.727	0.895	87.77	9.38	8.287	–2.715	–279.54	89.81
0.0475	9.162	1.154	88.39	9.83	8.340	–2.822	–269.85	97.40
0.050	9.519	1.334	89.09	10.36	8.401	–2.921	–263.73	101.52
0.060	10.711	1.818	91.16	11.74	8.679	–3.279	–247.74	110.47
0.070	11.894	2.294	92.84	12.73	9.060	–3.533	–237.17	115.26
0.080	13.189	2.882	94.07	13.27	9.477	–3.747	–226.69	120.96
0.090	14.363	3.348	95.01	13.52	9.921	–3.931	–220.11	123.58
0.100	15.377	3.654	95.77	13.59	10.407	–4.071	–217.40	122.99
0.110	16.177	3.747	96.50	13.64	10.891	–4.211	–217.91	119.73
0.120	17.175	4.037	97.23	13.68	11.369	–4.354	–215.86	119.49
0.130	17.928	4.082	97.94	13.71	11.853	–4.488	–217.19	116.27
0.140	18.763	4.209	98.62	13.69	12.340	–4.617	–217.55	114.35
0.150	19.505	4.244	99.31	13.70	12.831	–4.740	–219.11	111.51
0.175	21.310	4.280	101.02	13.68	14.071	–5.024	–223.72	104.73
0.200	23.088	4.289	102.71	13.66	15.329	–5.277	–228.73	98.68
0.225	24.918	4.350	104.41	13.64	16.603	–5.501	–233.35	93.86
0.250	26.723	4.386	106.13	13.63	17.893	–5.698	–238.34	89.30
0.275	28.518	4.413	107.73	13.52	19.195	–5.871	–243.21	85.37
0.300	30.298	4.423	109.38	13.44	20.515	–6.015	–248.40	81.52
0.325	32.081	4.437	111.08	13.42	21.849	–6.135	–253.72	77.84
0.350	33.876	4.463	112.66	13.29	23.198	–6.231	–258.76	74.72
0.375	35.646	4.464	114.22	13.13	24.559	–6.305	–263.95	71.66
0.400	37.402	4.451	115.85	13.04	25.936	–6.354	–269.45	68.48
0.425	39.177	4.457	117.48	12.95	27.327	–6.381	–274.86	65.53
0.450	40.960	4.473	119.14	12.89	28.729	–6.389	–280.27	62.73
0.475	42.755	4.497	120.67	12.69	30.146	–6.375	–285.36	60.35

Table S4 (continued)

x_A	$E_{p,m}$ / mm^3 K^{-1} mol^{-1}	$E_{p,m}^E$ / mm^3 K^{-1} mol^{-1}	$C_{p,m}$ / J K^{-1} mol^{-1}	$C_{p,m}^E$ / J K^{-1} mol^{-1}	$K_{S,m}$ / mm^3 MPa^{-1} mol^{-1}	$K_{S,m}^E$ / mm^3 MPa^{-1} mol^{-1}	$E_{S,m}$ / mm^3 K^{-1} mol^{-1}	$E_{S,m}^E$ / mm^3 K^{-1} mol^{-1}
0.500	44.538	4.511	121.98	12.28	31.579	–6.338	–290.08	58.45
0.525	46.333	4.537	123.65	12.23	33.026	–6.280	–295.61	55.82
0.550	48.115	4.550	125.10	11.96	34.486	–6.202	–300.74	53.67
0.575	49.844	4.510	126.41	11.55	35.958	–6.107	–305.86	51.59
0.600	51.575	4.472	127.78	11.20	37.446	–5.989	–311.16	49.40
0.625	53.312	4.440	129.21	10.91	38.952	–5.848	–316.64	47.07
0.650	55.029	4.388	130.63	10.62	40.472	–5.687	–322.24	44.67
0.675	56.668	4.258	131.94	10.21	42.012	–5.501	–328.09	42.07
0.700	58.280	4.101	133.14	9.68	43.572	–5.291	–333.85	39.59
0.725	59.893	3.945	134.25	9.08	45.151	–5.055	–339.46	37.31
0.750	61.554	3.837	135.38	8.48	46.753	–4.794	–344.87	35.24
0.775	63.149	3.663	136.49	7.87	48.379	–4.503	–350.72	32.78
0.800	64.684	3.430	137.60	7.26	50.036	–4.177	–357.00	29.90
0.825	66.202	3.178	138.67	6.61	51.722	–3.818	–363.37	26.96
0.850	67.695	2.903	139.68	5.90	53.440	–3.423	–369.83	23.96
0.875	69.179	2.617	140.60	5.11	55.197	–2.986	–376.27	20.98
0.900	70.594	2.263	141.49	4.27	56.995	–2.504	–383.13	17.61
0.925	71.965	1.866	142.29	3.35	58.842	–1.968	–390.22	14.04
0.950	73.249	1.381	143.00	2.34	60.747	–1.373	–397.75	10.03
0.975	74.399	0.762	143.60	1.22	62.708	–0.717	–405.97	5.35
1	75.407	0	144.10	0	64.728	0	–414.87	0

Table S5 Molar and excess molar isobaric expansions, $E_{p,m}$ and $E_{p,m}^E$, molar and excess molar isobaric heat capacities, $C_{p,m}$ and $C_{p,m}^E$, molar and excess molar isentropic compressions, $K_{S,m}$ and $K_{S,m}^E$, and molar and excess molar isentropic expansions, $E_{S,m}$ and $E_{S,m}^E$, at 298.15 K and at 65 rounded mole fractions for the system water–propan-2-ol (W + iC_3E_0)

