Supplementary Information

Volumetric, viscometric, optical, acoustical and spectral investigations of intermolecular interactions in ternary mixtures of terpinolene and α-terpineol with cresols

Paras Patel*[a] & Sangita Sharma[b]

[a] Department of Chemistry, Indus Institute of Sciences, Humanities and Liberal Studies, Indus University, Ahmedabad 382 115, Gujarat, India

[b] Department of Chemistry, Hemchandracharya North Gujarat University, Patan 384 265, Gujarat, India

E-mail: paras12patel@yahoo.com, paraspatel.gd@indusuni.ac.in

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Content:

Table S1 — List of Chemicals with Details of Supplier, CAS Number, Purity, Purification Method and Applied Method for Final Purity Analysis.

Compound/ Grade	Supplier	CAS number	Initial mass-fraction purity	Purification method	Final mass-fraction purity	Analysis method
Terpineol	Sigma-Aldrich Chemical, USA	586-62-9	90%	None	-	-
α-Terpineol	Sigma-Aldrich Chemical, USA	98-55-5	90%	None	-	-
o-Cresol	S.D.Fine Chemicals Ltd.	95-48-7	99%	Fractional distillation	99.5%	GC[a]
m-Cresol	S.D.Fine Chemicals Ltd.	108-39-4	99%	Fractional distillation	99.5%	GC[a]
p-Cresol	S.D.Fine Chemicals Ltd.	106-44-5	99.%	Fractional distillation	99.5%	GC[a]

[a]GC = Gas-liquid chromatography

Table S2 — Densities ($\boldsymbol{\rho}$) and Excess Molar Volume ($\boldsymbol{V_m^E}$) vs Mole Fraction ($\boldsymbol{x_1, x_2}$) for Terpinolene (1) + α-Terpineol (2) + o-, m- and p-Cresol (3) Mixtures at Different Temperatures

x_1	x_2	ρ (gm·cm^3)			V_m^E (cm^3·mol^{-1})		
		303.15 K	308.15 K	313.15 K	303.15 K	308.15 K	313.15 K
Terpinolene (1) + α-Terpineol (2) + o-Cresol (3)							
0.0979	0.7522	0.933762	0.929771	0.925743	-0.3697	-0.3733	-0.3781
0.0928	0.6234	0.946286	0.942261	0.938227	-0.6003	-0.6072	-0.6193
0.0881	0.5075	0.958205	0.954161	0.950114	-0.7133	-0.7245	-0.7412
0.0839	0.4027	0.969403	0.965357	0.961292	-0.7131	-0.7296	-0.7487
0.0801	0.3074	0.980246	0.976117	0.971992	-0.6661	-0.6764	-0.6917
0.0766	0.2205	0.990517	0.986381	0.982223	-0.5535	-0.5669	-0.5814
0.0734	0.1409	1.000016	0.995766	0.991523	-0.3618	-0.3647	-0.3716
0.0704	0.0676	1.009037	1.004757	1.000462	-0.1355	-0.1378	-0.1411
0.1951	0.6556	0.926764	0.922756	0.918710	-0.4417	-0.4425	-0.4437
0.1848	0.5323	0.937929	0.933917	0.929867	-0.4559	-0.4631	-0.4704
0.1756	0.4214	0.949112	0.945078	0.941011	-0.4704	-0.4806	-0.4914
0.1672	0.3211	0.960158	0.956090	0.952001	-0.4638	-0.4749	-0.4877
0.1596	0.2298	0.970930	0.966809	0.962658	-0.4215	-0.4306	-0.4395
0.1527	0.1466	0.981403	0.977227	0.973017	-0.3466	-0.3530	-0.3587
0.1463	0.0702	0.991542	0.987308	0.983048	-0.2397	-0.2432	-0.2465
0.2916	0.5598	0.918841	0.914813	0.910760	-0.3587	-0.3546	-0.3526
0.2762	0.4420	0.928781	0.924815	0.920706	-0.1851	-0.1968	-0.1913
0.2625	0.3359	0.940061	0.936073	0.931943	-0.2308	-0.2456	-0.2437
0.2500	0.2400	0.952185	0.948095	0.943986	-0.3887	-0.3957	-0.4042
0.2387	0.1527	0.964672	0.960598	0.956379	-0.5756	-0.5918	-0.5925

