Correlations and Predictions for Viscosity of Binary Liquid Systems. New UNIFAC-VISCO Interaction Parameters for O, N, and S Containing Organic Liquids

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Table S1. Correlative model parameters and standard percentage deviations, σ%, of Grunberg-Nissan (GN), Hind (HND), Heric (HRC), Ausländer (AUS), Mcallister three-body (MAC3) and Mcallister four-body (MAC4) models for different binary liquid systems.

System	Temp.	GN		HND		HRC			AUS				MAC3			MAC4			
	(K)	G_{12}	σ%	η_{12}	σ%	H_{12}	H_{21}	σ%	A_{21}	B_{12}	B_{21}	σ%	Z_{12}	Z_{21}	σ%	Z_{1112}	Z_{1122}	Z_{2221}	σ%
ROH + RH																			
MeOH + C_5 [1]	298.15	-0.225	0.57	0.288	1.56	0.116	0.009	0.20	1.733	0.917	1.166	0.21	0.621	0.474	0.32	0.644	0.521	0.455	0.21
EtOH + C_5 [1]	298.15	-0.819	2.79	0.142	6.42	-0.799	0.350	0.89	2.636	0.296	1.008	0.85	0.813	0.408	0.92	0.943	0.556	0.410	0.85
PrOH + C_5 [1]	298.15	-0.966	4.58	-0.081	14.1	-1.140	0.647	1.62	6.250	0.663	0.436	0.47	1.144	0.403	1.55	1.457	0.583	0.454	0.43
PrOH + C_6 [1]	298.15	-1.198	2.12	-0.033	14.9	-1.217	0.278	0.79	3.983	0.329	0.838	0.40	1.070	0.511	0.81	1.340	0.702	0.522	0.42
PrOH + C_7 [1]	298.15	-1.181	1.14	0.090	9.93	-1.084	0.158	0.68	4.071	0.416	0.806	0.92	1.139	0.627	0.68	1.392	0.817	0.631	0.80
PrOH + C_8 [1]	298.15	-1.194	0.59	0.224	8.40	-0.980	0.005	0.47	4.387	0.465	0.770	0.69	1.196	0.786	0.47	1.439	0.937	0.790	0.57
2-PrOH + C_8 [2]	293.15	-2.091	4.70	-0.181	19.5	-1.691	-0.602	1.44	3.596	-0.024	1.585	0.53	0.891	0.822	1.34	1.139	0.993	0.726	0.75
	298.15	-1.992	4.48	-0.086	17.3	-1.611	-0.578	1.19	3.426	-0.046	1.628	0.22	0.822	0.770	1.09	1.038	0.907	0.692	0.51
	303.15	-1.891	4.37	-0.013	15.4	-1.526	-0.559	1.09	3.976	-0.005	1.353	0.49	0.759	0.725	1.01	0.952	0.825	0.664	0.52
2-PrOH + C_{10} [2]	293.15	-1.675	4.54	0.274	10.5	-1.191	-0.596	1.60	2.084	-0.359	2.964	0.52	1.189	1.293	1.50	1.378	1.462	1.139	0.76
	298.15	-1.572	4.50	0.317	9.54	-1.100	-0.589	1.45	2.594	-0.364	2.352	0.77	1.087	1.208	1.35	1.257	1.310	1.088	0.93
	303.15	-1.488	4.34	0.340	8.63	-1.029	-0.563	1.44	2.557	-0.450	2.402	0.77	0.999	1.120	1.35	1.138	1.206	1.014	0.90
2-PrOH + C_{12} [2]	293.15	-1.184	3.64	0.857	5.61	-0.614	-0.362	1.42	1.700	-1.406	4.459	0.43	1.727	1.901	1.33	1.808	2.096	1.729	0.68
	298.15	-1.104	3.66	0.822	5.26	-0.540	-0.366	1.32	2.091	-1.759	3.853	0.43	1.557	1.756	1.24	1.621	1.886	1.611	0.67
	303.15	-1.016	3.58	0.790	4.85	-0.459	-0.352	1.24	2.460	-2.236	3.476	0.51	1.422	1.623	1.16	1.469	1.711	1.501	0.63
HxOH + C_{10} [3]	293.15	-1.287	0.63	-0.043	14.6	-1.252	-0.080	0.55	0.226	0.808	0.443	0.38	1.408	2.577	0.55	1.406	1.840	3.290	0.37
	298.15	-1.276	0.49	0.045	13.4	-1.233	-0.055	0.47	0.240	0.859	0.414	0.41	1.281	2.256	0.47	1.273	1.656	2.857	0.39
ArH + ROH																			
Bn + BuOH [4]	303.15	-0.506	2.05	0.550	3.13	-0.557	-0.266	0.26	0.380	0.837	0.568	0.26	0.808	1.569	0.27	0.778	1.101	1.833	0.24
Bn + 2-BuOH [4]	303.15	-1.416	3.17	0.055	10.1	-1.505	-0.392	1.09	0.386	1.296	-0.123	0.67	0.592	1.302	1.10	0.624	0.845	1.653	0.89
Bn + PnOH [5]	293.15	-0.740	5.12	0.203	8.04	-0.920	0.591	0.44	2.875	0.253	0.893	0.67	2.370	0.855	0.44	2.864	1.401	0.839	0.52
Bn + BnzOH [6]	303.15	0.294	6.39	0.906	9.38	0.376	-0.104	6.27		0.389	2.238	5.61	2.437	1.423	6.09	3.292	1.196	1.759	2.52
Tn + PnOH [5]	293.15	-0.830	4.45	0.094	10.85	-0.981	0.526	0.61	3.930	0.434	0.688	0.26	2.194	0.800	0.63	2.738	1.255	0.808	0.22
Tn + 2-HxOH [7]	298.15	-0.896	3.52	0.005	16.9	-0.906	-0.050	3.79	0.109	0.328	1.675	3.41	0.933	1.920	3.81	1.032	1.075	2.641	2.19
	308.15	-1.199	2.36	0.002	14.6	-1.259	-0.244	2.77	0.086	0.228	1.576	1.56	0.653	1.415	2.80	0.787	0.743	1.966	1.85
Tn + HpOH [8]	303.15	-0.505	4.89	-0.041	13.05	-0.596	-0.368	2.09	0.487	1.432	0.202	1.17	0.964	2.649	2.10	0.780	1.763	3.170	1.25
	Lit.												0.868	2.749	2.26	0.738	1.661	3.120	3.21
	313.15	-0.027	1.93	0.492	6.85	-0.077	-0.269	1.63	0.134	0.253	2.128	0.95	1.003	2.420	1.65	0.972	1.373	2.967	0.96
	Lit.												1.078	2.352	1.58	0.974	1.210	2.962	3.24
Tn + 2-HpOH [7]	298.15	-0.937	7.15	-0.362	18.2	-1.161	-0.767	2.61	0.278	0.827	0.180	2.49	0.725	2.566	2.61	0.704	1.361	3.206	2.68
	308.15	-0.887	2.44	0.007	14.4	-0.866	-0.020	2.44	0.294	0.998	0.535	2.35	0.867	1.734	2.43	0.759	1.271	2.181	2.26
Tn + OcOH [8]	303.15	-0.203	0.97	-0.072	16.41	-0.148	-0.005	0.95	0.299	0.889	0.646	0.81	1.359	3.176	0.94	1.090	2.116	3.954	0.84
	Lit.												1.289	3.228	1.33	1.039	1.852	3.900	4.62
	313.15	-0.201	3.17	0.174	11.55	-0.272	-0.410	2.06	0.137	0.295	1.552	1.43	0.957	2.720	2.08	0.952	1.404	3.420	1.43
	Lit.												1.047	2.610	1.96	0.971	1.132	3.442	4.94
Tn + 2-OcOH [7]	298.15	-0.790	7.71	-0.638	21.7	-0.977	-0.705	1.73	0.295	0.920	0.186	1.72	0.846	3.097	1.73	0.736	1.725	3.827	1.78
	308.15	-0.763	5.28	-0.137	15.5	-0.900	-0.620	2.61	0.213	0.578	0.515	2.23	0.736	2.324	2.63	0.755	1.195	2.950	2.14
Tn + DcOH [8]	303.15	0.406	2.14	-0.167	18.0	0.580	0.104	2.00	0.366	0.995	0.513	2.14	2.020	5.035	2.00	1.446	3.273	6.159	2.21
	Lit.												1.822	5.157		1.430	2.541	5.992	
	313.15	0.059	4.53	-0.151	18.1	0.011	-0.534	4.72	0.168	0.372	1.024	3.65	1.126	3.965	4.75	1.122	1.784	5.021	2.82
	Lit.												1.477	3.459		1.407	1.050	5.234	
MST + EtOH [9]	298.15	-0.345	2.03	0.661	1.54	0.094	-0.314	1.34	9.221	18.05	-0.177	1.28	0.767	1.101	1.39	0.695	1.043	1.068	1.07
	303.15	-0.514	1.24	0.557	2.05	-0.056	-0.028	1.00	0.141	0.331	1.188	0.78	0.745	0.879	0.98	0.773	0.729	0.988	0.56
	308.15	-0.472	1.15	0.533	1.84	-0.015	-0.025	0.82	83.24	265.9	-0.128	0.74	0.710	0.826	0.83	0.684	0.777	0.871	0.81
MST + PrOH [9]	298.15	-0.891	2.12	0.473	3.27	-0.698	-0.330	1.50	0.243	0.544	0.314	1.39	0.725	1.299	1.51	0.795	0.853	1.556	1.42
	303.15	-1.071	1.64	0.380	6.35	-0.814	0.063	1.29	0.164	0.505	0.700	1.07	0.753	1.043	1.30	0.790	0.799	1.292	1.02
	308.15	-1.028	2.13	0.380	6.21	-0.765	0.117	1.57	0.108	0.312	1.285	1.34	0.724	0.949	1.57	0.765	0.735	1.180	1.42
MST + 2-PrOH [9]	298.15	-1.616	4.67	0.174	12.6	-1.262	0.609	1.44	0.388	2.168	0.022	0.44	0.862	0.849	1.47	0.740	1.001	1.043	0.59

System	Temp. (K)	GN		HND		HRC			AUS				MAC3			MAC4			
		G_{12}	σ%	η_{12}	σ%	H_{12}	H_{21}	σ%	A_{21}	B_{12}	B_{21}	σ%	Z_{12}	Z_{21}	σ%	Z_{1112}	Z_{1122}	Z_{2221}	σ%
	303.15	-1.541	4.77	0.213	11.6	-1.193	0.627	1.61	0.511	2.941	-0.035	0.52	0.813	0.768	1.64	0.688	0.946	0.922	0.76
	308.15	-1.443	4.82	0.247	10.5	-1.105	0.631	1.65	0.402	2.306	0.036	0.94	0.772	0.708	1.68	0.661	0.872	0.842	1.18
MST + BuOH [9]	298.15	-1.179	5.51	0.290	12.3	-0.955	0.530	4.59	0.001	0.044	331.9	4.78	1.028	1.167	4.63	0.749	1.497	1.310	5.38
	303.15	-1.210	5.53	0.276	12.0	-0.994	0.509	4.53	0.001	0.037	193.2	4.97	0.929	1.050	4.55	0.740	1.217	1.225	5.29
	308.15	-1.113	5.41	0.320	10.7	-0.913	0.456	4.51	0.586	2.567	0.373	4.85	0.863	0.986	4.53	0.736	1.045	1.170	5.13
MST + PnOH [9]	298.15	-1.043	3.86	0.207	12.4	-0.961	0.130	4.00	0.054	0.161	3.845	4.33	0.994	1.620	3.97	0.928	1.261	2.057	4.22
	303.15	-0.975	3.69	0.273	10.8	-0.900	0.107	3.85	0.036	0.094	6.107	4.21	0.921	1.494	3.88	0.861	1.171	1.868	4.12
	308.15	-0.997	3.50	0.283	10.1	-0.908	0.172	3.64	0.990	3.580	0.119	3.71	0.867	1.310	3.67	0.768	1.140	1.594	3.74
pXy + PnOH [5]	293.15	-1.057	2.92	0.062	11.9	-1.138	0.384	0.87	4.648	0.493	0.632	0.22	2.043	0.849	0.88	2.625	1.211	0.886	0.22
oXy + HxOH [10]	308.15	-0.656	3.05	0.466	5.53	-0.751	0.401	0.61	4.065	0.701	0.565	0.68	2.091	0.916	0.62	2.538	1.295	0.926	0.63
	318.15	-0.651	2.54	0.478	4.20	-0.721	0.326	0.51	3.190	0.553	0.728	0.75	1.663	0.807	0.52	1.981	1.113	0.801	0.66
mXy + HxOH [10]	308.15	-0.760	3.13	0.177	9.62	-0.869	0.406	0.75	5.009	0.778	0.513	0.75	1.866	0.756	0.76	2.336	1.100	0.766	0.75
	318.15	-0.750	2.44	0.261	7.44	-0.826	0.309	0.48	3.858	0.626	0.675	0.66	1.488	0.682	0.48	1.822	0.966	0.671	0.59
pXy + HxOH [10]	308.15	-0.891	2.85	0.134	10.4	-0.991	0.375	0.69	4.855	0.664	0.564	0.61	1.797	0.753	0.71	2.270	1.080	0.771	0.60
	318.15	-0.864	2.32	0.229	8.04	-0.936	0.296	0.49	3.862	0.546	0.707	0.68	1.446	0.676	0.50	1.786	0.945	0.675	0.59
ROH + ROH																			
PrOH + BuOH [11]	293.15	0.026	0.25	2.560	0.25	0.048	-0.013	0.26	0.528	0.518	1.708	0.28	3.036	3.373	0.25	2.969	3.179	3.452	0.26
	Lit.												3.038	3.372	0.25	2.974	3.172	3.456	0.26
PrOH + PnOH [11]	293.15	0.064	0.35	2.947	0.34	0.138	0.059	0.15	0.021	0.046	39.77	0.14	3.501	4.114	0.14	3.270	3.820	4.288	0.15
	Lit.												3.497	4.124	0.15	3.271	3.818	4.297	0.15
BuOH + PnOH [11]	293.15	-0.010	0.22	3.405	0.23	0.007	0.022	0.21	0.011	0.038	76.38	0.15	4.074	4.450	0.22	3.908	4.356	4.519	0.04
													4.068	4.457	0.22	3.912	4.351	4.522	0.05
ArOH + ArOH																			
mCrl + pCrl [12]	313.15	0.182	1.11	7.046	1.15	0.180	-0.158	0.19	0.414	-1.386	4.174	0.19	6.332	7.182	0.19	6.261	6.791	6.991	0.19
	Lit.								4.1	-1.385	0.414	1.70	6.330	7.183	0.19				
	323.15	0.223	1.39	4.775	1.45	0.220	-0.197	0.27	0.465	-1.268	3.206	0.13	4.229	4.960	0.27	4.154	4.651	4.784	0.25
	Lit.								0.462	-1.267	3.23	0.13	4.229	4.960	0.26				
	333.15	0.230	1.61	3.480	1.67	0.227	-0.230	0.30	0.415	-1.453	3.625	0.17	3.076	3.669	0.30	3.028	3.417	3.520	0.28
	Lit.								0.413	-1.455	3.66	0.17	3.076	3.669	0.30				
mCrl + oCrl [12]	313.15	-0.083	0.15	4.842	0.29	-0.082	-0.019	0.08	1.666	1.132	0.920	0.08	5.212	4.628	0.09	5.430	4.917	4.497	0.10
	323.15	-0.113	0.18	3.284	0.13	-0.113	0.018	0.14	1.745	0.898	0.852	0.14	3.553	3.161	0.13	3.690	3.330	3.124	0.13
	333.15	-0.136	0.42	2.412	0.29	-0.138	0.057	0.20	2.475	0.930	0.530	0.12	2.656	2.326	0.20	2.767	2.438	2.335	0.12
oCrl + pCrl [12]	313.15	-0.131	1.70	4.815	1.4	-0.147	-0.240	0.11	1.059	1.141	0.161	0.13	4.240	5.800	0.10	4.205	4.976	5.969	0.10
	323.15	-0.129	1.64	3.361	1.4	-0.142	-0.228	0.30	1.451	1.597	0.036	0.33	3.004	3.996	0.30	2.977	3.497	4.083	0.30
	333.15	-0.144	1.52	2.469	1.3	-0.155	-0.211	0.27	1.789	2.095	-0.051	0.26	2.250	2.918	0.26	2.232	2.599	2.971	0.24
ROH + RCOR'																			
MeOH + ACA [13]	303.15	-0.013	0.31	0.570	0.3	0.618	-0.204	0.09	0.020	-0.016	57.21	0.11	0.660	0.663	0.17	0.657	0.663	0.638	0.10
EtOH + ACA [13]	303.15	-0.896	2.85	0.466	3.93	-0.568	0.394	0.96	0.318	2.044	-1.244	0.36	0.727	0.644	1.05	0.664	0.766	0.714	0.42
PrOH + ACA [13]	303.15	-1.542	5.17	0.265	9.77	-1.260	0.855	1.95	0.360	2.256	0.026	0.43	0.850	0.679	2.06	0.682	0.961	0.832	1.09
BuOH + ACA [13]	303.15	-1.474	3.28	0.219	9.88	-1.307	0.529	0.84	0.258	1.210	0.338	0.31	0.844	0.936	0.89	0.747	0.975	1.197	0.50
	303.15	-0.542	0.36	-0.343	23.1	-0.472	0.023	0.32	4.880	0.788	0.684	0.45	1.731	0.779	0.30	2.200	1.155	0.682	0.29
	308.15	-0.472	0.32	-0.168	19.5	-0.399	0.014	0.30	4.362	0.773	0.734	0.45	1.587	0.743	0.28	1.986	1.085	0.648	0.31
BnzOH + BTON [14]	313.15	-0.408	0.33	-0.034	16.4	-0.334	0.014	0.26	3.955	0.765	0.773	0.38	1.463	0.707	0.23	1.804	1.019	0.617	0.28
	318.15	-0.344	0.37	0.067	13.8	-0.273	0.024	0.27	3.660	0.768	0.795	0.38	1.362	0.672	0.25	1.659	0.956	0.590	0.28
	323.15	-0.286	0.40	0.143	11.7	-0.214	0.021	0.34	3.349	0.761	0.832	0.45	1.265	0.644	0.31	1.522	0.904	0.57	0.35
	328.15	-0.286	0.40	0.143	11.7	-0.214	0.021	0.34	3.349	0.761	0.832	0.45	1.265	0.644	0.31	1.522	0.904	0.57	0.35
ArH + RCOR'																			
Tn + ACT [15]	298.15	0.672	2.73	0.545	1.36	0.788	-0.388	0.56	0.097	0.212	4.209	0.27	0.605	0.649	0.60	0.637	0.589	0.588	0.29
	303.15	0.563	2.22	0.497	1.14	0.678	-0.331	0.27	12.87	26.41	0.068	0.51	0.569	0.591	0.27	0.589	0.565	0.533	0.23
	308.15	0.433	1.36	0.448	0.77	0.544	-0.212	0.55	63.4	103.2	0.036	0.81	0.545	0.523	0.53	0.542	0.558	0.463	0.29
Tn + BTON [15]	298.15	0.190	0.39	0.503	0.20	0.221	-0.058	0.12	14.46	20.11	0.059	0.16	0.615	0.576	0.10	0.621	0.600	0.548	0.06