x_A	$E_{p,m}$ / mm^3 K^{-1} mol^{-1}	$E_{p,m}^E$ / mm^3 K^{-1} mol^{-1}	$C_{p,m}$ / J K^{-1} mol^{-1}	$C_{p,m}^E$ / J K^{-1} mol^{-1}	$K_{S,m}$ / mm^3 MPa^{-1} mol^{-1}	$K_{S,m}^E$ / mm^3 MPa^{-1} mol^{-1}	$E_{S,m}$ / mm^3 K^{-1} mol^{-1}	$E_{S,m}^E$ / mm^3 K^{-1} mol^{-1}
0	4.597	0	75.292	0	8.090	0	–444.45	0
0.0025	4.643	–0.151	76.01	0.50	8.085	–0.200	–443.99	–6.29
0.0050	4.706	–0.285	76.73	1.01	8.079	–0.401	–441.82	–10.29
0.0075	4.789	–0.399	77.45	1.52	8.073	–0.602	–437.90	–12.03
0.0100	4.889	–0.496	78.17	2.02	8.066	–0.804	–432.55	–11.89
0.0125	5.006	–0.577	78.90	2.53	8.060	–1.004	–426.05	–10.19
0.0150	5.140	–0.640	79.63	3.05	8.053	–1.205	–418.45	–7.03
0.0175	5.293	–0.684	80.36	3.56	8.048	–1.404	–409.82	–2.51
0.0200	5.463	–0.712	81.09	4.08	8.044	–1.602	–400.46	3.04
0.0225	5.678	–0.694	81.82	4.60	8.041	–1.798	–388.65	11.31
0.0250	5.860	–0.708	82.56	5.12	8.038	–1.994	–379.77	16.89
0.0275	6.025	–0.740	83.29	5.64	8.036	–2.188	–372.58	21.01
0.0300	6.264	–0.699	84.03	6.16	8.036	–2.380	–361.58	29.14
0.0325	6.511	–0.649	84.77	6.69	8.038	–2.571	–351.01	37.03
0.0350	6.854	–0.503	85.51	7.22	8.044	–2.757	–336.58	48.95
0.0375	7.171	–0.383	86.24	7.73	8.052	–2.941	–324.79	58.39
0.0400	7.522	–0.230	86.96	8.23	8.068	–3.116	–312.83	68.15
0.0425	7.866	–0.083	87.76	8.82	8.086	–3.289	–302.60	76.31
0.0450	8.223	0.077	88.44	9.28	8.102	–3.465	–292.24	84.74
0.0475	8.591	0.248	89.10	9.73	8.127	–3.631	–282.69	92.46

Table S5 (continued)

x_A	$E_{p,m}$ / mm^3 K^{-1} mol^{-1}	$E_{p,m}^E$ / mm^3 K^{-1} mol^{-1}	$C_{p,m}$ / J K^{-1} mol^{-1}	$C_{p,m}^E$ / J K^{-1} mol^{-1}	$K_{S,m}$ / mm^3 MPa^{-1} mol^{-1}	$K_{S,m}^E$ / mm^3 MPa^{-1} mol^{-1}	$E_{S,m}$ / mm^3 K^{-1} mol^{-1}	$E_{S,m}^E$ / mm^3 K^{-1} mol^{-1}
0.050	8.970	0.429	89.74	10.16	8.159	–3.790	–273.77	99.67
0.060	10.558	1.228	92.37	11.92	8.320	–4.389	–244.14	123.40
0.070	12.150	2.032	94.62	13.32	8.562	–4.903	–223.65	139.25
0.080	13.670	2.762	96.56	14.40	8.891	–5.328	–210.64	148.61
0.090	15.101	3.405	97.55	14.53	9.276	–5.692	–200.99	155.38
0.100	16.434	3.949	98.86	14.97	9.715	–6.000	–196.01	158.13
0.110	17.627	4.353	100.15	15.40	10.194	–6.266	–194.24	158.20
0.120	18.691	4.628	100.95	15.35	10.690	–6.510	–193.66	157.50
0.130	19.653	4.802	101.72	15.26	11.214	–6.723	–194.69	155.57
0.140	20.592	4.952	102.48	15.16	11.740	–6.932	–195.96	153.69
0.150	21.417	4.988	103.40	15.22	12.280	–7.125	–198.85	150.48
0.175	23.431	5.030	105.05	14.72	13.657	–7.567	–205.36	144.07
0.200	25.389	5.016	106.79	14.32	15.055	–7.972	–212.39	138.17
0.225	27.228	4.883	108.39	13.77	16.487	–8.329	–220.14	132.31
0.250	29.034	4.717	110.00	13.23	17.961	–8.630	–228.23	126.69
0.275	30.990	4.701	111.55	12.63	19.472	–8.882	–235.09	122.74
0.300	32.930	4.669	113.20	12.14	21.018	–9.086	–242.34	118.75
0.325	34.839	4.605	114.85	11.63	22.600	–9.244	–249.88	114.75
0.350	36.717	4.512	116.49	11.13	24.213	–9.360	–257.64	110.75
0.375	38.635	4.458	118.12	10.62	25.856	–9.437	–265.14	107.21
0.400	40.599	4.450	119.76	10.11	27.523	–9.480	–272.31	104.16
0.425	42.553	4.432	121.40	9.60	29.215	–9.490	–279.55	101.18
0.450	44.518	4.424	123.04	9.09	30.932	–9.466	–286.74	98.36
0.475	46.493	4.428	124.68	8.58	32.672	–9.412	–293.87	95.70
0.500	48.447	4.409	126.33	8.08	34.438	–9.324	–301.19	92.93
0.525	50.421	4.411	127.98	7.58	36.228	–9.205	–308.42	90.33
0.550	52.401	4.420	129.63	7.09	38.042	–9.056	–315.65	87.79
0.575	54.390	4.437	131.29	6.60	39.882	–8.875	–322.90	85.30
0.600	56.369	4.444	132.96	6.12	41.745	–8.665	–330.24	82.75
0.625	58.323	4.424	134.62	5.64	43.635	–8.422	–337.82	80.02
0.650	60.281	4.412	136.30	5.16	45.550	–8.148	–345.43	77.30
0.675	62.228	4.387	137.98	4.70	47.493	–7.842	–353.20	74.45
0.700	64.169	4.355	139.67	4.25	49.450	–7.502	–361.12	71.49
0.725	66.088	4.302	141.38	3.81	51.465	–7.129	–369.28	68.32
0.750	67.980	4.222	143.10	3.38	53.496	–6.721	–377.71	64.89
0.775	69.832	4.102	144.84	2.97	55.560	–6.276	–386.51	61.14
0.800	71.637	3.935	146.59	2.57	57.658	–5.793	–395.72	56.99
0.825	73.396	3.722	148.35	2.19	59.793	–5.268	–405.36	52.43
0.850	75.102	3.456	150.13	1.82	61.970	–4.698	–415.49	47.39
0.875	76.747	3.129	151.93	1.46	64.192	–4.080	–426.20	41.80
0.900	78.350	2.760	153.74	1.13	66.455	–3.417	–437.36	35.78
0.925	79.863	2.301	155.57	0.81	68.774	–2.695	–449.33	28.95
0.950	81.193	1.659	157.42	0.51	71.164	–1.899	–462.76	20.68
0.975	82.420	0.914	159.29	0.24	73.646	–1.008	–477.38	11.23
1	83.478	0	161.20	0	76.242	0	–493.80	0