0.2283	0.0731	0.977444	0.973246	0.969031	-0.7766	-0.7839	-0.7919
0.3872	0.4646	0.912106	0.908075	0.904019	-0.4757	-0.4714	-0.4685
0.3670	0.3523	0.922763	0.918752	0.914661	-0.4078	-0.4136	-0.4117
0.3487	0.2511	0.935648	0.931589	0.927507	-0.6780	-0.6854	-0.6937
0.3322	0.1595	0.950044	0.945963	0.941815	-1.1244	-1.1386	-1.1472
0.3172	0.0761	0.965347	0.961190	0.957025	-1.6342	-1.6483	-1.6646
0.4822	0.3703	0.903949	0.899915	0.895857	-0.3524	-0.3457	-0.3399
0.4570	0.2632	0.915316	0.911295	0.907232	-0.4052	-0.4086	-0.4098
0.4344	0.1668	0.926391	0.922311	0.918214	-0.4073	-0.4086	-0.4111
0.4139	0.0795	0.936985	0.932849	0.928695	-0.3412	-0.3404	-0.3400
0.5764	0.2766	0.896908	0.892878	0.888827	-0.4184	-0.4120	-0.4065
0.5465	0.1749	0.908797	0.904653	0.900654	-0.5503	-0.5346	-0.5460
0.5195	0.0831	0.919440	0.915341	0.911229	-0.4792	-0.4776	-0.4772
0.6699	0.1837	0.891411	0.887396	0.883353	-0.7485	-0.7466	-0.7440
0.6352	0.0871	0.905617	0.901571	0.897507	-1.2279	-1.2331	-1.2390
0.7626	0.0915	0.881982	0.877965	0.873936	-0.4069	-0.4005	-0.3955
Terpinolene (1) + α-Terpineol (2) + m-Cresol (3)							
0.0981	0.7534	0.932779	0.928811	0.924814	-0.3886	-0.3896	-0.3932
0.0930	0.6252	0.943528	0.939586	0.935646	-0.5127	-0.5194	-0.5332
0.0885	0.5096	0.954048	0.950116	0.946191	-0.5879	-0.5968	-0.6129
0.0843	0.4049	0.964411	0.960471	0.956519	-0.6321	-0.6402	-0.6520
0.0806	0.3094	0.974105	0.970176	0.966255	-0.5831	-0.5921	-0.6069
0.0771	0.2221	0.983422	0.979488	0.975534	-0.4917	-0.4990	-0.5080
0.0740	0.1420	0.992660	0.988718	0.984781	-0.3997	-0.4050	-0.4144
0.0711	0.0682	1.001464	0.997503	0.993521	-0.2671	-0.2688	-0.2711
0.1954	0.6566	0.924895	0.920916	0.916911	-0.3119	-0.3098	-0.3102
0.1854	0.5339	0.935326	0.931447	0.927440	-0.3914	-0.4067	-0.4080
0.1763	0.4232	0.946033	0.942164	0.938172	-0.5020	-0.5195	-0.5240
0.1681	0.3228	0.956817	0.952876	0.948916	-0.6104	-0.6180	-0.6278
0.1606	0.2313	0.967385	0.963509	0.959516	-0.6779	-0.6945	-0.7001
0.1538	0.1476	0.977808	0.973918	0.969915	-0.7195	-0.7341	-0.7384
0.1475	0.0708	0.988026	0.984046	0.980057	-0.7320	-0.7355	-0.7410
0.2920	0.5606	0.917928	0.913943	0.909930	-0.3894	-0.3864	-0.3849
0.2771	0.4433	0.928730	0.924765	0.920697	-0.5233	-0.5255	-0.5170
0.2636	0.3374	0.939081	0.935126	0.931071	-0.5737	-0.5784	-0.5731
0.2513	0.2413	0.948954	0.945003	0.941033	-0.5508	-0.5563	-0.5634

