Supporting Information

Manuscript Title

Vapor-liquid equilibria for ternary mixtures of isopropyl alcohol, isopropyl acetate and DMSO at 101.3 kPa

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Table S1. Comparison of experimental data and calculated data in Wilson, NRTL, UNIQUAC models

Experimental data			Calculated data																	
			Wilson						NRTL						UNIQUAC					
T^{exp}	x_1	y_1	y_1^{cal}	Δy^a	x_1^{cal}	Δx^b	T^{cal}/K	ΔT^c/K	y_1^{cal}	Δy^a	x_1^{cal}	Δx^b	T^{cal}/K	ΔT^c/K	y_1^{cal}	Δy^a	x_1^{cal}	Δx^b	T^{cal}/K	ΔT^c/K
Isopropyl alcohol (1) + DMSO (3)																				
355.33	1.0000	1.0000	1.0000	0.0000	1.0000	0.0000	355.20	0.13	1.0000	0.0000	1.0000	0.0000	355.20	0.13	1.0000	0.0000	1.0000	0.0000	355.20	0.13
357.51	0.9032	0.9983	0.9983	0.0000	0.9032	0.0000	357.78	-0.27	0.9984	-0.0001	0.9032	0.0000	357.79	-0.28	0.9983	0.0000	0.9032	0.0000	357.54	-0.03
359.14	0.8481	0.9972	0.9970	0.0002	0.8483	-0.0002	359.46	-0.32	0.9971	0.0001	0.8482	-0.0001	359.48	-0.34	0.9971	0.0001	0.8481	0.0000	359.11	0.03
360.75	0.8051	0.9961	0.9958	0.0003	0.8053	-0.0002	360.91	-0.16	0.9959	0.0002	0.8052	-0.0001	360.94	-0.19	0.9960	0.0001	0.8051	0.0000	360.53	0.22
364.71	0.7091	0.9925	0.9921	0.0004	0.7093	-0.0002	364.59	0.12	0.9923	0.0002	0.7092	-0.0001	364.64	0.07	0.9924	0.0001	0.7090	0.0001	364.31	0.40
368.77	0.6138	0.9869	0.9867	0.0002	0.6140	-0.0002	368.94	-0.17	0.9869	0.0000	0.6140	-0.0002	369.00	-0.23	0.9868	0.0001	0.6139	-0.0001	368.84	-0.07
374.24	0.5225	0.9776	0.9786	-0.0010	0.5217	0.0008	374.11	0.13	0.9787	-0.0011	0.5217	0.0008	374.15	0.09	0.9782	-0.0006	0.5219	0.0006	374.15	0.09
376.78	0.4832	0.9726	0.9738	-0.0012	0.4824	0.0008	376.64	0.14	0.9739	-0.0013	0.4824	0.0008	376.65	0.13	0.9733	-0.0007	0.4828	0.0004	376.72	0.06
381.24	0.4149	0.9623	0.9628	-0.0005	0.4152	-0.0003	381.53	-0.29	0.9628	-0.0005	0.4151	-0.0002	381.49	-0.25	0.9619	0.0004	0.4155	-0.0006	381.62	-0.38
386.4	0.356	0.948	0.948	-0.000	0.356	-0.000	386.6	-0.16	0.948	-0.000	0.356	0.0000	386.5	-0.05	0.947	0.0006	0.356	-0.000	386.6	-0.20