Table S6 Molar and excess molar isobaric expansions, $E_{p,m}$ and $E_{p,m}^{E}$, molar and excess molar isobaric heat capacities, $C_{p,m}$ and $C_{p,m}^{E}$, molar and excess molar isentropic compressions, $K_{S,m}$ and $K_{S,m}^{E}$, and molar and excess molar isentropic expansions, $E_{S,m}$ and $E_{S,m}^{E}$, at 298.15 K and at 65 rounded mole fractions for the system water–2-methylpropan-2-ol (W + tC_4E_0)

x_A	$E_{p,m}$ / mm^3 K^{-1} mol^{-1}	$E_{p,m}^{E}$ / mm^3 K^{-1} mol^{-1}	$C_{p,m}$ / J K^{-1} mol^{-1}	$C_{p,m}^{E}$ / J K^{-1} mol^{-1}	$K_{S,m}$ / mm^3 MPa^{-1} mol^{-1}	$K_{S,m}^{E}$ / mm^3 MPa^{-1} mol^{-1}	$E_{S,m}$ / mm^3 K^{-1} mol^{-1}	$E_{S,m}^{E}$ / mm^3 K^{-1} mol^{-1}
0	4.589	0	75.292	0	8.090	0	–445.14	0
0.0025	4.688	–0.205	76.27	0.64	8.076	–0.281	–440.70	–7.40
0.0050	4.780	–0.415	77.25	1.28	8.060	–0.563	–436.89	–13.96
0.0075	4.891	–0.607	78.23	1.93	8.044	–0.845	–431.55	–17.77
0.0100	5.040	–0.761	79.21	2.58	8.029	–1.125	–423.27	–17.61
0.0125	5.212	–0.892	80.21	3.23	8.016	–1.403	–413.79	–15.37
0.0150	5.419	–0.987	81.21	3.90	8.004	–1.679	–402.30	–10.36
0.0175	5.666	–1.043	82.22	4.58	7.995	–1.951	–389.17	–3.07
0.0200	5.948	–1.064	83.24	5.26	7.988	–2.221	–374.94	5.89
0.0225	6.300	–1.015	84.28	5.96	7.985	–2.486	–358.28	17.78
0.0250	6.657	–0.961	85.35	6.69	7.988	–2.745	–343.53	28.20
0.0275	7.070	–0.850	86.45	7.45	7.997	–2.996	–327.97	39.82
0.0300	7.482	–0.741	87.58	8.25	8.017	–3.237	–314.79	49.40
0.0325	7.844	–0.681	88.66	8.99	8.041	–3.473	–304.83	56.06
0.0350	8.373	–0.455	89.73	9.72	8.077	–3.697	–290.29	67.59
0.0375	8.921	–0.201	90.79	10.44	8.121	–3.911	–277.20	77.91
0.0400	9.530	0.096	91.89	11.21	8.180	–4.112	–264.53	88.04
0.0425	10.172	0.436	92.91	11.89	8.255	–4.294	–252.89	97.33
0.0450	10.627	0.587	93.91	12.56	8.343	–4.463	–247.30	100.77
0.0475	11.208	0.865	94.85	13.16	8.444	–4.620	–239.68	106.41
0.050	11.689	1.044	95.71	13.68	8.555	–4.765	–234.93	109.33
0.060	13.742	1.886	97.91	14.54	9.110	–5.231	–217.71	120.54
0.070	15.535	2.468	100.14	15.42	9.728	–5.626	–210.35	123.55
0.080	17.072	2.794	101.99	15.92	10.380	–5.981	–208.00	122.78
0.090	18.573	3.084	103.27	15.86	11.052	–6.308	–206.12	122.49
0.100	19.709	3.009	104.16	15.40	11.736	–6.617	–208.04	119.14
0.110	20.693	2.781	105.32	15.21	12.430	–6.910	–212.19	114.16
0.120	21.824	2.701	106.43	14.97	13.131	–7.191	–214.77	111.21
0.130	22.655	2.321	107.44	14.64	13.841	–7.456	–220.17	105.84
0.140	23.655	2.110	108.40	14.24	14.558	–7.709	–223.75	102.62
0.150	24.649	1.894	109.32	13.83	15.281	–7.951	–227.32	99.69
0.175	27.010	1.227	111.70	12.84	17.125	–8.498	–237.54	92.00
0.200	29.425	0.613	114.10	11.86	19.003	–8.984	–247.14	85.94
0.225	32.101	0.263	116.64	11.04	20.920	–9.404	–254.95	82.39
0.250	34.648	–0.219	119.33	10.36	22.878	–9.762	–264.27	77.88
0.275	36.993	–0.901	122.01	9.68	24.873	–10.061	–275.16	72.19
0.300	39.442	–1.479	124.57	8.87	26.907	–10.302	–285.03	67.84
0.325	41.745	–2.204	127.26	8.19	28.993	–10.474	–296.45	62.19
0.350	44.185	–2.792	129.95	7.51	31.113	–10.596	–306.92	57.69
0.375	46.727	–3.278	132.76	6.95	33.272	–10.663	–317.07	53.68
0.400	49.330	–3.702	135.49	6.31	35.455	–10.694	–326.60	50.42
0.425	52.286	–3.774	138.28	5.73	37.684	–10.667	–334.26	49.15
0.450	55.195	–3.891	141.09	5.18	39.942	–10.598	–342.43	47.48
0.475	58.048	–4.067	143.90	4.62	42.230	–10.490	–351.11	45.37

Table S6 (continued)