System	Temp. (K)	GN		HND		HRC			AUS				MAC3			MAC4			
		G_{12}	σ%	η_{12}	σ%	H_{12}	H_{21}	σ%	A_{21}	B_{12}	B_{21}	σ%	Z_{12}	Z_{21}	σ%	Z_{1112}	Z_{1122}	Z_{2221}	σ%
	303.15	0.155	0.37	0.469	0.23	0.186	-0.053	0.17	24.95	31.92	0.051	0.19	0.580	0.540	0.17	0.584	0.570	0.513	0.06
	308.15	0.132	0.32	0.439	0.22	0.163	-0.044	0.18	14.85	17.56	0.077	0.19	0.550	0.508	0.19	0.556	0.539	0.483	0.09
Tn + ACPN [15]	298.15	0.585	1.62	1.140	0.04	0.647	0.209	0.30	11.13	10.75	0.092	0.03	1.156	1.371	0.30	1.023	1.220	1.455	0.05
	303.15	0.542	1.44	1.046	0.05	0.601	0.189	0.23	1.017	0.991	1.009	0.06	1.064	1.261	0.22	0.945	1.132	1.332	0.04
	308.15	0.501	1.28	0.967	0.04	0.557	0.170	0.19	0.076	0.075	13.49	0.05	0.985	1.167	0.17	0.879	1.052	1.229	0.03
RH + RCOOR'																			
C_7 + MEOT [16]	298.15	-0.385	0.56	0.307	0.51	-0.341	-0.068	0.24	1.609	11.034	-4.569	0.06	0.418	0.479	0.18	0.406	0.456	0.496	0.06
	Lit.	-0.3846	0.56	0.3069	0.51								0.4176	0.4793	0.18	0.4064	0.4555	0.4960	0.06
C_7 + MBOT [16]	298.15	-0.356	0.23	0.374	0.35	-0.357	0.020	0.18	0.647	-0.176	3.843	0.07	0.542	0.525	0.16	0.552	0.544	0.530	0.05
	Lit.	-0.3564	0.23	0.3742	0.35								0.5419	0.5248	0.16	0.5520	0.5436	0.5304	0.05
C_7 + MHOT [16]	298.15	-0.217	0.52	0.466	0.44	-0.189	0.056	0.21	0.535	0.188	3.340	0.12	0.754	0.614	0.16	0.791	0.692	0.596	0.06
	Lit.	-0.2173	0.52	0.4656	0.44								0.7541	0.6138	0.16	0.7908	0.6916	0.5962	0.06
C_7 + MOCT [16]	298.15	-0.022	0.59	0.565	0.75	0.069	0.049	0.14	1.238	0.573	1.363	0.08	1.063	0.746	0.10	1.146	0.894	0.693	0.06
	Lit.	-0.0233	0.58	0.5649	0.76								1.0632	0.7463	0.10	1.1467	0.8934	0.6936	0.06
C_7 + MDOT [16]	298.15	0.218	0.14	0.670	1.33	0.408	-0.033	0.10	1.248	0.552	1.402	0.09	1.498	0.948	0.11	1.643	1.199	0.824	0.08
	Lit.			0.6701	1.33								1.4980	0.9480	0.11	1.6432	1.1987	0.8241	0.08
C_9 + MEOT [16]	298.15	-0.153	0.22	0.432	0.56	-0.002	0.042	0.20	21.40	36.69	0.015	0.14	0.567	0.699	0.10	0.516	0.626	0.749	0.10
	Lit.	-0.1533	0.21	0.4319	0.56								0.5666	0.6994	0.10	0.5156	0.6261	0.7492	0.10
C_9 + MBOT [16]	298.15	-0.286	0.21	0.513	0.08	-0.261	-0.026	0.07	1.103	2.821	-0.496	0.07	0.658	0.762	0.11	0.645	0.708	0.800	0.12
	Lit.	-0.2860	0.21	0.5132	0.08								0.6581	0.7620	0.11	0.6450	0.7077	0.7999	0.12
C_9 + MHOT [16]	298.15	-0.282	0.21	0.636	0.15	-0.282	0.024	0.13	0.633	-0.302	3.982	0.04	0.873	0.852	0.09	0.885	0.873	0.865	0.04
	Lit.	-0.2818	0.21	0.6360	0.15								0.8723	0.8527	0.10	0.8848	0.8724	0.8652	0.04
C_9 + MOCT [16]	298.15	-0.194	0.44	0.781	0.23	-0.175	0.056	0.11	0.648	0.254	2.623	0.05	1.195	0.991	0.12	1.247	1.101	0.968	0.08
	Lit.	-0.1921	0.45	0.7808	0.24								1.1941	0.9914	0.12	1.2492	1.0986	0.9684	0.08
C_9 + MDOT [16]	298.15	-0.044	0.34	0.938	0.67	0.020	0.030	0.09	1.006	0.497	1.661	0.02	1.646	1.197	0.08	1.768	1.411	1.115	0.03
	Lit.	-0.0437	0.34	0.9382	0.67								1.6456	1.1969	0.08	1.7684	1.4111	1.1154	0.03
ArH + RCOOR'																			
oXy + IAA [17]	303.15	-0.003	0.42	0.716	0.42	0.018	-0.055	0.21	0.021	0.420	79.51	0.04	0.824	0.835	0.24	0.842	0.812	0.835	0.18
	Lit.			0.718	0.42	0.0175	-0.0554	0.21								0.8424	0.8121	0.8776	1.43
	313.15	-0.052	0.15	0.618	0.16	-0.031	-0.021	0.07	8.029	1.453	0.258	0.07	0.730	0.729	0.08	0.741	0.723	0.729	0.06
	Lit.			0.635	0.95	-0.0314	-0.0242	0.08								0.7435	0.7176	0.7716	1.47
mXy + IAA [17]	303.15	-0.066	0.77	0.614	0.69	-0.054	0.105	0.28	0.317	0.015	3.673	0.17	0.794	0.674	0.28	0.798	0.753	0.655	0.15
	Lit.			0.647		-0.0543	0.1094									0.7991	0.7506	0.6909	
	313.15	-0.111	1.22	0.537	1.13	-0.103	0.157	0.58	0.116	-0.191	11.13	0.12	0.713	0.592	0.57	0.703	0.689	0.572	0.24
	Lit.			0.579		-0.1027	0.1663									0.7021	0.6908	0.6008	
pXy + IAA [17]	303.15	-0.074	0.34	0.618	0.31	-0.054	0.016	0.32	0.032	-0.026	44.52	0.23	0.776	0.703	0.27	0.784	0.758	0.682	0.16
	Lit.			0.653		-0.0537	0.0213									0.7853	0.7566	0.7183	
	313.15	-0.122	0.45	0.541	0.42	-0.102	0.021	0.43	0.010	-0.091	173.9	0.23	0.686	0.628	0.42	0.688	0.685	0.608	0.22
	Lit.			0.583		-0.1014	0.0264									0.6875	0.6857	0.6857	
EBn +IAA [17]	303.15	-0.139	0.34	0.616	0.37	-0.118	-0.006	0.36	0.010	-0.075	190.9	0.20	0.763	0.718	0.34	0.774	0.762	0.700	0.23
	Lit.			0.669		-0.1171	-0.0060									0.7733	0.7627	0.7368	
	313.15	-0.149	0.50	0.545	0.48	-0.128	0.014	0.50	0.009	-0.150	233.4	0.26	0.686	0.640	0.48	0.692	0.683	0.626	0.40
	Lit.			0.594		-0.1281	0.0176									0.6902	0.6862	0.6572	
oXy + MBZT [17]	303.15	-0.047	0.99	0.951	1.44	-0.001	-0.116	0.55	0.286	0.231	6.016	0.51	1.126	1.040	2.74	1.279	0.978	1.040	2.84
	Lit.			1.187		-0.0008	-0.1249									1.2890	1.0671	1.0410	
	313.15	-0.095	0.33	0.812	0.77	-0.062	-0.021	0.33	1.392	0.811	1.201	0.34	1.053	0.850	0.50	1.129	0.919	0.830	0.50
	Lit.			1.018		-0.0623	-0.1249									1.1072	0.9396	0.8749	
mXy + MBZT [17]	303.15	-0.220	0.88	0.711	2.00	-0.176	-0.079	0.97	69.55	33.65	0.037	1.00	1.077	0.817	0.81	1.149	0.999	0.738	0.56
	Lit.			1.116		-0.1800	-0.0285									1.1290	1.0175	0.7791	
	313.15	-0.233	1.12	0.637	1.76	-0.192	-0.065	1.28	0.015	-0.017	135.4	0.95	0.939	0.724	1.09	0.976	0.916	0.642	0.49
	Lit.			0.961		-0.1969	0.0036									0.9594	0.9338	0.6767	
pXy + MBZT [17]	303.15	-0.223	1.03	0.722	2.4	-0.168	-0.149	0.66	20.71	10.28	0.121	0.49	1.054	0.856	0.67	1.137	0.995	0.777	0.59
	Lit.			1.123		-0.1705	-0.1172									1.1224	1.0040	0.8247	