0.2402	0.1537	0.958435	0.954472	0.950405	-0.4779	-0.4812	-0.4744
0.2300	0.0736	0.967407	0.963435	0.959435	-0.3479	-0.3491	-0.3500
0.3878	0.4654	0.910626	0.906635	0.902622	-0.4108	-0.4062	-0.4036
0.3681	0.3533	0.921545	0.917488	0.913608	-0.5626	-0.5499	-0.5708
0.3502	0.2521	0.931799	0.927849	0.923874	-0.5966	-0.6019	-0.6080
0.3340	0.1603	0.941595	0.937540	0.933663	-0.5617	-0.5522	-0.5718
0.3192	0.0766	0.950766	0.946788	0.942790	-0.4466	-0.4475	-0.4490
0.4829	0.3709	0.904841	0.900853	0.896840	-0.6901	-0.6876	-0.6861
0.4584	0.2640	0.914464	0.910572	0.906545	-0.6188	-0.6325	-0.6292
0.4362	0.1675	0.923960	0.920000	0.916071	-0.5362	-0.5390	-0.5506
0.4161	0.0799	0.933187	0.929210	0.925216	-0.4241	-0.4241	-0.4250
0.5773	0.2771	0.896352	0.892363	0.888357	-0.5106	-0.5055	-0.5021
0.5481	0.1754	0.906916	0.903060	0.898995	-0.6009	-0.6196	-0.6087
0.5217	0.0835	0.916687	0.912713	0.908720	-0.5606	-0.5610	-0.5618
0.6709	0.1840	0.889009	0.885032	0.881036	-0.5259	-0.5220	-0.5190
0.6371	0.0874	0.899606	0.895636	0.891650	-0.6212	-0.6208	-0.6214
0.7638	0.0917	0.885970	0.882004	0.878012	-1.2786	-1.2824	-1.2854
Terpinolene (1) + α-Terpineol (2) + p-Cresol (3)							
0.0981	0.7534	0.935215	0.931244	0.927240	-0.7977	-0.8005	-0.7452
0.0930	0.6252	0.944999	0.941055	0.937129	-0.7475	-0.7538	-0.6556
0.0885	0.5097	0.954901	0.950975	0.947070	-0.7198	-0.7278	-0.5821
0.0844	0.4049	0.964799	0.960876	0.956932	-0.6941	-0.7012	-0.5038
0.0806	0.3094	0.974434	0.970528	0.966645	-0.6359	-0.6438	-0.4123
0.0771	0.2222	0.983876	0.979979	0.976055	-0.5592	-0.5664	-0.2905
0.0740	0.1420	0.993084	0.989184	0.985305	-0.4619	-0.4668	-0.1602
0.0711	0.0682	1.002019	0.998111	0.994178	-0.3429	-0.3447	0.0020
0.1954	0.6566	0.926501	0.922519	0.918503	-0.5840	-0.5827	-0.5226
0.1854	0.5339	0.937035	0.932998	0.929098	-0.6651	-0.6555	-0.5602
0.1764	0.4232	0.947305	0.943288	0.939408	-0.6967	-0.6906	-0.5483
0.1681	0.3228	0.957231	0.953312	0.949361	-0.6763	-0.6837	-0.4852
0.1607	0.2313	0.966927	0.962923	0.959060	-0.6270	-0.6219	-0.3932
0.1538	0.1477	0.976209	0.972203	0.968338	-0.5306	-0.5240	-0.2556
0.1475	0.0708	0.985068	0.981143	0.977189	-0.3929	-0.3944	-0.0788
0.2920	0.5606	0.918759	0.914806	0.910796	-0.5320	-0.5345	-0.4740
0.2771	0.4433	0.929347	0.925475	0.921433	-0.6253	-0.6412	-0.5224
0.2636	0.3374	0.939612	0.935744	0.931719	-0.6591	-0.6747	-0.5099