x_A	$E_{p,m}$ / mm^3 K^{-1} mol^{-1}	$E_{p,m}^E$ / mm^3 K^{-1} mol^{-1}	$C_{p,m}$ / J K^{-1} mol^{-1}	$C_{p,m}^E$ / J K^{-1} mol^{-1}	$K_{S,m}$ / mm^3 MPa^{-1} mol^{-1}	$K_{S,m}^E$ / mm^3 MPa^{-1} mol^{-1}	$E_{S,m}$ / mm^3 K^{-1} mol^{-1}	$E_{S,m}^E$ / mm^3 K^{-1} mol^{-1}
0.500	60.797	–4.346	146.70	4.06	44.553	–10.335	–360.57	42.55
0.525	63.581	–4.590	149.54	3.52	46.906	–10.142	–370.01	39.81
0.550	66.377	–4.822	152.41	3.02	49.295	–9.904	–379.62	36.96
0.575	69.039	–5.187	155.27	2.52	51.719	–9.622	–390.14	33.25
0.600	71.647	–5.607	157.99	1.87	54.167	–9.310	–400.61	29.63
0.625	73.956	–6.325	160.87	1.39	56.646	–8.959	–413.27	23.85
0.650	76.269	–7.040	163.77	0.92	59.147	–8.580	–425.99	18.06
0.675	78.913	–7.424	166.76	0.54	61.673	–8.169	–437.12	13.88
0.700	81.749	–7.616	169.76	0.18	64.253	–7.698	–447.53	10.43
0.725	84.641	–7.751	172.92	–0.04	66.843	–7.212	–458.02	6.95
0.750	87.766	–7.654	176.12	–0.21	69.464	–6.691	–467.52	4.47
0.775	91.001	–7.446	179.36	–0.33	72.111	–6.138	–476.69	2.34
0.800	94.276	–7.199	182.66	–0.40	74.785	–5.552	–485.98	0.10
0.825	97.919	–6.584	186.06	–0.37	77.510	–4.912	–493.97	–0.81
0.850	101.289	–6.242	189.54	–0.26	80.257	–4.245	–503.71	–3.46
0.875	104.689	–5.870	193.02	–0.14	83.022	–3.558	–513.41	–6.06
0.900	108.328	–5.258	196.48	–0.05	85.795	–2.857	–521.92	–7.45
0.925	112.244	–4.370	199.92	0.02	88.589	–2.133	–529.22	–7.62
0.950	116.175	–3.466	203.36	0.10	91.383	–1.405	–536.53	–7.79
0.975	120.549	–2.120	206.82	0.19	94.145	–0.706	–541.74	–5.86
1	125.696	0	210.00	0	96.911	0	–543.04	0

Table S7 Molar and excess molar isobaric expansions, $E_{p,m}$ and $E_{p,m}^E$, molar and excess molar isobaric heat capacities, $C_{p,m}$ and $C_{p,m}^E$, molar and excess molar isentropic compressions, $K_{S,m}$ and $K_{S,m}^E$, and molar and excess molar isentropic expansions, $E_{S,m}$ and $E_{S,m}^E$, at 298.15 K and at 65 rounded mole fractions for the system water–ethane-1,2-diol (W + C_0E_1)

x_A	$E_{p,m}$ / mm^3 K^{-1} mol^{-1}	$E_{p,m}^E$ / mm^3 K^{-1} mol^{-1}	$C_{p,m}$ / J K^{-1} mol^{-1}	$C_{p,m}^E$ / J K^{-1} mol^{-1}	$K_{S,m}$ / mm^3 MPa^{-1} mol^{-1}	$K_{S,m}^E$ / mm^3 MPa^{-1} mol^{-1}	$E_{S,m}$ / mm^3 K^{-1} mol^{-1}	$E_{S,m}^E$ / mm^3 K^{-1} mol^{-1}
0	4.597	0	75.292	0	8.090	0	–444.45	0
0.0025	4.679	0.006	75.57	0.10	8.081	–0.038	–437.77	2.01
0.0050	4.766	0.016	75.85	0.20	8.072	–0.076	–430.89	4.38
0.0075	4.855	0.029	76.13	0.30	8.063	–0.114	–424.07	6.84
0.0100	4.946	0.043	76.40	0.39	8.055	–0.151	–417.33	9.36
0.0125	5.039	0.059	76.67	0.48	8.047	–0.188	–410.71	11.90
0.0150	5.134	0.078	76.94	0.57	8.040	–0.224	–404.12	14.53
0.0175	5.231	0.098	77.21	0.65	8.033	–0.260	–397.65	17.17
0.0200	5.330	0.120	77.48	0.74	8.026	–0.296	–391.31	19.80
0.0225	5.430	0.143	77.74	0.83	8.020	–0.330	–385.14	22.36
0.0250	5.531	0.168	78.00	0.90	8.015	–0.365	–379.06	24.95
0.0275	5.634	0.194	78.26	0.98	8.009	–0.399	–373.12	27.49
0.0300	5.738	0.221	78.51	1.05	8.004	–0.433	–367.33	30.00
0.0325	5.843	0.250	78.77	1.13	7.999	–0.467	–361.66	32.47
0.0350	5.950	0.280	79.01	1.19	7.994	–0.500	–356.08	34.95
0.0375	6.062	0.315	79.26	1.26	7.990	–0.533	–350.40	37.61
0.0400	6.170	0.347	79.50	1.32	7.986	–0.566	–345.13	39.94
0.0475	6.503	0.449	80.21	1.49	7.976	–0.662	–329.97	46.77

Table S7 (continued)