System	Temp. (K)	GN		HND		HRC			AUS				MAC3			MAC4			
		G_{12}	σ%	η_{12}	σ%	H_{12}	H_{21}	σ%	A_{21}	B_{12}	B_{21}	σ%	Z_{12}	Z_{21}	σ%	Z_{1112}	Z_{1122}	Z_{2221}	σ%
	313.15	-0.243	0.46	0.640	1.5	-0.211	-0.009	0.49	0.048	-0.005	42.66	0.31	0.946	0.724	0.51	1.024	0.835	0.690	0.52
	Lit.			0.966		-0.2119	0.0046									1.0038	0.8581	0.7234	
EBn + MBZT [17]	303.15	-0.221	0.77	0.756	2.0	-0.177	-0.093	0.68	286.7	141.9	0.015	0.60	1.103	0.859	0.66	1.185	1.005	0.797	0.68
	Lit.			1.138		-0.1785	-0.0636									1.1739	1.0055	0.8506	
	313.15	-0.105	1.56	0.716	1.2	-0.102	0.1900	1.17	3.086	1.354	0.442	1.07	1.080	0.715	1.36	1.184	0.799	0.740	0.95
	Lit.			0.976		-0.1000	-0.1497									1.1801	0.7913	0.7936	
ROH + Amines																			
PA + EtOH [18]	303.15	0.348	1.50	0.612	1.96	0.349	-0.222	0.59	0.236	0.139	2.879	0.29	0.699	1.089	0.58	0.668	0.823	1.162	0.22
	313.15	0.294	1.70	0.521	2.03	0.293	-0.247	0.43	0.227	0.124	2.936	0.24	0.603	0.932	0.42	0.577	0.716	0.985	0.25
PA + PrOH [18]	303.15	0.127	0.25	0.563	2.06	0.125	-0.009	0.26	0.483	0.895	0.887	0.27	0.840	1.383	0.26	0.738	1.074	1.562	0.27
	313.15	0.172	0.99	0.519	0.84	0.140	-0.150	0.51	0.155	0.210	3.018	0.12	0.698	1.205	0.52	0.656	0.863	1.360	0.21
PA + BuOH [18]	303.15	0.504	2.13	0.702	1.26	0.461	-0.275	0.50	0.338	0.448	1.146	0.27	0.917	1.968	0.51	0.809	1.297	2.186	0.27
	313.15	0.434	2.40	0.602	1.51	0.385	-0.314	0.71	0.326	0.411	1.217	0.47	0.768	1.622	0.74	0.696	1.068	1.797	0.44
PA + PnOH [18]	303.15	0.743	1.86	0.808	1.66	0.783	-0.144	0.77	0.729	1.068	0.456	0.24	1.115	2.383	0.73	0.871	1.703	2.577	0.25
	313.15	0.596	1.56	0.652	0.87	0.626	-0.183	0.31	0.443	0.650	0.827	0.32	0.923	1.960	0.33	0.775	1.331	2.171	0.32
PA + HpOH [18]	303.15	0.867	0.29	0.670	3.60	1.088	0.030	0.15	0.517	0.969	0.511	0.14	1.475	3.392	0.16	1.107	2.241	3.868	0.12
	313.15	0.652	1.52	0.532	3.74	0.817	-0.144	0.47	0.368	0.659	0.751	0.28	1.082	2.622	0.46	0.879	1.642	3.000	0.27
PA + OcOH [18]	303.15	1.140	3.12	0.766	4.46	1.577	0.471	0.84	1.332	2.794	0.161	0.26	2.118	3.976	0.87	1.420	2.956	4.593	0.60
	313.15	0.919	2.42	0.635	5.03	1.288	0.271	1.01	0.405	0.788	0.790	0.44	1.516	3.011	0.95	1.180	1.989	3.554	0.36
PA + DcOH [18]	303.15	1.783	5.13	1.202	0.54	2.473	0.739	1.03	1.324	2.468	0.133	0.29	3.341	6.040	1.12	2.066	4.387	6.964	1.34
	313.15	1.465	2.43	0.751	3.18	2.049	0.445	0.65	0.836	1.610	0.233	0.60	2.267	4.787	0.73	1.450	3.334	5.458	0.45
BA + EtOH [19]	303.15	0.356	4.28	0.723	4.78	0.408	-0.505	1.22	1.365	0.592	0.227	0.13	0.732	1.293	1.27	0.635	1.116	1.204	0.21
	313.15	0.150	2.72	0.569	2.75	0.226	-0.308	1.11	2.970	2.647	0.053	0.26	0.647	0.981	1.15	0.571	0.896	0.946	0.27
BA + PrOH [19]	303.15	0.274	4.22	0.770	3.31	0.194	-0.502	0.33	0.534	0.554	0.662	0.27	0.838	1.792	0.35	0.760	1.255	1.876	0.29
	313.15	0.175	3.18	0.640	2.29	0.125	-0.384	0.29	0.616	0.714	0.617	0.22	0.732	1.387	0.34	0.667	1.035	1.457	0.17
BA + BuOH [19]	303.15	0.355	3.31	0.813	2.12	0.252	-0.440	0.77	0.214	0.210	1.892	0.34	0.944	2.107	0.73	0.902	1.300	2.346	0.40
	313.15	0.317	3.81	0.702	2.70	0.207	-0.493	0.68	0.310	0.310	1.236	0.27	0.789	1.757	0.64	0.746	1.123	1.913	0.27
BA + PnOH [19]	303.15	0.435	3.21	0.838	1.73	0.355	-0.384	0.65	0.386	0.517	0.887	0.60	1.056	2.443	0.64	0.929	1.587	2.685	0.59
	313.15	0.305	0.75	0.698	1.44	0.299	-0.096	0.35	0.323	0.529	1.281	0.29	0.998	1.863	0.34	0.876	1.329	2.106	0.29
BA + HxOH [19]	303.15	0.616	3.18	0.885	1.78	0.567	-0.377	0.69	0.378	0.533	0.810	0.66	1.227	3.121	0.67	1.034	1.943	3.449	0.66
	313.15	0.473	1.50	0.725	1.88	0.475	-0.192	0.59	0.343	0.556	1.002	0.39	1.107	2.430	0.56	0.948	1.595	2.754	0.38
BA + HpOH [19]	303.15	0.825	2.85	0.951	1.60	0.837	-0.289	0.26	0.438	0.659	0.633	0.39	1.468	3.835	0.26	1.155	2.411	4.229	0.35
	313.15	0.553	3.42	0.707	1.56	0.559	-0.321	0.64	0.535	0.888	0.476	0.79	1.118	2.820	0.64	0.880	1.886	3.079	0.73
BA + OcOH [19]	303.15	1.114	3.30	1.083	2.23	1.218	-0.161	1.86	0.702	1.106	0.302	0.15	1.843	4.833	1.88	1.265	3.278	5.197	0.65
	313.15	0.765	2.77	0.778	0.81	0.877	-0.143	1.47	0.765	1.353	0.295	0.35	1.383	3.345	1.49	1.000	2.354	3.645	0.36
BA + DcOH [19]	303.15	1.767	4.84	1.653	9.57	2.067	0.090	5.17	1.069	1.523	0.106	0.60	2.874	7.324	5.20	1.566	5.534	7.534	2.32
	313.15	1.452	1.46	1.153	2.82	1.739	0.049	1.31	0.683	1.057	0.310	0.41	2.189	5.487	1.38	1.420	3.697	5.960	0.31
EtOH + DPA [20]	303.15	0.768	4.80	0.960	6.14	1.018	-0.627	0.89	0.266	-0.460	3.593	0.23	0.903	1.659	0.76	0.881	1.127	1.604	0.27
	313.15	0.435	1.24	0.691	2.00	0.726	-0.105	0.36	0.280	-0.025	3.694	0.17	0.819	1.069	0.24	0.759	0.905	1.081	0.17
PrOH + DPA [20]	303.15	0.212	0.65	0.866	0.37	0.337	-0.042	0.29	1.208	1.713	0.431	0.17	1.099	1.650	0.34	0.960	1.375	1.758	0.19
	313.15	0.172	0.79	0.692	0.54	0.289	-0.086	0.44	0.279	0.350	2.022	0.33	0.878	1.333	0.39	0.805	1.052	1.445	0.32
BuOH + DPA [20]	303.15	0.238	0.84	0.892	0.43	0.264	-0.106	0.21	0.388	0.573	1.222	0.17	1.157	1.965	0.18	1.026	1.490	2.164	0.17
	313.15	0.191	0.58	0.717	0.90	0.223	-0.078	0.50	0.182	0.259	2.752	0.17	0.953	1.568	0.46	0.872	1.167	1.754	0.15
PnOH + DPA [20]	303.15	0.334	2.34	0.926	1.01	0.274	-0.287	0.26	0.408	0.573	0.930	0.20	1.175	2.426	0.25	1.038	1.673	2.669	0.20
	313.15	0.234	1.11	0.719	1.32	0.208	-0.147	0.40	0.306	0.491	1.328	0.26	1.011	1.897	0.38	0.902	1.344	2.139	0.26
HpOH + DPA [20]	303.15	0.595	3.56	0.939	2.27	0.477	-0.426	1.01	0.335	0.497	0.837	0.89	1.413	3.818	1.00	1.207	2.273	4.283	0.86
	313.15	0.410	1.93	0.705	2.64	0.350	-0.237	0.32	0.341	0.590	0.906	0.16	1.169	2.685	0.30	1.001	1.735	3.065	0.15
OcOH + DPA [20]	303.15	0.669	2.77	0.825	3.80	0.592	-0.342	0.80	0.328	0.556	0.771	0.65	1.621	4.499	0.80	1.342	2.637	5.142	0.61
	313.15	0.590	3.60	0.704	2.87	0.486	-0.444	0.87	0.315	0.496	0.819	0.67	1.211	3.432	0.87	1.036	1.981	3.885	0.63
DcOH + DPA [20]	303.15	1.284	4.31	1.186	2.95	1.260	-0.367	1.03	0.484	0.724	0.395	0.79	2.210	7.103	1.00	1.528	4.270	7.653	0.48
	313.15	1.014	3.20	0.713	4.16	0.999	-0.343	0.55	0.388	0.657	0.534	0.87	1.685	5.217	0.56	1.265	3.019	5.841	0.78
EtOH + DBA [20]	303.15	0.684	4.38	1.176	4.90	1.173	-0.456	1.75	0.157	-1.123	11.534	0.39	1.219	1.800	1.68	1.294	1.187	1.834	0.11
	313.15	0.435	3.92	0.905	4.17	0.932	-0.373	1.97	0.106	-0.825	12.902	0.59	1.013	1.392	1.90	1.109	0.925	1.474	0.13
PrOH + DBA [20]	303.15	0.073	1.05	1.093	0.93	0.345	-0.077	0.86	0.049	0.009	13.001	0.33	1.345	1.849	0.83	1.326	1.418	2.023	0.33

System	Temp.	GN		HND		HRC			AUS				MAC3			MAC4			
	(K)	G_{12}	σ%	η_{12}	σ%	H_{12}	H_{21}	σ%	A_{21}	B_{12}	B_{21}	σ%	Z_{12}	Z_{21}	σ%	Z_{1112}	Z_{1122}	Z_{2221}	σ%
	313.15	-0.017	0.87	0.885	0.67	0.260	-0.050	0.63	0.171	0.173	3.487	0.39	1.129	1.470	0.61	1.099	1.204	1.580	0.27
BuOH + DBA [20]	303.15	0.109	1.37	1.175	1.13	0.231	-0.171	1.10	0.077	0.047	7.286	0.49	1.404	2.214	1.07	1.397	1.566	2.474	0.13
	313.15	0.033	1.05	0.969	0.62	0.164	-0.129	0.50	0.152	0.163	3.622	0.16	1.197	1.779	0.48	1.151	1.378	1.936	0.19
PnOH + DBA [20]	303.15	0.015	0.24	1.144	1.25	0.087	0.000	0.21	1.318	2.371	0.344	0.11	1.542	2.327	0.21	1.367	1.921	2.558	0.12
	313.15	-0.018	0.24	0.978	1.22	0.051	-0.016	0.16	0.386	0.671	1.259	0.18	1.322	1.976	0.16	1.201	1.606	2.183	0.18
HxOH + DBA [20]	303.15	0.245	0.98	1.319	0.90	0.241	-0.140	0.50	0.216	0.311	2.101	0.23	1.713	3.117	0.49	1.557	2.202	3.504	0.24
	313.15	0.162	1.18	1.093	1.00	0.154	-0.163	0.53	0.268	0.404	1.622	0.32	1.440	2.604	0.52	1.319	1.860	2.918	0.30
HpOH + DBA [20]	303.15	0.431	2.35	1.440	1.29	0.358	-0.314	0.67	0.306	0.407	1.232	0.31	1.822	4.031	0.66	1.628	2.596	4.503	0.27
	313.15	0.273	1.40	1.163	1.06	0.232	-0.197	0.63	0.274	0.400	1.520	0.33	1.531	2.964	0.63	1.389	2.036	3.337	0.27
OcOH + DBA [20]	303.15	0.567	2.44	1.490	1.49	0.479	-0.320	0.72	0.330	0.471	1.013	0.42	2.048	4.927	0.70	1.765	3.077	5.529	0.41
	313.15	0.401	1.73	1.229	0.57	0.353	-0.189	0.28	0.546	0.883	0.641	0.13	1.708	3.528	0.28	1.429	2.503	3.901	0.14
DcOH + DBA [20]	303.15	1.098	3.87	1.989	4.14	0.995	-0.408	0.33	0.434	0.534	0.625	0.38	2.635	7.626	0.33	2.010	4.617	8.215	0.39
	313.15	0.715	2.44	1.299	1.88	0.647	-0.295	0.51	0.371	0.580	0.774	0.42	2.089	5.392	0.50	1.707	3.319	6.066	0.42
									ROH + ACN										
MeOH + ACN [21]	298.15	-0.721	1.23	0.276	2.50	-0.674	0.147	0.50	0.220	0.664	-0.146	0.18	0.429	0.452	0.51	0.448	0.415	0.519	0.22
	303.15	-0.713	1.25	0.263	2.40	-0.667	0.142	0.62	0.226	0.677	-0.291	0.29	0.409	0.429	0.62	0.431	0.389	0.493	0.24
	308.15	-0.698	1.36	0.249	2.50	-0.649	0.167	0.53	0.199	0.600	-0.151	0.22	0.391	0.404	0.55	0.410	0.372	0.463	0.18
	313.15	-0.658	1.23	0.242	2.23	-0.613	0.134	0.67	0.171	0.457	-0.047	0.20	0.374	0.392	0.67	0.395	0.354	0.449	0.35
EtOH + ACN [21]	298.15	-1.066	1.63	0.214	7.30	-1.029	0.193	0.52	0.168	0.560	0.924	0.47	0.488	0.627	0.52	0.487	0.535	0.774	0.45
	303.15	-1.045	1.26	0.212	6.55	-1.014	0.159	0.31	0.274	0.934	0.459	0.31	0.459	0.593	0.31	0.453	0.516	0.720	0.29
	308.15	-0.965	2.04	0.220	6.61	-0.922	0.249	0.67	0.050	0.141	4.109	0.56	0.455	0.547	0.67	0.451	0.482	0.669	0.73
	313.15	-0.932	2.00	0.217	6.21	-0.890	0.259	0.33	0.047	0.133	4.509	0.19	0.436	0.513	0.34	0.429	0.461	0.622	0.37
PrOH + ACN [21]	298.15	-1.272	2.36	0.044	15.3	-1.138	0.314	0.59	0.200	0.823	0.788	0.60	0.582	0.840	0.58	0.527	0.727	1.079	0.66
	303.15	-1.126	2.14	0.114	12.7	-1.008	0.256	0.88	0.139	0.513	1.339	0.97	0.555	0.804	0.88	0.516	0.669	1.025	0.94
	308.15	-1.029	2.56	0.150	11.6	-0.913	0.262	1.11	0.027	0.070	8.066	1.11	0.531	0.749	1.10	0.522	0.581	0.978	0.68
	313.15	-1.036	3.20	0.148	11.8	-0.918	0.275	1.82	0.002	-0.028	125.3	1.73	0.504	0.698	1.80	0.529	0.499	0.948	0.86
2-PrOH + ACN [21]	298.15	-1.896	3.17	-0.163	21.3	-1.756	0.309	2.87	0.209	1.032	0.216	2.91	0.487	0.718	2.88	3.760	4.959	6.16	2.35
	303.15	-1.824	3.31	-0.092	19.1	-1.684	0.331	2.73	0.091	0.392	0.944	3.28	0.467	0.657	2.74	3.566	4.704	5.84	2.46
	308.15	-1.708	3.04	-0.030	16.8	-1.579	0.296	2.39	0.060	0.219	1.733	3.03	0.440	0.616	2.40	0.420	0.536	0.815	2.38
	313.15	-1.607	2.84	0.019	14.7	-1.489	0.264	2.10	0.044	0.129	2.597	2.59	0.417	0.578	2.11	0.414	0.479	0.767	2.33
2-PrOH + ACN [22]	293.15	-1.790	3.18	-0.370	24.1	-1.551	0.407	1.33	0.044	0.185	2.995	1.80	0.574	0.819	1.33	0.530	0.697	1.125	1.28
	298.15	-1.769	3.72	-0.269	21.8	-1.476	0.552	2.58	0.628	3.201	0.046	1.23	0.573	0.721	2.54	0.442	0.781	0.937	1.10
	303.15	-1.666	2.76	-0.161	18.1	-1.434	0.417	2.31	0.935	4.515	-0.049	0.71	0.520	0.689	2.31	0.408	0.731	0.871	0.60
	308.15	-1.566	2.39	-0.084	15.9	-1.361	0.357	1.49	0.464	2.100	0.109	0.82	0.485	0.648	1.51	0.413	0.633	0.824	0.86
BuOH + ACN [21]	298.15	-1.431	2.22	-0.133	19.5	-1.245	0.093	2.48	0.489	2.159	0.098	2.54	0.553	1.015	2.47	0.461	0.881	1.257	2.73
	303.15	-1.384	2.27	-0.072	17.3	-1.208	0.043	2.41	0.498	2.107	0.092	2.42	0.515	0.951	2.41	0.441	0.803	1.173	2.54
	308.15	-1.263	1.83	0.003	15.4	-1.081	0.080	1.97	0.385	1.531	0.245	2.06	0.502	0.881	1.97	0.449	0.712	1.103	2.13
	313.15	-1.108	1.42	0.084	12.9	-0.921	0.114	1.27	0.221	0.791	0.698	1.35	0.495	0.819	1.27	0.467	0.623	1.045	1.30
2-BuOH + ACN [22]	293.15	-2.481	10.7	-1.031	47.8	-1.717	1.513	6.67	2.691	20.47	-0.014	3.09	0.892	0.724	6.64	0.457	1.372	0.982	2.99
	298.15	-1.961	6.36	-0.595	34.4	-1.461	0.917	4.24	0.643	3.899	0.106	2.57	0.721	0.821	4.20	0.470	1.061	1.088	2.69
	303.15	-1.711	4.25	-0.332	26.0	-1.324	0.656	3.05	0.896	4.809	0.048	1.41	0.634	0.808	3.02	0.448	0.935	1.037	1.43
	308.15	-1.617	4.23	-0.213	22.8	-1.243	0.642	2.75	0.891	4.606	0.079	1.46	0.598	0.744	2.72	0.439	0.842	0.948	1.48
2-PnOH + ACN [22]	293.15	-1.713	6.06	-0.897	39.47	-1.070	0.994	4.32	2.439	14.51	-0.004	1.06	0.931	1.106	4.28	0.529	1.483	1.439	1.25
	298.15	-1.481	4.61	-0.538	30.68	-0.934	0.784	3.37	2.078	11.01	0.014	1.13	0.824	1.066	3.34	0.513	1.282	1.354	1.30
	303.15	-0.150	3.94	0.383	2.08	0.037	-0.307	1.87	0.730	1.476	0.262	1.62	0.633	1.365	1.84	0.553	0.949	1.527	1.75
	308.15	-0.135	3.54	0.382	1.3	0.049	-0.333	1.05	0.508	0.938	0.469	1.10	0.584	1.246	1.04	0.526	0.850	1.392	1.08
2-HxOH + ACN [22]	293.15	-1.015	3.71	-0.830	34.2	-0.381	0.690	3.56	1.582	7.522	0.023	0.83	1.087	1.688	3.40	0.645	1.781	2.137	0.88
	298.15	-0.802	2.24	-0.416	25.2	-0.269	0.448	2.27	0.934	3.839	0.110	0.31	0.936	1.609	2.28	0.642	1.442	2.017	0.29
	303.15	-0.753	1.98	-0.213	20.3	-0.251	0.376	2.34	1.437	5.578	0.053	0.20	0.850	1.459	2.32	0.596	1.310	1.788	0.43
	308.15	-0.605	1.25	-0.025	15.6	-0.145	0.270	1.35	0.839	2.908	0.185	0.19	0.775	1.362	1.36	0.593	1.119	1.662	0.34
2-HpOH + ACN [22]	293.15	-0.568	5.00	-0.992	36.5	0.158	0.645	3.05	0.205	0.848	0.812	3.17	1.337	2.333	3.05	0.955	1.825	3.109	3.26
	298.15	-0.525	4.91	-0.615	30.2	0.198	0.659	3.21	0.423	1.707	0.413	3.39	1.237	2.035	3.22	0.840	1.743	2.618	3.58
	303.15	-0.401	3.97	-0.264	22.8	0.245	0.476	3.14	0.282	1.000	0.728	3.29	1.082	1.891	3.14	0.815	1.454	2.411	3.36
	308.15	-0.247	3.10	-0.017	17.0	0.360	0.386	2.66	0.407	1.297	0.554	2.82	0.991	1.752	2.66	0.746	1.355	2.160	2.93