7	1	3	8	5	2	1	3		9	6	1		2		7		4	3	7	
389.52	0.3207	0.9371	0.9375	-0.0004	0.3212	-0.0005	390.05	-0.53	0.9378	-0.0007	0.3210	-0.0003	389.90	-0.38	0.9364	0.0007	0.3213	-0.0006	390.03	-0.51
398.61	0.2491	0.9015	0.9030	-0.0015	0.2490	0.0001	398.60	0.01	0.9037	-0.0022	0.2488	0.0003	398.34	0.27	0.9024	-0.0009	0.2489	0.0002	398.38	0.23
405.21	0.2009	0.8675	0.8659	0.0016	0.2011	-0.0002	405.54	-0.33	0.8671	0.0004	0.2009	0.0000	405.24	-0.03	0.8662	0.0013	0.2009	0.0000	405.19	0.02
414.02	0.1512	0.8045	0.8046	-0.0001	0.1514	-0.0002	414.45	-0.43	0.8062	-0.0017	0.1513	-0.0001	414.16	-0.14	0.8063	-0.0018	0.1512	0.0000	414.02	0.00
425.63	0.1022	0.6991	0.6999	-0.0008	0.1022	0.0000	425.73	-0.10	0.7008	-0.0017	0.1022	0.0000	425.61	0.02	0.7018	-0.0027	0.1021	0.0001	425.45	0.18
429.39	0.0890	0.6560	0.6588	-0.0028	0.0890	0.0000	429.34	0.05	0.6590	-0.0030	0.0890	0.0000	429.29	0.10	0.6599	-0.0039	0.0889	0.0001	429.17	0.22
437.48	0.0635	0.5481	0.5544	-0.0063	0.0635	0.0000	437.19	0.29	0.5522	-0.0041	0.0635	0.0000	437.32	0.16	0.5522	-0.0041	0.0635	0.0000	437.30	0.18
441.94	0.0496	0.4695	0.4787	-0.0092	0.0496	0.0000	441.97	-0.03	0.4746	-0.0051	0.0496	0.0000	442.20	-0.26	0.4734	-0.0039	0.0496	0.0000	442.25	-0.31
450.41	0.0286	0.3120	0.3256	-0.0136	0.0286	0.0000	450.29	0.12	0.3187	-0.0067	0.0286	0.0000	450.60	-0.19	0.3150	-0.0030	0.0286	0.0000	450.77	-0.36
463.38	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	463.82	-0.44	0.0000	0.0000	0.0000	0.0000	463.82	-0.44	0.0000	0.0000	0.0000	0.0000	463.82	-0.44
AD[d]				0.0042		0.0003		0.25		0.0025		0.0003		0.22		0.0020		0.0003		0.25
Isopropyl acetate (2) + DMSO (3)																				
361.45	1.0000	1.0000	1.0000	0.0000	1.0000	0.0000	361.64	0.19	1.0000	0.0000	1.0000	0.0000	361.64	0.19	1.0000	0.0000	1.0000	0.0000	361.64	0.19
363.5	0.920	0.993	0.993	0.0001	0.920	0.0000	363.8	0.21	0.992	0.0007	0.920	0.0000	363.7	0.18	0.992	0.0007	0.920	0.0000	363.7	0.14