x_A	$E_{p,m}$ / mm^3 K^{-1} mol^{-1}	$E_{p,m}^E$ / mm^3 K^{-1} mol^{-1}	$C_{p,m}$ / J K^{-1} mol^{-1}	$C_{p,m}^E$ / J K^{-1} mol^{-1}	$K_{S,m}$ / mm^3 MPa^{-1} mol^{-1}	$K_{S,m}^E$ / mm^3 MPa^{-1} mol^{-1}	$E_{S,m}$ / mm^3 K^{-1} mol^{-1}	$E_{S,m}^E$ / mm^3 K^{-1} mol^{-1}
0.050	6.616	0.486	80.44	1.54	7.973	–0.693	–325.12	49.00
0.060	7.078	0.641	81.35	1.73	7.966	–0.814	–307.10	57.18
0.070	7.537	0.794	82.22	1.88	7.966	–0.927	–291.46	63.92
0.080	8.002	0.952	83.05	1.98	7.972	–1.034	–277.48	69.85
0.090	8.461	1.104	83.84	2.05	7.984	–1.134	–265.35	74.65
0.100	8.905	1.242	84.61	2.10	8.002	–1.228	–255.01	78.31
0.110	9.357	1.387	85.35	2.12	8.026	–1.316	–245.54	81.66
0.120	9.804	1.528	86.08	2.12	8.054	–1.398	–237.17	84.43
0.130	10.240	1.657	86.78	2.10	8.088	–1.475	–229.90	86.53
0.140	10.673	1.783	87.48	2.08	8.127	–1.546	–223.43	88.25
0.150	11.103	1.906	88.11	1.98	8.171	–1.612	–217.47	89.81
0.175	12.130	2.167	89.80	1.88	8.302	–1.755	–206.15	91.52
0.200	13.115	2.385	91.45	1.72	8.459	–1.869	–197.85	91.83
0.225	14.060	2.563	93.10	1.56	8.638	–1.959	–191.85	91.14
0.250	14.962	2.699	94.74	1.40	8.835	–2.029	–187.64	89.71
0.275	15.838	2.808	96.41	1.27	9.049	–2.081	–184.75	87.84
0.300	16.677	2.880	98.07	1.12	9.277	–2.117	–182.97	85.56
0.325	17.468	2.905	99.76	1.01	9.517	–2.138	–182.31	82.79
0.350	18.233	2.904	101.46	0.90	9.771	–2.145	–182.36	79.82
0.375	18.972	2.876	103.16	0.79	10.038	–2.137	–183.07	76.63
0.400	19.703	2.840	104.86	0.69	10.316	–2.117	–184.14	73.46
0.425	20.426	2.797	106.55	0.57	10.601	–2.088	–185.47	70.37
0.450	21.143	2.747	108.25	0.47	10.894	–2.051	–187.08	67.29
0.475	21.862	2.700	109.96	0.38	11.195	–2.004	–188.86	64.31
0.500	22.562	2.632	111.68	0.29	11.501	–1.951	–190.94	61.24
0.525	23.250	2.554	113.40	0.21	11.811	–1.893	–193.23	58.17
0.550	23.909	2.447	115.14	0.13	12.129	–1.826	–195.89	54.90
0.575	24.566	2.337	116.88	0.07	12.450	–1.755	–198.68	51.67
0.600	25.213	2.217	118.63	0.02	12.775	–1.679	–201.61	48.44
0.625	25.838	2.075	120.39	–0.03	13.104	–1.598	–204.79	45.10
0.650	26.459	1.930	122.14	–0.08	13.436	–1.514	–208.02	41.81
0.675	27.083	1.787	123.91	–0.12	13.771	–1.425	–211.31	38.59
0.700	27.730	1.667	125.68	–0.15	14.109	–1.333	–214.49	35.57
0.725	28.364	1.535	127.48	–0.16	14.451	–1.236	–217.83	32.48
0.750	29.003	1.407	129.26	–0.18	14.794	–1.137	–221.16	29.48
0.775	29.643	1.280	131.06	–0.18	15.141	–1.035	–224.53	26.52
0.800	30.282	1.152	132.87	–0.18	15.491	–0.928	–227.97	23.56
0.825	30.922	1.026	134.68	–0.17	15.845	–0.816	–231.48	20.60
0.850	31.550	0.888	136.50	–0.16	16.200	–0.703	–235.08	17.59
0.875	32.170	0.741	138.33	–0.14	16.556	–0.588	–238.77	14.57
0.900	32.787	0.591	140.16	–0.11	16.912	–0.473	–242.48	11.56
0.925	33.398	0.436	141.99	–0.08	17.265	–0.360	–246.20	8.60
0.950	34.009	0.280	143.83	–0.05	17.619	–0.246	–249.92	5.68
0.975	34.623	0.127	145.66	–0.02	17.975	–0.129	–253.65	2.80
1	35.26	0	147.49	0	18.343	0	–257.33	0

Table S8 Molar and excess molar isobaric expansions, $E_{p,m}$ and $E_{p,m}^{E}$, molar and excess molar isobaric heat capacities, $C_{p,m}$ and $C_{p,m}^{E}$, molar and excess molar isentropic compressions, $K_{S,m}$ and $K_{S,m}^{E}$, and molar and excess molar isentropic expansions, $E_{S,m}$ and $E_{S,m}^{E}$, at 298.15 K and at 65 rounded mole fractions for the system water–2-methoxyethanol (W + C_1E_1)

x_A	$E_{p,m}$ / mm^3 K^{-1} mol^{-1}	$E_{p,m}^{E}$ / mm^3 K^{-1} mol^{-1}	$C_{p,m}$ / J K^{-1} mol^{-1}	$C_{p,m}^{E}$ / J K^{-1} mol^{-1}	$K_{S,m}$ / mm^3 MPa^{-1} mol^{-1}	$K_{S,m}^{E}$ / mm^3 MPa^{-1} mol^{-1}	$E_{S,m}$ / mm^3 K^{-1} mol^{-1}	$E_{S,m}^{E}$ / mm^3 K^{-1} mol^{-1}
0	4.647	0	75.292	0	8.090	0	–439.63	0
0.0025	4.833	0.015	75.82	0.27	8.085	–0.116	–425.41	5.91
0.0050	4.997	0.009	76.34	0.54	8.080	–0.232	–413.97	9.62
0.0075	5.163	0.004	76.85	0.80	8.075	–0.347	–403.15	13.26
0.0100	5.331	0.001	77.36	1.06	8.072	–0.461	–392.89	16.82
0.0125	5.500	0.000	77.86	1.31	8.069	–0.573	–383.15	20.31
0.0150	5.671	0.000	78.36	1.55	8.068	–0.685	–373.89	23.72
0.0175	5.844	0.002	78.85	1.78	8.067	–0.795	–365.05	27.06
0.0200	6.027	0.014	79.33	2.01	8.068	–0.904	–356.19	30.78
0.0225	6.203	0.021	79.80	2.24	8.069	–1.012	–348.15	33.96
0.0250	6.382	0.028	80.27	2.45	8.071	–1.119	–340.51	37.04
0.0275	6.561	0.037	80.73	2.66	8.074	–1.226	–333.24	40.01
0.0300	6.740	0.045	81.19	2.86	8.078	–1.330	–326.36	42.82
0.0325	6.921	0.055	81.63	3.05	8.083	–1.434	–319.79	45.56
0.0350	7.104	0.067	82.07	3.24	8.089	–1.537	–313.46	48.25
0.0375	7.292	0.085	82.50	3.42	8.097	–1.638	–307.26	51.01
0.0400	7.475	0.097	82.93	3.59	8.105	–1.738	–301.58	53.42
0.0425	7.677	0.128	83.34	3.75	8.114	–1.836	–295.46	56.44
0.0450	7.883	0.164	83.74	3.90	8.125	–1.933	–289.48	59.47
0.0475	8.099	0.209	84.15	4.05	8.138	–2.029	–283.59	62.57
0.050	8.319	0.259	84.54	4.20	8.151	–2.123	–277.83	65.66
0.060	9.242	0.499	86.07	4.72	8.217	–2.485	–256.69	77.36
0.070	10.232	0.806	87.49	5.12	8.302	–2.827	–238.09	88.11
0.080	11.330	1.222	88.85	5.47	8.409	–3.144	–221.18	98.46
0.090	12.411	1.620	90.11	5.71	8.533	–3.441	–207.79	106.32
0.100	13.510	2.037	91.35	5.94	8.680	–3.715	–196.83	112.61
0.110	14.574	2.419	92.54	6.13	8.841	–3.972	–188.27	117.21
0.120	15.598	2.759	93.67	6.24	9.017	–4.211	–181.62	120.50
0.130	16.592	3.070	94.77	6.34	9.210	–4.431	–176.45	122.81
0.140	17.472	3.268	95.73	6.28	9.421	–4.632	–173.12	123.70
0.150	18.359	3.472	96.76	6.30	9.639	–4.824	–170.40	124.37
0.175	20.404	3.811	99.30	6.31	10.247	–5.234	–167.25	123.71
0.200	22.345	4.046	101.69	6.18	10.917	–5.571	–166.63	122.00
0.225	24.217	4.211	104.05	6.01	11.650	–5.835	–167.88	119.52
0.250	26.039	4.326	106.40	5.83	12.432	–6.043	–170.38	116.62
0.275	27.808	4.389	108.65	5.55	13.259	–6.197	–173.75	113.51
0.300	29.561	4.435	110.96	5.33	14.120	–6.309	–177.77	110.28
0.325	31.269	4.436	113.33	5.18	15.024	–6.373	–182.63	106.62
0.350	32.879	4.340	115.65	4.97	15.951	–6.405	–188.19	102.61
0.375	34.481	4.235	117.96	4.75	16.912	–6.399	–194.05	98.60
0.400	36.065	4.113	120.25	4.52	17.894	–6.365	–200.12	94.61
0.425	37.646	3.987	122.60	4.34	18.902	–6.301	–206.47	90.54
0.450	39.234	3.869	124.90	4.11	19.933	–6.209	–212.83	86.65
0.475	40.879	3.808	127.13	3.82	20.983	–6.093	–218.88	83.21