System	Temp. (K)	GN		HND		HRC			AUS				MAC3			MAC4			
		G_{12}	σ%	η_{12}	σ%	H_{12}	H_{21}	σ%	A_{21}	B_{12}	B_{21}	σ%	Z_{12}	Z_{21}	σ%	Z_{1112}	Z_{1122}	Z_{2221}	σ%
ArH + ACN																			
Bn + ACN [23]	308.15	-0.101	1.03	0.374	0.79	0.095	0.095	0.44	1.817	0.830	0.635	0.47	0.534	0.436	0.42	0.554	0.474	0.432	0.44
Tn + ACN [24]	298.15	0.198	0.08	0.491	0.27	0.519	-0.087	0.04	0.443	0.499	1.568	0.04	0.623	0.574	0.04	0.627	0.596	0.541	0.03
	303.15	0.174	0.13	0.465	0.27	0.496	-0.085	0.06	0.270	0.285	2.737	0.07	0.593	0.549	0.08	0.595	0.572	0.518	0.03
	308.15	0.152	0.17	0.440	0.25	0.474	-0.090	0.10	0.108	0.101	7.373	0.09	0.565	0.526	0.11	0.566	0.548	0.496	0.03
Tn + ACN [23]	308.15	-0.101	1.03	0.374	0.79	0.212	0.055	0.45	1.817	0.830	0.635	0.47	0.536	0.447	0.43	0.556	0.476	0.439	0.44
pXy + ACN [23]	308.15	0.251	0.40	0.451	0.69	0.691	-0.108	0.25	0.231	0.200	3.009	0.21	0.597	0.535	0.27	0.597	0.566	0.490	0.25
ArH + NM																			
MeOH + $MeNO_2$ [25]	293.15	-0.668	0.80	0.423	1.07	-0.461	0.106	0.67	11.46	-7.283		0.20	0.528	0.474	0.72	0.546	0.543	0.470	0.19
	303.15	-0.706	1.00	0.366	1.32	-0.499	0.114	0.88	1.085	11.030	-5.594	0.19	0.465	0.421	0.93	0.475	0.493	0.414	0.24
	313.15	-0.714	0.97	0.322	1.35	-0.507	0.120	0.84	1.103	9.692	-4.362	0.15	0.417	0.378	0.88	0.425	0.440	0.375	0.21
EtOH + $MeNO_2$ [25]	293.15	-1.103	1.04	0.402	2.62	-1.066	0.030	1.01	0.685	-0.769	6.060	0.25	0.744	0.540	1.04	0.847	0.703	0.509	0.27
	303.15	-1.175	1.37	0.336	2.74	-1.136	0.013	1.39	0.577	-1.078	8.378	0.29	0.627	0.474	1.45	0.695	0.641	0.434	0.29
	313.15	-1.116	0.94	0.312	2.16	-1.077	0.014	0.94	0.752	-1.360	6.470	0.15	0.553	0.426	0.98	0.620	0.542	0.406	0.12
PrOH + $MeNO_2$ [25]	293.15	-1.264	2.00	0.289	7.66	-1.242	-0.114	2.28	0.331	-0.185	12.37	0.73	1.036	0.686	2.40	1.215	1.043	0.554	0.42
	303.15	-1.292	1.78	0.275	6.54	-1.279	-0.075	1.98	0.404	-0.268	10.31	0.41	0.864	0.582	2.09	1.003	0.867	0.484	0.20
	313.15	-1.263	1.44	0.271	5.50	-1.254	-0.056	1.58	0.533	-0.338	7.765	0.27	0.736	0.508	1.64	0.854	0.721	0.441	0.16
2-PrOH + $MeNO_2$ [25]	293.15	-1.926	3.73	-0.028	15.04	-1.816	-0.519	2.70	0.783	-0.301	7.542	0.42	0.811	0.684	2.94	1.012	1.012	0.513	0.47
	303.15	-1.811	3.09	0.085	11.65	-1.735	-0.416	2.32	0.823	-0.436	6.980	0.38	0.691	0.577	2.49	0.843	0.825	0.459	0.42
	313.15	-1.665	2.69	0.153	9.06	-1.611	-0.355	2.01	0.844	-0.560	6.671	0.40	0.599	0.506	2.13	0.714	0.697	0.418	0.44
2-BuOH + $MeNO_2$ [25]	293.15	-2.132	6.48	-0.402	24.29	-1.865	-0.912	5.19	0.113	-0.135	59.19	1.54	0.913	0.906	5.74	1.131	1.556	0.511	0.69
	303.15	-1.871	3.97	-0.063	16.19	-1.729	-0.537	3.40	0.382	-0.216	15.14	0.66	0.789	0.704	4.08	0.957	1.132	0.465	0.70
	313.15	-1.611	2.46	0.120	10.65	-1.533	-0.310	2.18	0.626	-0.281	8.072	0.34	0.689	0.588	2.98	0.818	0.880	0.433	0.63
ROH + NBn																			
MeOH + NBn [26]	298.15	0.610	2.06	1.147	2.71	1.481	-0.368	2.11	0.505	0.358	1.785	2.21	1.332	1.071	2.18	1.333	1.230	0.901	2.31
	303.15	0.664	2.70	1.090	3.87	1.524	-0.215	2.27	0.687	0.428	0.978	2.38	1.332	0.943	2.49	1.248	1.264	0.768	2.56
EtOH + NBn [26]	298.15	-0.492	1.88	1.024	1.55	-0.009	-0.018	1.43	0.103	-0.228	24.91	0.89	1.250	1.030	1.77	1.133	1.359	1.001	1.15
	303.15	-0.517	1.99	0.923	1.69	-0.035	-0.020	1.60	0.106	-0.242	25.08	1.17	1.140	0.941	1.86	1.036	1.241	0.916	1.32
PrOH + NBn [26]	298.15	-1.038	1.48	1.003	1.94	-0.774	0.019	1.41		27.61	-22.98	0.71	1.255	1.357	1.46	1.175	1.512	1.461	0.69
	303.15	-0.993	1.62	0.938	1.99	-0.729	0.016	1.59		39.40	-34.53	1.04	1.162	1.243	1.62	1.079	1.403	1.327	1.05
2-PrOH + NBn [26]	298.15	-1.330	5.12	0.816	6.07	-0.988	0.630	2.14		28.80	-19.73	3.45	1.508	1.051	2.54	1.273	1.588	1.189	1.61
	303.15	-1.282	5.61	0.761	6.33	-0.940	0.677	2.63		62.19	-49.11	3.63	1.381	0.945	2.67	1.118	1.533	1.032	1.12
2-PrOH + NBn [27]	298.15	-1.233	3.43	0.911	3.83	-0.970	0.432	0.68	-0.007	35.06	3263	7.85	1.446	1.216	0.79	1.564	1.196	1.535	0.17
	303.15	-1.147	2.69	0.872	2.80	-0.889	0.327	0.60	-0.046	93.11	1798	7.21	1.256	1.130	0.57	1.356	1.105	1.385	0.20
	308.15	-1.060	2.11	0.834	1.96	-0.805	0.244	0.52	0.615	-18.87	32.97	0.10	1.140	1.060	0.47	1.228	1.033	1.269	0.12
	313.15	-1.002	2.96	0.779	2.61	-0.754	0.370	0.43	0.531	-5.895	13.41	0.05	1.104	0.923	0.39	1.168	0.961	1.100	0.24
	318.15	-0.908	3.00	0.749	2.48	-0.664	0.376	0.30	0.533	-3.229	8.377	0.03	1.045	0.850	0.27	1.091	0.913	0.993	0.20
	323.15	-0.838	2.83	0.709	2.16	-0.597	0.350	0.22	0.564	-2.167	6.185	0.05	0.973	0.790	0.19	1.011	0.858	0.907	0.16
BuOH + NBn [26]	298.15	-1.135	0.98	1.024	2.41	-0.993	0.085	0.68	0.694	3.859	-2.48	0.72	1.343	1.596	0.63	1.384	1.456	1.887	0.67
	303.15	-1.109	1.53	0.942	2.26	-0.974	0.035	1.54	0.623	3.293	-2.915	1.53	1.194	1.460	1.61	1.314	1.214	1.764	1.58
2-BuOH + NBn [27]	298.15	-1.530	3.84	0.784	6.40	-1.373	0.452	1.72	0.257	1.303	-2.798	0.54	1.442	1.436	1.77	1.692	1.164	1.985	0.59
	303.15	-1.247	2.48	0.925	4.09	-1.106	0.290	1.06	0.342	1.755	-2.802	0.26	1.344	1.414	1.03	1.487	1.215	1.816	0.30
	308.15	-1.084	2.00	0.946	3.07	-0.948	0.249	0.62	0.415	2.459	-3.453	0.08	1.256	1.321	0.62	1.344	1.190	1.623	0.23
	313.15	-1.077	2.14	0.850	2.83	-0.946	0.269	0.75		9.416	-5.474	2.29	1.142	1.154	0.75	1.240	1.044	1.420	0.21
	318.15	-0.956	1.82	0.831	2.15	-0.829	0.233	0.53		13.34	-9.924	1.97	1.066	1.069	0.54	1.139	0.996	1.276	0.18
	323.15	-0.895	1.21	0.779	1.25	-0.770	0.146	0.39		53.18	-50.84	1.29	0.965	0.996	0.38	1.026	0.934	1.158	0.17
PnOH + NBn [5]	293.15	-1.228	1.94	1.235	2.46	-1.157	0.146	1.61	0.471	-0.695	8.947	0.35	2.352	1.531	1.66	2.571	2.297	1.411	0.53
2-PnOH + NBn [27]	298.15	-1.592	4.19	0.725	7.39	-1.484	0.530	1.50	0.221	1.098	-2.37	0.49	1.514	1.481	1.58	1.732	1.240	2.057	0.53
	303.15	-1.483	3.90	0.748	6.27	-1.385	0.512	1.23	0.258	1.413	-2.932	0.39	1.388	1.324	1.29	1.554	1.161	1.786	0.43
	308.15	-1.345	2.31	0.770	3.96	-1.270	0.295	0.87	0.415	2.441	-3.301	0.13	1.209	1.285	0.90	1.333	1.118	1.642	0.22