9	7	5	4		7		0		8		7		7		8		7		3	
366.56	0.8012	0.9849	0.9851	-0.0002	0.8012	0.0000	366.75	0.19	0.9840	0.0009	0.8012	0.0000	366.70	0.14	0.9846	0.0003	0.8012	0.0000	366.56	0.00
369.36	0.6769	0.9776	0.9776	0.0000	0.6769	0.0000	369.56	0.20	0.9766	0.0010	0.6770	-0.0001	369.52	0.16	0.9775	0.0001	0.6770	-0.0001	369.31	0.05
370.72	0.6144	0.9769	0.9741	0.0028	0.6149	-0.0005	370.95	0.23	0.9730	0.0039	0.6149	-0.0005	370.92	0.20	0.9741	0.0028	0.6149	-0.0005	370.70	0.02
374.06	0.4838	0.9648	0.9659	-0.0011	0.4838	0.0000	374.30	0.24	0.9650	-0.0002	0.4838	0.0000	374.25	0.19	0.9659	-0.0011	0.4838	0.0000	374.15	0.09
376.18	0.4237	0.9577	0.9611	-0.0034	0.4234	0.0003	376.22	0.04	0.9604	-0.0027	0.4234	0.0003	376.18	0.00	0.9610	-0.0033	0.4234	0.0003	376.17	0.01
377.74	0.3817	0.9560	0.9571	-0.0011	0.3816	0.0001	377.78	0.04	0.9564	-0.0004	0.3816	0.0001	377.73	0.01	0.9568	-0.0008	0.3816	0.0001	377.80	0.06
381.61	0.3019	0.9432	0.9466	-0.0034	0.3018	0.0001	381.69	0.08	0.9459	-0.0027	0.3017	0.0002	381.68	0.07	0.9457	-0.0025	0.3017	0.0002	381.86	0.25
383.18	0.2720	0.9412	0.9410	0.0002	0.2722	-0.0002	383.56	0.38	0.9403	0.0009	0.2722	-0.0002	383.56	0.38	0.9399	0.0013	0.2722	-0.0002	383.77	0.59
384.96	0.2541	0.9355	0.9368	-0.0013	0.2541	0.0000	384.96	0.00	0.9360	-0.0005	0.2540	0.0001	385.00	0.04	0.9356	-0.0001	0.2540	0.0001	385.20	0.24
386.62	0.2341	0.9301	0.9313	-0.0012	0.2341	0.0000	386.65	0.03	0.9305	-0.0004	0.2341	0.0000	386.72	0.10	0.9300	0.0001	0.2341	0.0000	386.90	0.28
388.17	0.2199	0.9254	0.9267	-0.0013	0.2198	0.0001	388.04	0.13	0.9258	-0.0004	0.2198	0.0001	388.13	0.04	0.9253	0.0001	0.2198	0.0001	388.29	0.12
392.92	0.1791	0.9062	0.9088	-0.0026	0.1790	0.0001	392.85	0.07	0.9077	-0.0015	0.1790	0.0001	393.01	0.09	0.9074	-0.0012	0.1790	0.0001	393.03	0.11
400.5	0.134	0.870	0.874	-0.003	0.134	0.0000	400.5	0.01	0.872	-0.002	0.134	0.0000	400.7	0.19	0.873	-0.003	0.134	0.0000	400.4	0.07

3	1	5	0	5	1		2		5	0	1		2		5	0	1		6	
413.46	0.0859	0.7871	0.7916	-0.0045	0.0859	0.0000	413.63	0.17	0.7901	-0.0030	0.0859	0.0000	413.76	0.30	0.7942	-0.0071	0.0859	0.0000	413.19	0.27
425.98	0.0551	0.6715	0.6724	-0.0009	0.0552	-0.0001	426.56	0.58	0.6726	-0.0011	0.0552	-0.0001	426.51	0.53	0.6770	-0.0055	0.0552	-0.0001	426.12	0.14
444.02	0.0266	0.4241	0.4385	-0.0144	0.0266	0.0000	443.71	0.31	0.4427	-0.0186	0.0266	0.0000	443.48	0.54	0.4351	-0.0110	0.0266	0.0000	443.88	0.14
456.01	0.0098	0.1891	0.1958	-0.0067	0.0098	0.0000	456.00	0.01	0.2003	-0.0112	0.0098	0.0000	455.82	0.19	0.1864	0.0027	0.0098	0.0000	456.36	0.35
463.38	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	463.82	0.44	0.0000	0.0000	0.0000	0.0000	463.82	0.44	0.0000	0.0000	0.0000	0.0000	463.82	0.44
AD[d]				0.0043		0.0002		0.23		0.0054		0.0002		0.25		0.0037		0.0002		0.23

[a] $\Delta y = y^{\exp} - y^{cal}$; [b] $\Delta x = x^{\exp} - x^{cal}$; [c] $\Delta T = T^{\exp} - T^{cal}$;

[d] $AD_T = \left(1/N \times \sum_{i=1}^{N}\left(T_i^{\exp} - T_i^{\text{cal}}\right)^2\right)^{1/2}$ $ADx_i = \left(1/N \times \sum_{\text{i=1}}^{N}\left(x_i^{\exp} - x_i^{\text{cal}}\right)^2\right)^{1/2}$ $ADy_i = \left(1/N \times \sum_{i=1}^{N}\left(y_i^{\exp} - y_i^{\text{cal}}\right)^2\right)^{1/2}$