Table S8 (continued)

x_A	$E_{p,m}$ / mm^3 K^{-1} mol^{-1}	$E_{p,m}^E$ / mm^3 K^{-1} mol^{-1}	$C_{p,m}$ / J K^{-1} mol^{-1}	$C_{p,m}^E$ / J K^{-1} mol^{-1}	$K_{S,m}$ / mm^3 MPa^{-1} mol^{-1}	$K_{S,m}^E$ / mm^3 MPa^{-1} mol^{-1}	$E_{S,m}$ / mm^3 K^{-1} mol^{-1}	$E_{S,m}^E$ / mm^3 K^{-1} mol^{-1}
0.500	42.506	3.727	129.47	3.62	22.055	–5.951	–225.32	79.52
0.525	44.103	3.618	131.88	3.50	23.143	–5.788	–232.10	75.59
0.550	45.680	3.488	134.27	3.37	24.247	–5.606	–239.05	71.61
0.575	47.222	3.323	136.66	3.23	25.367	–5.404	–246.23	67.47
0.600	48.714	3.109	138.99	3.03	26.502	–5.184	–253.61	63.22
0.625	50.191	2.880	141.34	2.85	27.651	–4.947	–261.16	58.87
0.650	51.642	2.624	143.66	2.65	28.813	–4.693	–268.84	54.45
0.675	53.080	2.355	145.98	2.44	29.988	–4.424	–276.61	50.00
0.700	54.507	2.076	148.29	2.22	31.172	–4.143	–284.43	45.54
0.725	55.932	1.794	150.59	1.99	32.366	–3.848	–292.27	41.12
0.750	57.360	1.515	152.90	1.77	33.569	–3.543	–300.12	36.73
0.775	58.798	1.247	155.21	1.55	34.783	–3.225	–307.95	32.39
0.800	60.249	0.991	157.52	1.34	36.004	–2.897	–315.72	28.16
0.825	61.721	0.757	159.84	1.13	37.229	–2.563	–323.36	24.08
0.850	63.217	0.546	162.17	0.94	38.459	–2.222	–330.90	20.13
0.875	64.740	0.363	164.51	0.75	39.695	–1.873	–338.31	16.34
0.900	66.296	0.212	166.86	0.57	40.934	–1.519	–345.55	12.74
0.925	67.887	0.096	169.22	0.40	42.180	–1.157	–352.65	9.32
0.950	69.516	0.020	171.60	0.25	43.435	–0.783	–359.61	6.04
0.975	71.190	–0.014	173.99	0.12	44.700	–0.398	–366.43	2.93
1	72.91	0	176.40	0	45.977	0	–373.09	0

Table S9 Molar and excess molar isobaric expansions, $E_{p,m}$ and $E_{p,m}^E$, molar and excess molar isobaric heat capacities, $C_{p,m}$ and $C_{p,m}^E$, molar and excess molar isentropic compressions, $K_{S,m}$ and $K_{S,m}^E$, and molar and excess molar isentropic expansions, $E_{S,m}$ and $E_{S,m}^E$, at 298.15 K and at 65 rounded mole fractions for the system water–2-ethoxyethanol (W + C_2E_1)

x_A	$E_{p,m}$ / mm^3 K^{-1} mol^{-1}	$E_{p,m}^E$ / mm^3 K^{-1} mol^{-1}	$C_{p,m}$ / J K^{-1} mol^{-1}	$C_{p,m}^E$ / J K^{-1} mol^{-1}	$K_{S,m}$ / mm^3 MPa^{-1} mol^{-1}	$K_{S,m}^E$ / mm^3 MPa^{-1} mol^{-1}	$E_{S,m}$ / mm^3 K^{-1} mol^{-1}	$E_{S,m}^E$ / mm^3 K^{-1} mol^{-1}
0	4.644	0	75.30	0	8.090	0	–439.99	0
0.0025	4.844	–0.026	76.08	0.44	8.076	–0.172	–425.46	4.23
0.0050	5.052	–0.045	76.86	0.88	8.065	–0.342	–411.53	8.82
0.0075	5.266	–0.057	77.63	1.31	8.055	–0.510	–398.25	13.61
0.0100	5.487	–0.063	78.38	1.72	8.048	–0.675	–385.60	18.53
0.0125	5.714	–0.063	79.13	2.13	8.043	–0.838	–373.54	23.50
0.0150	5.947	–0.056	79.86	2.52	8.040	–0.998	–362.08	28.45
0.0175	6.186	–0.044	80.59	2.91	8.039	–1.156	–351.23	33.31
0.0200	6.431	–0.026	81.34	3.32	8.040	–1.311	–341.09	37.92
0.0225	6.680	–0.003	82.03	3.67	8.043	–1.464	–331.29	42.62
0.0250	6.934	0.024	82.70	4.00	8.049	–1.614	–322.02	47.15
0.0275	7.192	0.056	83.45	4.41	8.057	–1.762	–313.57	51.21
0.0300	7.452	0.089	84.14	4.75	8.068	–1.906	–305.55	55.14
0.0325	7.718	0.129	84.82	5.09	8.081	–2.049	–297.84	59.05
0.0350	7.989	0.173	85.47	5.41	8.096	–2.189	–290.50	62.83
0.0375	8.262	0.219	86.12	5.72	8.113	–2.326	–283.64	66.39
0.0400	8.538	0.268	86.76	6.02	8.132	–2.461	–277.20	69.73
0.0425	8.815	0.319	87.39	6.31	8.155	–2.593	–271.16	72.87
0.0450	9.096	0.374	88.01	6.59	8.179	–2.722	–265.45	75.86
0.0475	9.375	0.426	88.62	6.86	8.207	–2.847	–260.20	78.55