System	Temp. (K)	GN		HND		HRC			AUS				MAC3			MAC4			
		G_{12}	σ%	η_{12}	σ%	H_{12}	H_{21}	σ%	A_{21}	B_{12}	B_{21}	σ%	Z_{12}	Z_{21}	σ%	Z_{1112}	Z_{1122}	Z_{2221}	σ%
	313.15	-1.251	2.05	0.754	3.15	-1.182	0.267	0.74	0.476	3.290	-4.423	0.11	1.114	1.169	0.76	1.218	1.040	1.460	0.18
	318.15	-1.132	0.87	0.747	1.42	-1.073	0.089	0.56		8.665	-5.839	1.19	0.989	1.133	0.59	1.081	0.984	1.361	0.10
	323.15	-1.032	0.42	0.728	0.14	-0.977	-0.044	0.36		12.35	-10.21	0.10	0.893	1.084	0.37	0.968	0.942	1.255	0.09
ROH + MPR																			
MPR + MeOH [28]	298.15	0.661	2.42	0.927	1.51	1.248	0.127	1.15	0.988	-0.260	3.371	0.67	0.979	1.017	1.02	0.952	0.886	1.028	0.65
MPR + EtOH [28]	298.15	-0.224	1.02	0.860	1.23	0.024	-0.196	0.18	0.040	0.089	77.941	0.20	1.019	1.033	0.17	1.099	1.018	0.992	0.18
MPR + PrOH [28]	298.15	-0.636	1.92	0.792	4.17	-0.491	-0.260	0.65	17.652	5.542	0.175	0.67	1.292	1.118	0.66	1.494	1.230	1.038	0.67
MPR + 2-PrOH [28]	298.15	-1.147	3.77	0.537	7.76	-0.975	-0.547	0.92	9.138	1.244	0.497	0.29	1.060	1.082	0.95	1.280	1.174	0.971	0.13
MPR + 2-BuOH [28]	298.15	-0.951	1.81	0.635	6.91	-0.903	-0.225	0.41	18.631	4.080	0.156	0.24	1.522	1.124	0.43	1.917	1.248	1.100	0.37
ArH + Pyr																			
oXy + Pyr [29]	293.15	-0.183	1.11	0.775	1.24	-0.135	0.133	0.66	0.014	0.131	35.17	0.36	0.909	0.887	0.64	0.870	0.946	0.883	0.51
	303.15	-0.181	0.85	0.680	0.98	-0.134	0.105	0.46	0.017	0.107	25.67	0.17	0.799	0.789	0.43	0.773	0.828	0.787	0.28
	313.15	-0.181	0.55	0.596	0.69	-0.135	0.069	0.27	0.011	0.043	36.65	0.17	0.699	0.707	0.24	0.685	0.719	0.711	0.17
	323.15	-0.186	0.52	0.522	0.66	-0.140	0.067	0.22	3.442	8.981	0.092	0.15	0.619	0.626	0.19	0.609	0.633	0.632	0.14
mXy + Pyr [29]	293.15	-0.388	2.42	0.569	3.01	-0.328	0.245	2.04	0.001	0.099	316.2	1.15	0.720	0.738	1.78	0.631	0.858	0.729	1.36
	303.15	-0.391	1.95	0.507	2.50	-0.335	0.193	1.64	0.001	0.068	453.5	1.07	0.638	0.666	1.37	0.581	0.732	0.668	1.11
	313.15	-0.398	2.03	0.448	2.55	-0.343	0.196	1.74	0.001	0.074	388.1	1.13	0.570	0.591	1.46	0.517	0.659	0.590	1.17
	323.15	-0.394	1.98	0.396	2.49	-0.339	0.192	1.69	0.001	0.072	499.6	1.10	0.508	0.527	1.42	0.462	0.586	0.526	1.12
pXy + Pyr [29]	293.15	-0.305	1.13	0.612	1.56	-0.254	0.097	1.01		2.382	0.456	0.96	0.729	0.800	0.94	0.688	0.810	0.815	0.92
	303.15	-0.311	0.97	0.543	1.35	-0.262	0.076	0.90		2.384	0.384	0.85	0.651	0.714	0.83	0.619	0.720	0.726	0.78
	313.15	-0.308	0.79	0.479	1.18	-0.260	0.064	0.73		2.339	0.362	0.69	0.577	0.637	0.66	0.553	0.634	0.650	0.61
	323.15	-0.312	0.71	0.420	1.131	-0.265	0.063	0.63		2.352	0.347	0.58	0.512	0.565	0.56	0.492	0.561	0.577	0.49
ROH + DMSO																			
DMSO + MeOH [30]	298.15	0.037	2.23	0.840	0.97	0.388	0.193	0.55	1.868	0.713	0.736	0.50	1.404	0.826	0.49	1.487	1.072	0.782	0.52
	303.15	-0.063	1.68	0.747	1.06	0.312	0.017	1.17	0.217	0.040	8.209	0.82	1.187	0.789	1.28	1.250	1.014	0.722	1.09
DMSO + EtOH [30]	298.15	-0.759	3.30	0.868	1.73	-0.658	0.347	1.39	0.299	-0.472	8.776	0.53	1.403	0.978	1.41	1.394	1.343	0.981	0.80
	303.15	-0.719	6.88	0.797	4.82	-0.670	0.830	2.00	0.731	-0.691	2.069	1.55	1.481	0.763	2.01	1.521	1.052	0.866	2.10
‘DMSO + PrOH [30]	298.15	-0.945	2.92	1.123	2.91	-0.897	0.420	0.44	0.433	-19.749	48.934	0.49	1.671	1.382	0.45	1.687	1.545	1.575	0.46
	303.15	-0.848	2.37	1.076	2.22	-0.803	0.297	1.20	0.576	-13.565	24.696	0.49	1.480	1.348	1.20	1.633	1.251	1.609	0.81
DMSO + BuOH [30]	298.15	-1.018	2.96	1.213	3.95	-0.997	0.423	0.42	0.332	2.471	-3.932	0.45	1.814	1.685	0.89	1.796	1.778	1.960	0.95
	303.15	-0.955	2.80	1.132	3.59	-0.937	0.376	0.99	0.335	2.265	-3.896	1.02	1.646	1.532	1.00	1.673	1.544	1.809	1.02
DMSO + HxOH [31]	313.15	-0.669	1.87	1.362	3.41	-0.621	0.274	0.48	0.109	0.358	1.943	0.52	1.809	2.017	0.47	1.691	1.923	2.323	0.50
DMSO + HpOH [31]	313.15	-0.357	1.21	1.732	2.56	-0.261	0.153	0.61	0.821	1.958	0.574	0.64	2.109	2.687	0.60	1.907	2.373	3.035	0.64
DMSO + OcOH [31]	313.15	-0.261	2.69	1.949	4.04	-0.098	0.384	1.16	0.377	1.030	1.575	1.16	2.606	3.031	1.12	2.181	2.888	3.468	1.12
DMSO + DcOH [31]	313.15	0.136	3.52	2.580	4.17	0.460	0.508	0.75	0.846	1.815	0.883	0.97	3.655	4.367	0.83	3.073	3.627	5.239	0.84
ArH + DMSO																			
DMSO + Bn [32]	298.15	-0.259	0.63	0.753	2.79	-0.244	-0.084	0.18	1.648	0.727	1.341	0.18	1.179	0.900	0.18	1.305	1.040	0.836	0.18
	303.15	-0.241	0.47	0.709	2.49	-0.231	-0.057	0.11	31.661	14.313	0.061	0.09	1.096	0.832	0.11	1.217	0.947	0.786	0.10
	308.15	-0.225	0.53	0.669	2.35	-0.214	-0.064	0.20	10.697	4.961	0.193	0.21	1.017	0.782	0.20	1.123	0.888	0.737	0.21
DMSO + Tn [32]	298.15	-0.367	0.65	0.624	3.50	-0.338	-0.067	0.62	0.289	0.085	8.367	0.47	1.137	0.834	0.62	1.258	1.002	0.764	0.50
	303.15	-0.354	0.65	0.597	3.45	-0.318	-0.098	0.28	0.224	0.079	10.712	0.10	1.043	0.793	0.28	1.155	0.933	0.727	0.09
	308.15	-0.321	1.01	0.582	2.97	-0.287	-0.091	1.06	0.057	0.009	40.790	0.95	0.982	0.750	1.04	1.056	0.925	0.665	0.87
DMSO + mXy [32]	298.15	-0.376	0.58	0.665	3.24	-0.316	-0.068	0.57	0.056	-0.002	43.515	0.18	1.151	0.947	3.50	1.221	1.168	0.804	3.37
	303.15	-0.372	0.54	0.630	3.00	-0.314	-0.060	0.53	0.043	-0.007	55.817	0.15	1.091	0.815	0.50	1.180	0.989	0.741	0.19
	308.15	-0.369	0.52	0.599	2.82	-0.311	-0.061	0.49	0.058	0.001	41.019	0.16	1.013	0.767	0.47	1.090	0.927	0.698	0.07
DMSO + MST [32]	298.15	-0.132	3.14	0.889	3.10	-0.017	-0.129	3.61	89.961	50.140	0.061	3.65	1.351	1.053	3.42	1.232	1.683	0.765	1.52
	303.15	-0.229	1.89	0.777	2.13	-0.127	-0.053	2.14	0.019	-0.025	107.849	1.69	1.225	0.927	1.98	1.190	1.316	0.751	0.77
	308.15	-0.259	1.29	0.716	1.81	-0.160	-0.031	1.45	0.007	-0.029	286.611	1.02	1.127	0.855	1.30	1.129	1.132	0.732	0.39

System	Temp. (K)	GN		HND		HRC			AUS				MAC3			MAC4			
		G_{12}	σ%	η_{12}	σ%	H_{12}	H_{21}	σ%	A_{21}	B_{12}	B_{21}	σ%	Z_{12}	Z_{21}	σ%	Z_{1112}	Z_{1122}	Z_{2221}	σ%
ArH + Slf																			
Bn + Slf [33]	303.15	-0.610	1.95	-1.194	34.1	-0.418	0.317	2.16	0.426	1.785	0.273	0.58	1.323	2.581	1.90	0.965	2.153	3.228	0.48
	323.15	-0.498	1.59	-0.383	24.1	-0.336	0.247	2.05	0.627	2.384	0.210	0.68	0.974	1.834	1.82	0.735	1.541	2.223	0.54
Tn + Slf [33]	303.15	-1.075	3.36	-1.881	47.13	-0.897	0.391	1.51	0.101	0.458	1.265	1.35	1.173	2.148	1.50	0.949	1.672	2.927	1.10
	323.15	-0.926	2.93	-0.772	33.09	-0.769	0.370	1.62	0.16	0.68	0.965	1.17	0.909	1.547	1.57	0.731	1.285	2.009	0.97
EBn + Slf [33]	303.15	-1.460	4.83	-2.155	49.09	-1.286	0.439	2.53	0.100	0.491	1.134	2.90	1.176	1.985	2.52	1.016	1.553	2.796	2.73
	323.15	-1.288	4.04	-0.935	35.04	-1.147	0.385	2.33	0.135	0.618	1.002	2.62	0.907	1.449	2.32	0.788	1.180	1.952	2.51
EBn + Slf [34]	303.15	-1.458	4.83	-2.152	49.05	-1.285	0.437	2.54	0.099	0.487	1.143	2.92	1.175	1.986	2.54	1.017	1.550	2.799	2.74
	313.15	-1.363	4.28	-1.412	40.91	-1.209	0.406	2.38	0.130	0.623	0.934	2.75	1.027	1.691	2.37	0.880	1.368	2.313	2.62
	323.15	-1.288	3.97	-0.937	35.01	-1.150	0.381	2.37	0.139	0.638	0.963	2.64	0.905	1.451	2.36	0.783	1.187	1.950	2.56
	333.15	-1.187	3.72	-0.597	29.91	-1.069	0.335	2.33	0.125	0.537	1.205	2.57	0.807	1.279	2.32	0.720	1.023	1.702	2.48
	343.15	-1.098	3.29	-0.369	25.81	-0.996	0.302	2.18	0.175	0.732	0.900	2.45	0.724	1.139	2.18	0.639	0.934	1.478	2.37
	353.15	-1.053	2.97	-0.219	22.66	-0.965	0.266	2.03	0.162	0.644	1.050	2.22	0.652	1.011	2.02	0.588	0.822	1.301	2.16
oXy + Slf [33]	303.15	-0.768	1.27	-1.141	29.61	-0.714	0.135	1.17	0.193	0.743	0.754	1.02	1.425	2.801	1.15	1.184	2.099	3.576	1.00
	323.15	-0.743	1.82	-0.363	22.2	-0.681	0.171	1.44	0.193	0.705	0.921	1.46	1.076	1.896	1.43	0.920	1.480	2.382	1.46
pXy + Slf [33]	303.15	-1.474	4.00	-2.229	51.28	-1.269	0.513	1.78	0.135	0.703	0.784	0.46	1.175	1.932	1.64	0.905	1.720	2.635	0.49
	323.15	-1.324	2.95	-1.013	36.87	-1.172	0.410	1.78	0.232	1.126	0.491	0.53	0.877	1.413	1.62	0.688	1.289	1.838	0.68
mXy + Slf [33]	303.15	-1.288	3.89	-2.111	49.6	-1.089	0.499	1.92	0.162	0.818	0.683	0.73	1.202	2.032	1.77	0.913	1.775	2.742	0.65
	323.15	-1.158	3.34	-0.931	35.6	-0.997	0.438	1.49	0.184	0.850	0.748	0.44	0.915	1.464	1.36	0.726	1.289	1.913	0.30
RCOOR' + Slf																			
EAA + Slf [35]	303.15	-1.253	3.63	-2.684	61.6	-1.073	-0.324	1.18	20.92	2.267	0.208	1.28	1.793	0.844	1.14	2.697	1.089	0.808	1.69
	308.15	-1.172	3.15	-2.193	55.3	-1.014	-0.277	1.04	17.33	1.949	0.248	0.90	1.676	0.788	0.96	2.470	1.037	0.743	1.34
	313.15	-1.129	3.35	-1.838	50.8	-0.916	-0.422	1.02	6.784	0.691	0.724	1.18	1.518	0.789	0.98	2.117	1.167	0.618	1.00
PACT + Slf [35]	303.15	-1.242	3.09	-2.476	48.7	-1.083	-0.354	0.44	12.20	1.410	0.378	0.44	1.984	1.039	0.45	2.813	1.424	0.896	0.50
	308.15	-1.212	3.09	-2.039	44.8	-1.047	-0.376	0.53	10.17	1.212	0.455	0.44	1.797	0.980	0.52	2.515	1.341	0.829	0.49
	313.15	-1.198	3.23	-1.725	42.0	-1.011	-0.437	0.79	6.715	0.785	0.714	0.61	1.629	0.936	0.70	2.228	1.328	0.743	0.54
BACT + Slf [35]	303.15	-1.449	4.86	-2.399	42.7	-1.146	-0.736	2.18	3.287	0.339	1.663	1.25	1.889	1.360	1.96	2.536	1.972	0.930	1.35
	308.15	-1.413	4.64	-1.973	39.6	-1.126	-0.709	2.20	2.813	0.295	1.906	1.26	1.731	1.249	2.04	2.294	1.820	0.856	1.37
	313.15	-1.425	5.32	-1.680	37.7	-1.093	-0.835	2.84	1.258	0.114	4.379	1.52	1.534	1.214	2.62	1.993	1.806	0.776	1.77

Table S2. Overall standard percentage deviation, σ%, for densities, ρ, and viscosities, η, using polynomial equations and the Jouyban-Acree model.