Table S9 (continued)

x_A	$E_{p,m}$ / mm^3 K^{-1} mol^{-1}	$E_{p,m}^E$ / mm^3 K^{-1} mol^{-1}	$C_{p,m}$ / J K^{-1} mol^{-1}	$C_{p,m}^E$ / J K^{-1} mol^{-1}	$K_{S,m}$ / mm^3 MPa^{-1} mol^{-1}	$K_{S,m}^E$ / mm^3 MPa^{-1} mol^{-1}	$E_{S,m}$ / mm^3 K^{-1} mol^{-1}	$E_{S,m}^E$ / mm^3 K^{-1} mol^{-1}
0.050	9.659	0.484	89.21	7.11	8.236	–2.971	–255.15	81.21
0.060	10.789	0.707	91.43	7.97	8.384	–3.434	–238.30	89.84
0.070	11.937	0.949	93.49	8.66	8.571	–3.854	–225.12	96.56
0.080	13.072	1.178	95.22	9.04	8.800	–4.227	–215.00	101.57
0.090	14.189	1.388	96.85	9.31	9.066	–4.560	–207.57	104.97
0.100	15.291	1.584	98.25	9.34	9.366	–4.855	–201.83	107.54
0.110	16.356	1.742	99.51	9.25	9.693	–5.120	–197.81	109.09
0.120	17.401	1.881	100.71	9.09	10.045	–5.358	–194.99	110.01
0.130	18.418	1.991	101.87	8.88	10.416	–5.573	–193.23	110.35
0.140	19.415	2.082	102.96	8.61	10.805	–5.767	–192.19	110.37
0.150	20.393	2.154	104.06	8.35	11.210	–5.944	–191.84	110.06
0.175	22.760	2.255	106.87	7.75	12.277	–6.316	–193.34	108.09
0.200	25.043	2.271	109.92	7.41	13.411	–6.608	–197.44	104.83
0.225	27.271	2.234	113.09	7.17	14.600	–6.832	–203.05	101.03
0.250	29.476	2.172	116.27	6.95	15.826	–7.006	–209.38	97.23
0.275	31.667	2.098	119.46	6.74	17.084	–7.137	–216.15	93.53
0.300	33.858	2.022	122.65	6.53	18.373	–7.228	–223.23	89.97
0.325	36.041	1.940	125.85	6.33	19.690	–7.281	–230.61	86.45
0.350	38.217	1.850	129.06	6.13	21.036	–7.297	–238.26	82.95
0.375	40.384	1.751	132.26	5.93	22.409	–7.278	–246.15	79.44
0.400	42.539	1.640	135.46	5.73	23.809	–7.226	–254.28	75.88
0.425	44.681	1.516	138.66	5.53	25.232	–7.143	–262.63	72.28
0.450	46.818	1.388	141.86	5.33	26.678	–7.032	–271.12	68.67
0.475	48.957	1.260	145.04	5.11	28.143	–6.895	–279.66	65.13
0.500	51.097	1.134	148.23	4.89	29.628	–6.735	–288.26	61.62
0.525	53.257	1.029	151.40	4.66	31.131	–6.551	–296.82	58.25
0.550	55.441	0.946	154.57	4.43	32.653	–6.343	–305.35	55.00
0.575	57.630	0.869	157.77	4.23	34.194	–6.112	–313.97	51.71
0.600	59.823	0.797	160.97	4.03	35.752	–5.860	–322.65	48.43
0.625	62.013	0.720	164.18	3.84	37.328	–5.587	–331.46	45.08
0.650	64.208	0.650	167.39	3.64	38.918	–5.296	–340.28	41.76
0.675	66.368	0.544	170.59	3.44	40.518	–4.991	–349.30	38.30
0.700	68.531	0.440	173.78	3.23	42.131	–4.671	–358.32	34.86
0.725	70.701	0.345	176.96	3.01	43.751	–4.340	–367.29	31.52
0.750	72.886	0.264	180.13	2.77	45.382	–3.996	–376.17	28.28
0.775	75.108	0.220	183.28	2.52	47.027	–3.637	–384.89	25.25
0.800	77.334	0.179	186.41	2.26	48.682	–3.263	–393.59	22.26
0.825	79.568	0.147	189.51	1.96	50.346	–2.879	–402.20	19.39
0.850	81.825	0.139	192.61	1.65	52.011	–2.492	–410.64	16.70
0.875	84.079	0.127	195.65	1.29	53.681	–2.097	–418.96	14.16
0.900	86.340	0.122	198.68	0.92	55.361	–1.691	–427.28	11.64
0.925	88.602	0.118	201.71	0.55	57.048	–1.275	–435.61	9.12
0.950	90.843	0.093	204.81	0.25	58.741	–0.852	–444.20	6.36
0.975	93.069	0.053	208.02	0.05	60.437	–0.425	–453.07	3.34
1	95.282	0	211.37	0	62.129	0	–462.27	0

Table S10 Molar and excess molar isobaric expansions, $E_{p,m}$ and $E_{p,m}^{E}$, molar and excess molar isobaric heat capacities, $C_{p,m}$ and $C_{p,m}^{E}$, molar and excess molar isentropic compressions, $K_{S,m}$ and $K_{S,m}^{E}$, and molar and excess molar isentropic expansions, $E_{S,m}$ and $E_{S,m}^{E}$, at 298.15 K and at 65 rounded mole fractions for the system water–2-butoxyethanol (W + C_4E_1)

x_A	$E_{p,m}$ / mm^3 K^{-1} mol^{-1}	$E_{p,m}^{E}$ / mm^3 K^{-1} mol^{-1}	$C_{p,m}$ / J K^{-1} mol^{-1}	$C_{p,m}^{E}$ / J K^{-1} mol^{-1}	$K_{S,m}$ / mm^3 MPa^{-1} mol^{-1}	$K_{S,m}^{E}$ / mm^3 MPa^{-1} mol^{-1}	$E_{S,m}$ / mm^3 K^{-1} mol^{-1}	$E_{S,m}^{E}$ / mm^3 K^{-1} mol^{-1}
0	4.647	0	75.292	0	8.090	0	–439.63	0
0.0025	4.922	–0.024	76.47	0.69	8.076	–0.241	–420.87	6.57
0.0050	5.239	–0.006	77.70	1.42	8.063	–0.481	–401.06	15.70
0.0075	5.611	0.067	78.87	2.10	8.055	–0.715	–379.75	27.59
0.0100	6.047	0.204	80.15	2.88	8.053	–0.941	–358.06	40.93
0.0125	6.552	0.410	81.47	3.70	8.104	–1.116	–337.97	53.57
0.0150	7.128	0.688	82.77	4.51	8.193	–1.251	–319.09	65.80
0.0175	7.773	1.034	83.94	5.18	8.320	–1.348	–301.31	77.60
0.0200	8.482	1.444	84.99	5.74	8.456	–1.435	–284.19	89.34
0.0225	9.224	1.887	85.95	6.21	8.610	–1.504	–269.12	99.56
0.0250	9.830	2.194	86.68	6.44	8.773	–1.563	–259.46	104.81
0.0275	10.309	2.375	87.43	6.70	8.935	–1.623	–254.15	106.14
0.0300	10.713	2.479	88.01	6.78	9.105	–1.674	–250.89	105.77
0.0325	11.098	2.565	88.64	6.92	9.285	–1.715	–248.74	104.62
0.0350	11.472	2.640	89.26	7.04	9.449	–1.772	–246.58	103.76
0.0375	11.835	2.705	89.87	7.16	9.630	–1.811	–245.26	102.35
0.0400	12.190	2.760	90.30	7.10	9.825	–1.836	–244.11	100.98
0.0425	12.536	2.808	90.87	7.17	10.023	–1.857	–243.67	99.14
0.0450	12.875	2.848	91.42	7.23	10.206	–1.893	–243.06	97.66
0.0475	13.208	2.882	91.94	7.25	10.386	–1.931	–242.47	96.34
0.050	13.536	2.911	92.47	7.29	10.555	–1.980	–241.85	95.20
0.060	14.805	2.985	94.57	7.41	11.266	–2.137	–241.36	90.11
0.070	16.041	3.025	96.59	7.45	11.950	–2.316	–241.33	86.32
0.080	17.271	3.058	98.60	7.48	12.628	–2.495	–241.79	83.38
0.090	18.508	3.101	100.61	7.51	13.303	–2.670	–242.55	81.16
0.100	19.760	3.157	102.63	7.56	13.983	–2.837	–243.58	79.47
0.110	21.026	3.227	104.63	7.58	14.668	–2.995	–244.82	78.20
0.120	22.301	3.306	106.63	7.60	15.354	–3.146	–246.23	77.28
0.130	23.581	3.391	108.62	7.61	16.043	–3.292	–247.85	76.57
0.140	24.861	3.475	110.61	7.62	16.734	–3.430	–249.71	75.97
0.150	26.137	3.555	112.59	7.63	17.430	–3.561	–251.83	75.42
0.175	29.293	3.722	117.54	7.63	19.181	–3.862	–258.14	74.05
0.200	32.389	3.829	122.46	7.61	20.952	–4.124	–265.71	72.53
0.225	35.429	3.880	127.39	7.59	22.745	–4.350	–274.30	70.78
0.250	38.339	3.801	132.29	7.55	24.562	–4.536	–284.27	68.22
0.275	41.186	3.659	137.16	7.47	26.397	–4.691	–294.85	65.50
0.300	44.033	3.517	142.04	7.41	28.253	–4.815	–305.68	62.88
0.325	46.882	3.377	146.96	7.38	30.126	–4.912	–316.74	60.30
0.350	49.731	3.237	151.85	7.33	32.018	–4.981	–327.90	57.84
0.375	52.582	3.099	156.73	7.26	33.928	–5.023	–339.20	55.43
0.400	55.433	2.961	161.58	7.17	35.858	–5.038	–350.58	53.08
0.425	58.286	2.824	166.41	7.05	37.807	–5.028	–362.03	50.79
0.450	61.139	2.689	171.23	6.93	39.773	–4.995	–373.61	48.47
0.475	63.993	2.554	176.03	6.78	41.756	–4.939	–385.25	46.19

Table S10 (continued)

x_A	$E_{p,m}$ / mm^3 K^{-1} mol^{-1}	$E_{p,m}^E$ / mm^3 K^{-1} mol^{-1}	$C_{p,m}$ / J K^{-1} mol^{-1}	$C_{p,m}^E$ / J K^{-1} mol^{-1}	$K_{S,m}$ / mm^3 MPa^{-1} mol^{-1}	$K_{S,m}^E$ / mm^3 MPa^{-1} mol^{-1}	$E_{S,m}$ / mm^3 K^{-1} mol^{-1}	$E_{S,m}^E$ / mm^3 K^{-1} mol^{-1}
0.500	66.849	2.420	180.80	6.61	43.755	–4.862	–396.93	43.95
0.525	69.638	2.220	185.52	6.37	45.777	–4.758	–409.02	41.35
0.550	72.425	2.018	190.21	6.12	47.812	–4.636	–421.16	38.78
0.575	75.212	1.817	194.89	5.86	49.864	–4.493	–433.37	36.18
0.600	78.002	1.618	199.56	5.58	51.931	–4.332	–445.61	33.60
0.625	80.797	1.423	204.21	5.29	54.019	–4.147	–457.93	30.98
0.650	83.598	1.235	208.85	4.98	56.116	–3.949	–470.21	28.45
0.675	86.408	1.056	213.47	4.66	58.227	–3.734	–482.48	25.95
0.700	89.227	0.886	218.08	4.33	60.346	–3.509	–494.70	23.52
0.725	92.058	0.727	222.70	3.99	62.477	–3.269	–506.92	21.13
0.750	94.901	0.581	227.30	3.66	64.624	–3.011	–519.16	18.74
0.775	97.757	0.449	231.92	3.32	66.771	–2.751	–531.30	16.47
0.800	100.629	0.331	236.52	2.98	68.929	–2.478	–543.39	14.28
0.825	103.515	0.229	241.11	2.63	71.106	–2.184	–555.50	12.08
0.850	106.418	0.143	245.69	2.26	73.294	–1.876	–567.56	9.94
0.875	109.338	0.073	250.26	1.89	75.488	–1.563	–579.52	7.92
0.900	112.275	0.022	254.83	1.51	77.686	–1.242	–591.39	6.00
0.925	115.231	–0.012	259.40	1.14	79.880	–0.925	–603.12	4.25
0.950	118.205	–0.027	263.97	0.76	82.066	–0.613	–614.67	2.68
0.975	121.198	–0.023	268.53	0.38	84.246	–0.307	–626.06	1.27
1	124.21	0	273.10	0	86.424	0	–637.34	0