Equation	ρ correlation		η correlation	
	No of parameter	σ%	No of parameter	σ%
polynomial	3	0.098	3	3.406
	4	0.053	4	1.196
	5	0.047	5	0.612
Jouyban-Acree	3	0.086	3	1.330
	4	0.086	4	1.242
	5	0.089	5	1.187

Table S3**. Group volume (R_k) and surface area (Q_k) parameters of UNIFAC-VISCO model.**

Group name	R_k	Q_k
CH_2	0.6744	0.54
CH_3	0.9011	0.848
ACH	0.5313	0.4
CH_3OH	1.4311	1.432
OH	1	1.2
CO	0.7713	0.64
COO	1.002	0.88
CH_2NH_2	1.3692	1.236
CH_2NH	1.207	0.936
CH_3CN	1.8701	1.724
CH_3NO_2	2.0086	1.868
$ACNO_2$	1.4199	1.104
C_5H_5N	2.9993	2.113
DMSO	2.8266	2.472
CH_2SuCH_2	2.6869	2.12

Table S4**. Original UNIFAC-VISCO interaction parameters.**

a_{nm}/K	**CH_2**	**CH_3**	**ACH**	**OH**	**CH_3OH**	**COO**
CH_2	0	66.53	406.7	498.6	-219.7	1172
CH_3	-709.5	0	-119.5	594.4	-228.7	-172.4
ACH	-623.7	237.2	0	419.3	-88.81	-49.85
OH	-634.5	1209	197.7	0	416.4	68.35
CH_3OH	-526.1	653.1	51.31	-23.91	0	-286.2
COO	541.6	-44.25	-36.17	186.8	69.62	0

Table S5. Average Absolute Deviation percentages, AAD%, and maximum relative error, $|E_v|_{max}$, for predictions of kinematic viscosities of using UNIFAC-VISCO model at different temperatures.

Categories	System	Temp. (K)	AAD%	$\|E_v\|_{max}$
ROH + RH	MeOH + C_5 [1]	298.15	10.56	22.34
	EtOH + C_5 [1]	298.15	5.121	9.045
	PrOH + C_5 [1]	298.15	1.660	5.490
	PrOH + C_6 [1]	298.15	1.539	4.686
	PrOH + C_7 [1]	298.15	2.541	4.592
	PrOH + C_8 [1]	298.15	3.754	7.466
	2-PrOH + C_8 [2]	293.15	13.80	28.11
		298.15	12.80	26.38
		303.15	11.70	24.51
	2-PrOH + C_{10} [2]	293.15	14.57	28.05
		298.15	13.28	26.23
		303.15	12.34	24.27
	2-PrOH + C_{12} [2]	293.15	14.32	26.31
		298.15	13.20	24.46
		303.15	11.97	22.33
	HxOH + C_{10} [3]	293.15	7.084	12.95
		298.15	7.079	12.77
ArH + ROH	Bn + BuOH [4]	303.15	6.969	11.00
	Bn + 2-BuOH [4]	303.15	7.169	13.97
	Bn + PnOH [5]	293.15	4.154	9.242
	Bn + BnzOH [6]	303.15	14.47	25.49
	Tn + PnOH [5]	293.15	1.616	3.273
	Tn + 2-HxOH [7]	298.15	3.272	10.16
		308.15	5.491	13.25
	Tn + HpOH [8]	303.15	3.726	6.432
		313.15	11.01	17.35
	Tn + 2-HpOH [7]	298.15	5.049	15.84
		308.15	1.992	6.278
	Tn + OcOH [8]	303.15	8.241	13.88
		313.15	6.888	10.39
	Tn + 2-OcOH [7]	298.15	4.575	13.81
		308.15	3.370	8.806
	Tn + DcOH [8]	303.15	14.48	23.85
		313.15	8.107	12.06
	MST + EtOH [9]	298.15	1.761	4.573
		303.15	1.830	3.069
		308.15	1.350	3.589
	MST + PrOH [9]	298.15	3.739	8.196
		303.15	5.925	12.15
		308.15	5.456	12.00
	MST + 2-PrOH [9]	298.15	14.49	26.15
		303.15	13.59	24.95
		308.15	12.27	23.63
	MST + BuOH [9]	298.15	5.907	16.87
		303.15	6.951	16.37
		308.15	6.227	14.26
	MST + PnOH [9]	298.15	4.199	10.23
		303.15	3.615	8.734
		308.15	3.879	8.814

Categories	System	Temp. (K)	AAD%	$\lvert E_v \rvert_{max}$
	pXy + PnOH [5]	293.15	3.777	7.494
	oXy + HxOH [10]	308.15	1.778	4.057
		318.15	1.598	3.199
	mXy + HxOH [10]	308.15	1.167	2.514
		318.15	0.839	1.759
	pXy + HxOH [10]	308.15	2.180	4.152
		318.15	1.956	3.419
ROH + ROH	PrOH + BuOH [11]	293.15	0.153	0.560
	PrOH + PnOH [11]	293.15	1.482	2.609
	BuOH + PnOH [11]	293.15	0.417	0.773
ArOH + ArOH	mCrl + pCrl [12]	313.15	2.642	5.279
		323.15	3.192	6.276
		333.15	3.291	6.877
	mCrl + oCrl [12]	313.15	1.217	2.001
		323.15	1.695	3.083
		333.15	2.082	3.849
	oCrl + pCrl [12]	313.15	2.277	5.192
		323.15	2.250	5.044
		333.15	2.386	5.262
ROH + RCOR'	MeOH + ACA [13]	303.15	5.895	12.56
	EtOH + ACA [13]	303.15	8.279	19.52
	PrOH + ACA [13]	303.15	16.44	38.48
	BuOH + ACA [13]	303.15	5.309	13.16
	BnzOH + BTON [14]	303.15	12.25 12.27*	19.27 19.3*
		308.15	13.05 13.01*	20.59 20.5*
		313.15	13.73 13.73*	21.74 21.7*
		318.15	14.40 14.37*	22.82 22.7*
		323.15	15.00 14.95*	23.79 23.7*
		328.15	14.93	23.68
ArH + RCOR'	Tn + ACT [15]	298.15	9.590	15.72
		303.15	7.978	13.70
		308.15	5.903	10.81
	Tn + BTON [15]	298.15	3.141	5.292
		303.15	2.618	4.514
		308.15	2.259	3.946
	Tn + ACPN [15]	298.15	9.002	14.81
		303.15	8.340	13.75
		308.15	7.715	12.75
RH + RCOOR'	C_7 + MEOT [16]	298.15	0.894	1.740
	C_7 + MBOT [16]	298.15	0.811	1.192
	C_7 + MHOT [16]	298.15	0.458	1.149
	C_7 + MOCT [16]	298.15	0.551	1.199
	C_7 + MDOT [16]	298.15	0.398	0.972
	C_9 + MEOT [16]	298.15	0.189	0.618
	C_9 + MBOT [16]	298.15	0.180	0.461
	C_9 + MHOT [16]	298.15	0.140	0.334
	C_9 + MOCT [16]	298.15	0.235	0.536
	C_9 + MDOT [16]	298.15	0.206	0.480
ArH + RCOOR'	oXy + IAA [17]	303.15	0.855	1.610
		313.15	1.071	2.342
	mXy + IAA [17]	303.15	1.316	2.413

Categories	System	Temp. (K)	AAD%	$\lvert E_v \rvert_{max}$
	pXy + IAA [17]	313.15	2.125	3.598
		303.15	1.400	2.476
	EBn +IAA [17]	313.15	2.266	3.743
		303.15	2.307	4.305
	oXy + MBZT [17]	313.15	2.540	4.555
		303.15	2.234	8.232
	mXy + MBZT [17]	313.15	0.841	1.754
		303.15	1.170	2.476
	pXy + MBZT [17]	313.15	1.510	3.069
		303.15	1.074	3.016
	EBn + MBZT [17]	313.15	1.613	2.775
		303.15	0.947	2.131
		313.15	1.428	3.724
ROH + Amine	EtOH + PA [18]	303.15	1.270	2.570
	PrOH + PA [18]	313.15	0.902	2.122
		303.15	2.563	5.781
	BuOH + PA [18]	313.15	1.532	3.441
		303.15	1.140	2.291
	PnOH + PA [18]	313.15	0.799	2.249
		303.15	2.543	5.380
	HpOH + PA [18]	313.15	1.421	2.755
		303.15	1.135	2.892
	OcOH + PA [18]	313.15	3.632	6.772
		303.15	2.971	5.995
	DcOH + PA [18]	313.15	2.839	5.358
		303.15	4.730	11.88
	EtOH + BA [19]	313.15	2.172	5.324
		303.15	1.980	5.086
	PrOH + BA [19]	313.15	1.455	3.432
		303.15	1.428	2.581
	BuOH + BA [19]	313.15	0.830	2.664
		303.15	1.047	3.073
	PnOH + BA [19]	313.15	1.466	3.306
		303.15	1.123	2.228
	HxOH + BA [19]	313.15	0.490	1.193
		303.15	1.096	2.182
	HpOH + BA [19]	313.15	0.482	1.559
		303.15	0.914	1.826
	OcOH + BA [19]	313.15	3.061	6.936
		303.15	1.769	3.507
	DcOH + BA [19]	313.15	2.740	5.651
		303.15	4.204	8.668
	EtOH + DPA [20]	313.15	1.219	3.174
		303.15	6.136	13.67
	PrOH + DPA [20]	313.15	2.912	5.520
		303.15	0.442	0.964
	BuOH + DPA [20]	313.15	0.212	0.717
		303.15	0.250	0.682
	PnOH + DPA [20]	313.15	0.434	1.258
		303.15	0.760	1.425
	HpOH + DPA [20]	313.15	0.388	1.205
		303.15	1.391	3.531
	OcOH + DPA [20]	313.15	1.701	3.468
		303.15	1.398	3.958

Categories	System	Temp. (K)	AAD%	$\lvert E_v \rvert_{max}$
	DcOH + DPA [20]	313.15	2.279	5.951
		303.15	2.314	5.173
	EtOH + DBA [20]	313.15	1.316	3.540
		303.15	5.487	11.97
	PrOH + DBA [20]	313.15	3.240	8.828
		303.15	1.566	3.176
	BuOH + DBA [20]	313.15	2.082	4.311
		303.15	0.728	1.919
	PnOH + DBA [20]	313.15	0.826	1.769
		303.15	1.895	3.629
	HxOH + DBA [20]	313.15	1.647	3.125
		303.15	0.571	1.460
	HpOH + DBA [20]	313.15	0.269	0.755
		303.15	1.513	3.202
	OcOH + DBA [20]	313.15	0.425	0.895
		303.15	1.792	3.836
	DcOH + DBA [20]	313.15	0.646	1.142
		303.15	4.789	9.281
		313.15	0.931	2.517
ROH + ACN	MeOH + ACN [21]	298.15	0.447	0.942
		303.15	0.551	1.070
		308.15	0.529	1.195
		313.15	0.719	1.507
	MeOH + ACN [21]	298.15	1.670	4.986
		303.15	1.692	5.470
		308.15	1.899	5.467
		313.15	2.379	5.671
	EtOH + ACN [21]	298.15	1.085	2.581
		303.15	1.196	2.261
		308.15	2.575	5.119
		313.15	3.042	5.129
	PrOH + ACN [21]	298.15	1.094	2.366
		303.15	1.515	3.227
		308.15	3.182	5.200
		313.15	3.393	6.625
	2-PrOH + ACN [21]	298.15	10.644	17.920
		303.15	9.215	16.433
		308.15	7.284	13.987
		313.15	5.661	11.633
	2-PrOH + ACN [22]	293.15	6.453	12.35
		298.15	6.067	10.65
		303.15	5.051	8.825
		308.15	3.558	6.800
	BuOH + ACN [21]	298.15	4.960	14.08
		303.15	4.295	11.710
		308.15	2.203	7.963
		313.15	1.290	3.536
	2-BuOH + ACN [22]	293.15	14.18	32.23
		298.15	8.795	15.79
		303.15	5.957	10.10
		308.15	4.511	8.447
	2-PnOH + ACN [22]	293.15	7.151	12.52
		298.15	4.214	8.39
		303.15	10.72	19.40

Categories	System	Temp. (K)	AAD%	$\lvert E_v \rvert_{max}$
	2-HxOH + ACN [22]	308.15	11.26	20.11
		293.15	1.129	3.802
		298.15	1.727	3.984
		303.15	2.523	5.246
	2-HpOH + ACN [22]	308.15	4.549	8.309
		293.15	3.287	13.78
		298.15	4.189	14.78
		303.15	5.657	14.95
		308.15	7.659	14.56
ArH + ACN	Bn + ACN [23]	308.15	0.572	1.930
	Tn + ACN [24]	298.15	1.938	3.366
		303.15	1.783	3.191
		308.15	1.619	2.977
	Tn + ACN [23]	308.15	2.027	3.689
	pXy + ACN [23]	308.15	0.865	2.209
ROH + NM	MeOH + NM [25]	293.15	0.775	1.760
		303.15	0.709	1.705
		313.15	0.719	1.636
	EtOH + NM [25]	293.15	0.567	1.560
		303.15	0.833	1.778
		313.15	0.621	1.681
	PrOH + NM [25]	293.15	3.915	7.720
		303.15	3.766	7.215
		313.15	4.291	7.726
	2-PrOH + NM [25]	293.15	5.236	9.057
		303.15	3.489	6.451
		313.15	1.140	2.932
	2-BuOH + NM [25]	293.15	3.034	7.793
		303.15	1.578	4.105
		313.15	2.753	5.707
ROH + NBn	MeOH + NBn [26]	298.15	1.252	6.970
		303.15	1.752	8.932
	MeOH + NBn [26]	298.15	7.892	20.48
		303.15	7.215	21.67
	EtOH + NBn [26]	298.15	1.397	3.273
		303.15	1.297	3.116
	PrOH + NBn [26]	298.15	1.384	5.853
		303.15	1.441	4.126
	2-PrOH + NBn [26]	298.15	6.225	12.41
		303.15	5.897	12.03
	2-PrOH + NBn [27]	298.15	3.991	9.315
		303.15	3.838	8.550
		308.15	2.811	6.386
		313.15	2.404	5.886
		318.15	1.636	4.062
		323.15	1.194	2.586
	BuOH + NBn [26]	298.15	1.527	3.579
		303.15	2.054	4.012
	2-BuOH + NBn [27]	298.15	4.749	11.80
		303.15	1.476	4.122
		308.15	1.019	1.907
		313.15	0.861	2.363
		318.15	2.251	3.107
		323.15	2.818	4.471
	PnOH + NBn [5]	293.15	2.738	6.777

Categories	System	Temp. (K)	AAD%	$\lvert E_v \rvert_{max}$
	2-PnOH + NBn [27]	298.15	2.953	8.041
		303.15	2.109	5.391
		308.15	0.828	1.641
		313.15	1.247	2.234
		318.15	2.515	4.918
ROH + MPR	MeOH + MPR [28]	298.15	1.295	4.143
	EtOH + MPR [28]	298.15	0.091	0.605
	PrOH + MPR [28]	298.15	1.807	3.770
	2-PrOH + MPR [28]	298.15	5.241	10.25
	2-BuOH + MPR [28]	298.15	2.928	4.470
Pyr + ArH	oXy + Pyr [29]	293.15	1.759	3.541
		303.15	1.680	3.317
		313.15	1.646	3.092
		323.15	1.527	2.765
	mXy + Pyr [29]	293.15	1.136	5.602
		303.15	1.186	4.514
		313.15	1.365	4.935
		323.15	1.345	4.787
	pXy + Pyr [29]	293.15	0.557	2.220
		303.15	0.435	2.130
		313.15	0.372	1.842
		323.15	0.344	1.398
ROH + DMSO	MeOH + DMSO [30]	298.15	1.511	4.396
		303.15	1.071	4.307
	EtOH + DMSO [30]	298.15	0.949	2.254
		303.15	2.841	6.504
	PrOH + DMSO [30]	298.15	0.653	2.127
		303.15	1.103	3.688
	BuOH + DMSO [30]	298.15	2.089	5.383
		303.15	1.644	4.230
	HxOH + DMSO [31]	313.15	1.023	2.343
	HpOH + DMSO [31]	313.15	1.491	3.337
	OcOH + DMSO [31]	313.15	1.865	5.295
	DcOH + DMSO [31]	313.15	2.867	7.265
ArH + DMSO	Bn + DMSO [32]	298.15	2.371	4.588
		303.15	2.499	4.523
		308.15	2.643	4.677
	Tn + DMSO [32]	298.15	0.498	2.063
		303.15	0.365	0.619
		308.15	0.731	3.428
	mXy + DMSO [32]	298.15	2.371	7.890
		303.15	1.908	3.498
		308.15	1.870	3.407
	MST + DMSO [32]	298.15	2.479	5.118
		303.15	2.076	5.483
		308.15	2.342	5.212
ArH + Slf	Bn + Slf [33]	303.15	1.196	3.111
		323.15	2.210	5.593
	Tn + Slf [33]	303.15	1.286	2.898
		323.15	0.688	3.945
	EBn + Slf [33]	303.15	2.582	11.78
	EBn + Slf [34]	323.15	1.396	8.116
		303.15	2.572	11.78
		313.15	1.758	9.726

Categories	System	Temp. (K)	AAD%	$\lvert E_v \rvert_{max}$
		323.15	1.483	8.160
		333.15	1.265	6.379
		343.15	1.581	4.510
		353.15	1.605	3.676
	oXy + Slf [33]	303.15	5.490	9.992
		323.15	5.639	9.998
	pXy + Slf [33]	303.15	2.925	4.434
		323.15	1.881	3.737
	mXy + Slf [33]	303.15	0.638	2.181
		323.15	0.978	2.678
RCOOR' + Slf	EAA + Slf [35]	303.15	3.040	8.678
		308.15	2.351	7.100
		313.15	1.765	4.982
	PACT + Slf [35]	303.15	0.634	2.002
		308.15	0.759	2.491
		313.15	0.969	2.732
	BACT + Slf [35]	303.15	2.054	4.514
		308.15	2.109	4.834
		313.15	2.421	5.378

*** Compariosn with literature values.**[14]

Table S6. Temperature Mean of Average Absolute Deviation percentages, AAD%, and maximum relative error, $|E_v|_{max}$, of predictions for kinematic viscosities for binary liquid systems using UNIFAC-VISCO model.

Category	System	Temp. point	Data points	AAD%	$\|E_v\|_{max}$
ROH (1) + RH (2)	MeOH + C_5	1	12	10.6	22.3
	EtOH + C_5	1	12	5.12	9.04
	PrOH + C_5	1	12	1.66	5.49
	PrOH + C_6	1	11	1.54	4.69
	PrOH + C_7	1	12	2.54	4.59
	PrOH + C_8	1	11	3.75	7.47
	2-PrOH + C_8	3	12	12.8	26.3
	2-PrOH + C_{10}	3	13	13.4	26.2
	2-PrOH + C_{12}	3	13	13.2	24.4
	HxOH + C_{10}	2	11	7.08	12.9
ArH (1) + ROH (2)	Bn + BuOH	1	11	6.97	11.0
	Bn + 2-BuOH	1	11	7.17	14.0
	Bn + PnOH	1	14	4.15	9.24
	Bn + BnzOH	1	11	14.5	25.5
	Tn + PnOH	1	14	1.62	3.27
	Tn + 2-HxOH	2	21	4.38	11.7
	Tn + HpOH	2	21	7.37	11.9
	Tn + 2-HpOH	2	21	3.52	11.1
	Tn + OcOH	2	21	7.56	12.1
	Tn + 2-OcOH	2	21	3.97	11.3
	Tn + DcOH	2	21	11.3	18.0
	MST + EtOH	3	11	1.65	3.74
	MST + PrOH	3	11	5.04	10.8
	MST + 2-PrOH	3	11	13.5	24.9
	MST + BuOH]	3	11	6.36	15.8
	MST + PnOH	3	11	3.90	9.26
	pXy + PnOH	1	14	3.78	7.49
	oXy + HxOH	2	11	1.69	3.63
	mXy + HxOH	2	11	1.00	2.14
	pXy + HxOH	2	11	2.07	3.79
ROH (1) + ROH (2)	PrOH + BuOH	1	8	0.15	0.56
	PrOH + PnOH	1	8	1.48	2.61
	BuOH + PnOH	1	8	0.42	0.77
ArOH (1) + ArOH (2)	mCrl + pCrl	3	11	3.04	6.14
	mCrl + oCrl	3	11	1.66	2.98
	oCrl + pCrl	3	11	2.30	5.17
ROH (1) + RCOR' (2)	MeOH + ACA	1	9	5.89	12.6
	EtOH + ACA	1	9	8.28	19.5
	PrOH + ACA	1	9	16.4	38.5
	BuOH + ACA	1	9	5.31	13.2
	BnzOH + BTON	6	11	13.9	22.0
ArH (1) + RCOR'(2)	Tn + ACT	3	11	7.82	13.4
	Tn + BTON	3	11	2.67	4.58
	Tn + ACPN	3	11	8.35	13.8
RH (1) + RCOOR' (2)	C_7 + MEOT	1	13	0.89	1.74
	C_7 + MBOT	1	11	0.81	1.19
	C_7 + MHOT	1	11	0.46	1.15
	C_7 + MOCT	1	20	0.55	1.20
	C_7 + MDOT	1	11	0.40	0.97
	C_9 + MEOT	1	13	0.19	0.62
	C_9 + MBOT	1	11	0.18	0.46
	C_9 + MHOT	1	10	0.14	0.33
	C_9 + MOCT	1	10	0.23	0.54
	C_9 + MDOT	1	11	0.21	0.48
ArH (1) + RCOOR' (2)	oXy + IAA	2	12	0.96	1.98

mXy + IAA	2	11	1.72	3.01
pXy + IAA	2	12	1.83	3.11
EBn + IAA	2	12	2.42	4.43
oXy + MBZT	2	12	1.54	4.99
mXy + MBZT	2	12	1.34	2.77
pXy + MBZT	2	12	1.34	2.90
EBn + MBZT	2	12	1.19	2.93

Table S7. Mean of Average Absolute Deviation percentages, AAD%, and maximum relative errors, $|E_v|_{max}$, for calculating kinematic viscosities using new UNIFAC-VISCO group interaction parameters.

Category	System	AAD%	$\|E_v\|_{max}$
ROH (1) + Amine (2)	EtOH + PA	1.09	2.35
	PrOH + PA	2.05	4.61
	BuOH + PA	0.97	2.27
	PnOH + PA	1.98	4.07
	HpOH + PA	2.38	4.83
	OcOH + PA	2.90	5.68
	DcOH + PA	3.45	8.60
	EtOH + BA	1.72	4.26
	PrOH + BA	1.13	2.62
	BuOH + BA	1.26	3.19
	PnOH + BA	0.81	1.71
	HxOH + BA	0.79	1.87
	HpOH + BA	1.99	4.38
	OcOH + BA	2.25	4.58
	DcOH + BA	2.71	5.92
	EtOH + DPA	4.52	9.59
	PrOH + DPA	0.33	0.84
	BuOH + DPA	0.34	0.97
	PnOH + DPA	0.57	1.32
	HpOH + DPA	1.55	3.50
	OcOH + DPA	1.84	4.95
	DcOH + DPA	1.81	4.36
	EtOH + DBA	4.36	10.40
	PrOH + DBA	1.82	3.74
	BuOH + DBA	0.78	1.84
	PnOH + DBA	1.77	3.38
	HxOH + DBA	0.42	1.11
	HpOH + DBA	0.97	2.05
	OcOH + DBA	1.22	2.49
	DcOH + DBA	2.86	5.90
ROH (1) + ACN (2)	MeOH (1 CH_3OH) + ACN	0.56	1.18
	MeOH (1 CH_3, 1 OH) + ACN	1.91	5.40
	EtOH + ACN	1.97	3.77
	PrOH + ACN	2.30	4.35
	2-PrOH + ACN	8.20	15.0
	2-PrOH + ACN	5.28	9.66
	BuOH + ACN	3.19	9.32
	2-BuOH + ACN	8.36	16.6
	2-PnOH + ACN	8.34	15.1
	2-HxOH + ACN	2.48	5.34
	2-HpOH + ACN	5.20	14.5
ArH (1) + ACN (2)	Bn + ACN	0.57	1.93
	Tn + ACN	1.78	3.18
	Tn + ACN	2.03	3.69
	pXy + ACN	0.87	2.21
ROH (1) + NM (2)	MeOH + NM	0.73	1.70
	EtOH + NM	0.67	1.67
	PrOH + NM	3.99	7.55
	2-PrOH + NM	3.29	6.15
	2-BuOH + NM	2.46	5.87
ROH (1) + NBn (2)	MeOH (1 CH_3OH) + NBn	1.50	7.95
	MeOH (1 CH_3, 1 OH) + NBn	7.55	21.1
	EtOH + NBn	1.35	3.19
	PrOH + NBn	1.41	4.99
	2-PrOH + NBn	6.06	12.2
	2-PrOH + NBn	2.65	6.13

	BuOH + NBn	1.79	3.80
	2-BuOH + NBn	2.20	4.63
	PnOH + NBn	2.74	6.78
	2-PnOH + NBn	2.20	4.94
ROH (1) + MPR (2)	MeOH + MPR	1.30	4.14
	EtOH + MPR	0.09	0.61
	PrOH + MPR	1.81	3.77
	2-PrOH + MPR	5.24	10.3
	2-BuOH + MPR	2.93	4.47
Pyr (1) + ArH (2)	oXy + Pyr	1.65	3.18
	mXy + Pyr	1.26	4.96
	pXy + Pyr	0.43	1.90
ROH (1) + DMSO (2)	MeOH + DMSO	1.29	4.35
	EtOH + DMSO	1.90	4.38
	PrOH + DMSO	0.88	2.91
	BuOH + DMSO	1.87	4.81
	HxOH + DMSO	1.02	2.34
	HpOH + DMSO	1.49	3.34
	OcOH + DMSO	1.86	5.29
	DcOH + DMSO	2.87	7.27
ArH (1) + DMSO (2)	Bn + DMSO	2.50	4.60
	Tn + DMSO	0.53	2.04
	mXy + DMSO	2.05	4.93
	MST + DMSO	2.30	5.27
ArH (1) + Slf (2)	Bn + Slf	1.70	4.35
	Tn + Slf	0.99	3.42
	EBn + Slf	1.99	9.95
	EBn + Slf	1.71	7.37
	oXy + Slf	5.56	10.0
	pXy + Slf	2.40	4.09
	mXy + Slf	0.81	2.43
RCOOR' (1) + Slf (2)	EAA + Slf	2.39	6.92
	PACT + Slf	0.79	2.41
	BACT + Slf	2.19	4.91

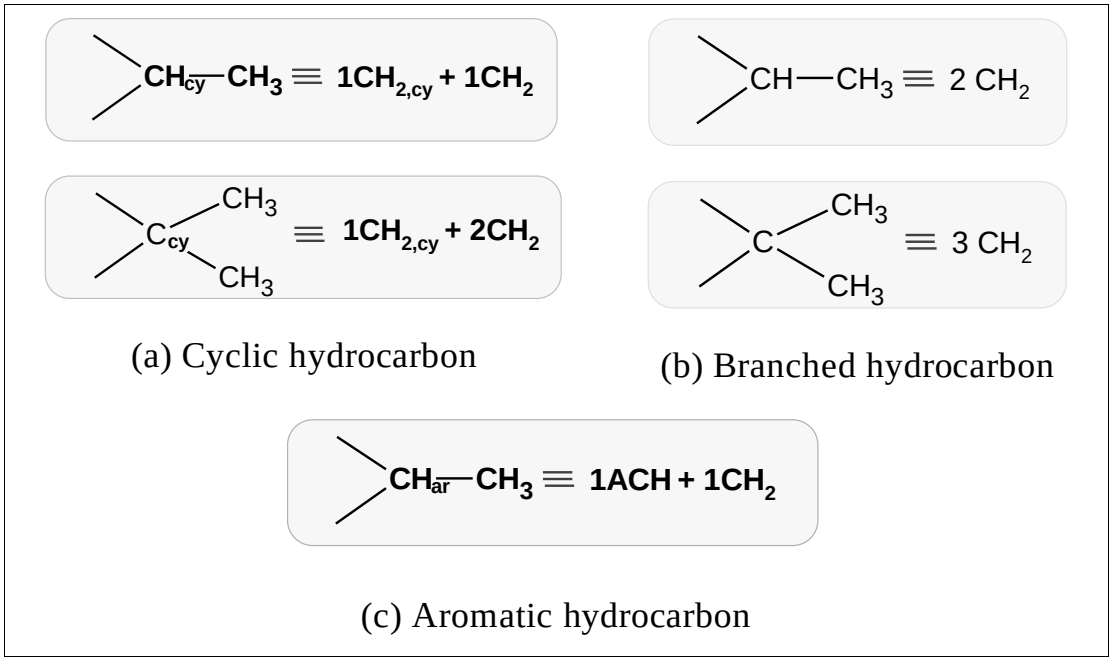

Figure S1: Approximation for molecular cleavages of the component molecules adopted in UNIFAC-VISCO model[36,37].

Reference

(1) Orge, B.; Iglesias, M.; Rodríguez, A.; Canosa, J. M.; Tojo, J. Mixing Properties of (Methanol, Ethanol, or 1-Propanol) with (n-Pentane, n-Hexane, n-Heptane and n-Octane) at 298.15 K. *Fluid Phase Equilib.* **1997**, *133* (1), 213–227. https://doi.org/https://doi.org/10.1016/S0378-3812(97)00031-9.

(2) González, B.; Dominguez, A.; Tojo, J. Viscosities, Densities and Speeds of Sound of the Binary Systems: 2-Propanol with Octane, or Decane, or Dodecane at T=(293.15, 298.15, and 303.15)K. *J. Chem. Thermodyn.* **2003**, *35* (6), 939–953. https://doi.org/https://doi.org/10.1016/S0021-9614(03)00047-8.

(3) Estrada-Baltazar, A.; Bravo-Sanchez, M. G.; Iglesias-Silva, G. A.; Alvarado, J. F. J.; Castrejon-Gonzalez, E. O.; Ramos-Estrada, M. Densities and Viscosities of Binary Mixtures of N-Decane + 1-Pentanol, + 1-Hexanol, + 1-Heptanol at Temperatures from 293.15 to 363.15 K and Atmospheric Pressure. *Chinese J. Chem. Eng.* **2015**, *23* (3), 559–571. https://doi.org/10.1016/J.CJCHE.2013.10.001.

(4) Ali, A.; Nain, A. K.; Lal, B.; Chand, D. Densities, Viscosities, and Refractive Indices of Binary Mixtures of Benzene with Isomeric Butanols at 30{\textdegree}C. *Int. J. Thermophys.* **2004**, *25* (6), 1835–1847. https://doi.org/10.1007/s10765-004-7738-1.

(5) Tsierkezos, N. G.; Palaiologou, M. M.; Molinou, I. E. Densities and Viscosities of 1-Pentanol Binary Mixtures at 293.15 K. *J. Chem. Eng. Data* **2000**, *45* (2), 272–275. https://doi.org/10.1021/je9902138.

(6) Ali, A.; Tariq, M. Thermodynamic and Transport Behaviour of Binary Liquid Mixtures of Benzyl Alcohol with Monocyclic Aromatics at 303.15 K. *J. Mol. Liq.* **2006**. https://doi.org/10.1016/j.molliq.2005.09.002.

(7) Hasan, M.; Shirude, D. F.; Hiray, A. P.; Kadam, U. P.; Sawant, A. B. Densities, Viscosities and Ultrasonic Velocity Studies of Binary Mixtures of Toluene with Heptan-1-Ol, Octan-1-Ol and Decan-1-Ol at 298.15 and 308.15 K. *J. Mol. Liq.* **2007**. https://doi.org/10.1016/j.molliq.2006.10.012.

(8) Hasan, M.; Shirude, D. F.; Hiray, A. P.; Kadam, U. B.; Sawant, A. B. Densities, Viscosities, and Speed of Sound Studies of Binary Mixtures of Methylbenzene with Heptan-1-Ol, Octan-1-Ol, and Decan-1-Ol at (303.15 and 313.15) K. *J. Chem. Eng. Data* **2006**, *51* (5), 1922–1926. https://doi.org/10.1021/je0602519.

(9) Mutalik, V.; Manjeshwar, L. S.; Sairam, M.; Aminabhavi, T. M. Excess Molar Volumes, Deviations in Viscosity and Refractive Index of the Binary Mixtures of Mesitylene with Ethanol, Propan-1-Ol, Propan-2-Ol, Butan-1-Ol, Pentan-1-Ol, and 3-Methylbutan-1-Ol at 298.15, 303.15, and 308.15 K. *J. Mol. Liq.* **2006**, *129* (3), 147–154. https://doi.org/https://doi.org/10.1016/j.molliq.2006.02.007.

(10) Habibullah, M.; Das, K. N.; Rahman, I. M. M.; Uddin, M. A.; Saifuddin, K.; Iwakabe, K.; Hasegawa, H. Density and Viscosity of the Binary Mixtures of Hexan-1-Ol with Isomeric Xylenes at T = (308.15 and 318.15) K and Atmospheric Pressure. *J. Chem. Eng. Data* **2010**. https://doi.org/10.1021/je100823t.

(11) Shan, Z.; Asfour, A.-F. A. Viscosities and Densities of Nine Binary 1-Alkanol Systems at 293.15 K and 298.15 K. *J. Chem. Eng. Data* **1999**, *44* (1), 118–123. https://doi.org/10.1021/je980177x.

(12) Rosal, R.; Medina, I.; Forster, E.; MacInnes, J. Viscosities and Densities for Binary Mixtures of Cresols. *Fluid Phase Equilib.* **2003**. https://doi.org/10.1016/S0378-3812(03)00076-1.

(13) Chen, X.; Hu, R.; Feng, H.; Chen, L.; Lüdemann, H.-D. Intradiffusion, Density, and Viscosity Studies in Binary Liquid Systems of Acetylacetone + Alkanols at 303.15 K. *J. Chem. Eng. Data* **2012**, *57* (9), 2401–2408. https://doi.org/10.1021/je3000553.

(14) Habibullah, M.; Rahman, I. M. M.; Uddin, M. A.; Iwakabe, K.; Azam, A.; Hasegawa, H. Densities and Viscosities of the Binary Mixtures of Phenylmethanol with 2-Butanone. *J. Chem. Eng. Data* **2011**. https://doi.org/10.1021/je200150r.

(15) Rajagopal, K.; Chenthilnath, S. Density and Viscosity of Ketones with Toluene at Different Temperatures and at Atmospheric Pressure. *J. Chem. Eng. Data* **2010**, *55* (2), 1060–1063. https://doi.org/10.1021/je900523k.

(16) Matos, J. S.; Trenzado, J. L.; Santana, S.; Romaní, L. Viscometric Study of (an Aliphatic Methyl Ester + Heptane or Nonane) at the Temperature 298.15 K. *J. Chem. Eng. Data* **1996**. https://doi.org/10.1021/je960002s.

(17) Rathnam, M. V; Mohite, S.; Kumar, M. S. Thermophysical Properties of Isoamyl Acetate or Methyl Benzoate + Hydrocarbon Binary Mixtures, at (303.15 and 313.15) K. *J. Chem. Eng. Data* **2009**, *54* (2), 305–309. https://doi.org/10.1021/je800325d.

(18) Oswal, S. L.; Desai, H. S. Studies of Viscosity and Excess Molar Volume of Binary Mixtures.: 1. Propylamine+1-Alkanol Mixtures at 303.15 and 313.15 K. *Fluid Phase Equilib.* **1998**, *149* (1), 359–376. https://doi.org/https://doi.org/10.1016/S0378-3812(98)00318-5.

(19) Oswal, S. L.; Desai, H. S. Studies of Viscosity and Excess Molar Volume of Binary Mixtures: 2. Butylamine+1-Alkanol Mixtures at 303.15 and 313.15 K. *Fluid Phase Equilib.* **1999**, *161* (1), 191–204. https://doi.org/https://doi.org/10.1016/S0378-3812(99)00165-X.

(20) Oswal, S. L.; Desai, H. S. Studies of Viscosity and Excess Molar Volume of Binary Mixtures: 3. 1-Alkanol+di-n-Propylamine, And+di-n-Butylamine Mixtures at 303.15 and 313.15 K. *Fluid Phase Equilib.* **2001**, *186* (1), 81–102. https://doi.org/https://doi.org/10.1016/S0378-3812(01)00504-0.

(21) Nikam, P. S.; Shirsat, L. N.; Hasan, M.; Pandharinath S. Nikam, *; Laxman N. Shirsat, † and; Hasan, M.; Nikam, P. S.; Shirsat, L. N.; Hasan, M. Density and Viscosity Studies of Binary Mixtures of Acetonitrile with Methanol, Ethanol, Propan-1-Ol, Propan-2-Ol, Butan-1-Ol, 2-Methylpropan-1-Ol, and 2-Methylpropan-2-Ol at (298.15, 303.15, 308.15, and 313.15) K. *J. Chem. Eng. Data* **1998**, *43* (5), 732–737. https://doi.org/10.1021/je980028e.

(22) Iloukhani, H.; Almasi, M. Densities, Viscosities, Excess Molar Volumes, and Refractive Indices of Acetonitrile and 2-Alkanols Binary Mixtures at Different Temperatures: Experimental Results and Application of the Prigogine-Flory-Patterson Theory. *Thermochim. Acta* **2009**. https://doi.org/10.1016/j.tca.2009.06.015.

(23) Yadava, S. S.; Singh, S.; Bhan, R.; Yadav, N. Viscosities of Binary Mixtures of Ethanenitrile with Benzene and Several Substituted Benzenes. *Korean J. Chem. Eng.* **2011**, *28* (1), 256–260. https://doi.org/10.1007/s11814-010-0319-z.

(24) Rajagopal, K.; Chenthilnath, S. Molecular Interaction Studies and Theoretical Estimation of Ultrasonic Speeds Using Scaled Particle Theory in Binary Mixtures of Toluene with Homologous Nitriles at Different Temperatures. *Thermochim. Acta* **2010**, *498* (1), 45–53. https://doi.org/https://doi.org/10.1016/j.tca.2009.10.001.

(25) Tu, C. H.; Lee, S. L.; Peng, I. H. Excess Volumes and Viscosities of Binary Mixtures of Aliphatic Alcohols (C1-C4) with Nitromethane. *J. Chem. Eng. Data* **2001**, *46* (1), 151–155. https://doi.org/10.1021/je0002080.

(26) Nikam, P. S.; Jadhav, M. C.; Hasan, M. Density and Viscosity of Mixtures of Nitrobenzene with Methanol, Ethanol, Propan-1-Ol, Propan-2-Ol, Butan-1-Ol, 2-Methylpropan-1-Ol, and 2-Methylpropan-2-Ol at 298.15 and 303.15 K. *J. Chem. Eng. Data* **1995**, *40* (4), 931–934. https://doi.org/10.1021/je00020a044.

(27) Almasi, M. Temperature Dependence and Chain Length Effect on Density and Viscosity of Binary Mixtures of Nitrobenzene and 2-Alcohols. *J. Mol. Liq.* **2015**, *209*, 346–351. https://doi.org/https://doi.org/10.1016/j.molliq.2015.05.045.

(28) Haraschta, P.; Heintz, A.; Lehmann, J. K.; Peters, A. Excess Molar Volumes and Viscosities of Binary Mixtures of 4-Methylpyridine with Methanol, Ethanol, Propan-1-Ol, Propan-2-Ol, Butan-2-Ol, and 2-Methylpropan-2-Ol at 298.15 K and Atmospheric Pressure. *J. Chem. Eng. Data* **1999**, *44* (5), 932–935. https://doi.org/10.1021/je990086f.

(29) Dikio, E. D.; Vilakazi, G.; Ngoy, P. Density, Dynamic Viscosity and Derived Properties of Binary Mixtures of m-Xylene, o-Xylene, and p-Xylene, with Pyridine at T=293.15, 303.15, 313.15 and 323.15K. *J. Mol. Liq.* **2013**. https://doi.org/10.1016/j.molliq.2012.10.021.

(30) Nikam, P. S.; Jadhav, M. C.; Hasan, M. Density and Viscosity of Mixtures of Dimethyl Sulfoxide + Methanol, +Ethanol, +Propan-1-Ol, +Propan-2-Ol, +Butan-1-Ol, +2-Methylpropan-1-Ol, and +2-Methylpropan-2-Ol at 298.15 K and 303.15 K. *J. Chem. Eng. Data* **1996**, *41* (5), 1028–1031. https://doi.org/10.1021/je9600358.

(31) Dewan, R. K.; Gupta, S. P.; Mehta, S. K. Excess Volumes and Viscosities of Mixtures of Dimethylsulfoxide with Normal Alcohols at 40°C. *J. Solution Chem.* **1989**, *18* (1), 13–22. https://doi.org/10.1007/BF00646079.

(32) Aralaguppi, M. I.; Aminabhavi, T. M.; Harogoppad, S. B.; Balundgi, R. H. Thermodynamic Interactions in Binary Mixtures of Dimethyl Sulfoxide with Benzene, Toluene, 1,3-Dimethylbenzene, 1,3,5-Trimethylbenzene, and Methoxybenzene from 298.15 to 308.15 K. *J. Chem. Eng. Data* **1992**, *37* (3), 298–303. https://doi.org/10.1021/je00007a006.

(33) Yang, C.; Ma, P.; Zhou, Q. Excess Molar Volumes and Viscosities of Binary Mixtures of Sulfolane with Benzene, Toluene, Ethylbenzene, p-Xylene, o-Xylene, and m-Xylene at 303.15 and 323.15 K and Atmospheric Pressure. *J. Chem. Eng. Data* **2004**, *49* (4), 881–885. https://doi.org/10.1021/je0341920.

(34) Yang, C.; Yu, W.; Ma, P. Densities and Viscosities of Binary Mixtures of Ethylbenzene + N-Methyl-2-Pyrrolidone, Ethylbenzene + Sulfolane, and Styrene + Octane from (303.15 to 353.15) K and Atmospheric Pressure. *J. Chem. Eng. Data* **2005**, *50* (4), 1197–1203. https://doi.org/10.1021/je049572f.

(35) Patwari, M. K.; Bachu, R. K.; Boodida, S.; Nallani, S. Densities, Viscosities, and Speeds of Sound of Binary Liquid Mixtures of Sulfolane with Ethyl Acetate, n-Propyl Acetate, and n-Butyl Acetate at Temperature of (303.15, 308.15, and 313.15) K. *J. Chem. Eng. Data* **2009**, *54* (3), 1069–1072. https://doi.org/10.1021/je800653d.

(36) Chevalier, J. L.; Petrino, P.; Gaston-Bonhomme, Y. Estimation Method for the Kinematic Viscosity of a Liquid-Phase Mixture. *Chem. Eng. Sci*. **1988**. https://doi.org/10.1016/0009-2509(88)85104-2.

(37) Gaston-Bonhomme, Y.; Petrino, P.; Chevalier, J. L. UNIFAC-VISCO Group Contribution Method for Predicting Kinematic Viscosity: Extension and Temperature Dependence. *Chem. Eng. Sci*. **1994**. https://doi.org/10.1016/0009-2509(94)80065-0.