0.2514	0.2413	0.949513	0.945576	0.941618	-0.6373	-0.6417	-0.4419
0.2402	0.1537	0.958941	0.955068	0.951048	-0.5546	-0.5662	-0.3163
0.2300	0.0736	0.968011	0.964064	0.960099	-0.4349	-0.4349	-0.1535
0.3878	0.4654	0.910935	0.906936	0.902915	-0.4656	-0.4590	-0.3949
0.3681	0.3533	0.922135	0.918152	0.914222	-0.6608	-0.6587	-0.5575
0.3502	0.2522	0.932400	0.928450	0.924476	-0.6928	-0.6959	-0.5388
0.3340	0.1603	0.941908	0.937942	0.933956	-0.6140	-0.6137	-0.4096
0.3193	0.0766	0.950667	0.946709	0.942605	-0.4431	-0.4422	-0.1798
0.4829	0.3709	0.903474	0.899476	0.895460	-0.4604	-0.4531	-0.3887
0.4584	0.2640	0.913736	0.909811	0.905778	-0.5074	-0.5127	-0.3928
0.4363	0.1675	0.924423	0.920462	0.916486	-0.6122	-0.6126	-0.4540
0.4162	0.0799	0.935266	0.931308	0.927324	-0.7265	-0.7281	-0.5250
0.5773	0.2771	0.895959	0.892284	0.888268	-0.4460	-0.4933	-0.4280
0.5481	0.1754	0.908156	0.904316	0.900242	-0.8038	-0.8247	-0.6999
0.5217	0.0835	0.919130	0.915155	0.911166	-0.9344	-0.9349	-0.7767
0.6709	0.1840	0.889155	0.885180	0.881174	-0.5534	-0.5490	-0.4846
0.6371	0.0874	0.898692	0.894722	0.890733	-0.4788	-0.4751	-0.3602
0.7638	0.0917	0.883883	0.879915	0.875920	-0.9245	-0.9237	-0.8632

Standard uncertainties u, in case of density (ρ), $u(T)$ = ±0.001 K, $u(\rho)$ = ±0.000001 g cm^{-3}, $u(x_1)$ = ±0.0001. Further fitting coefficients of V_m^E with standard error are given in Table S1. All physical quantities are measured at atmospheric pressure.

Table S3 — Fitting Coefficients (A_{ijk}, B_{ijk}, C_{ijk}, D_{ijk}, E_{ijk}) with Standard Deviation (σ) for Least Square Representation of V_m^E for Terpinolene (1) + α-Terpineol (2) + o-, m- and p-Cresol (3) Mixtures at 303.15, 308.15 and 313.15K.

T (K)	A_{ijk}	B_{ijk}	C_{ijk}	D_{ijk}	E_{ijk}	σ
Terpinolene (1) + α-Terpineol (2) + o-Cresol (3)						
303.15	-24.15230	0.01215	-920.5410	8369.440	43281.500	0.69575
308.15	-24.47050	0.87252	-910.6310	8487.770	43797.500	0.66279
313.15	-24.89860	4.25830	-865.6750	8373.760	42308.200	0.64279
Terpinolene (1) + α-Terpineol (2) + m-Cresol (3)						
303.15	-31.79920	205.34500	602.4860	-8999.260	-26857.000	0.66536
308.15	-32.18590	210.03700	658.2480	-9256.840	-28883.600	0.64093
313.15	-32.55800	212.62900	692.9710	-9354.960	-29775.900	0.62024
Terpinolene (1) + α-Terpineol (2) + p-Cresol (3)						
303.15	-37.35630	70.01050	1253.3800	-1322.470	-40776.200	0.58347
308.15	-37.64940	67.81990	1261.1400	-1130.760	-39997.400	0.55110
313.15	-27.19240	-102.61100	847.2560	6854.380	-10341.600	0.41276

Table S4 — Viscosities (η), Deviation in Viscosities ($\Delta\eta$) and Excess Gibbs' Free Energy for Activation of Viscous Flow (ΔG^{*E}) vs

Mole Fraction (x_1, x_2) Terpinolene (1) + α-Terpineol (2) + o-, m- and p-Cresol (3) at 303.15, 308.15 and 313.15K.										
x_1	x_2	η (mPa·s)			$\Delta\eta$ (mPa·s)			ΔG^{*E} (J·mol^{-1})		
		303.15 K	308.15 K	313.15 K	303.15 K	308.15 K	313.15 K	303.15 K	308.15 K	313.15 K
Terpinolene (1) + α -Terpineol (2) + o-Cresol (3)										
0.0979	0.7522	12.733	9.641	7.508	-6.599	-3.836	-2.329	-292.55	-201.41	-130.48
0.0928	0.6234	12.266	9.406	7.389	-4.715	-2.548	-1.417	64.63	140.30	193.71
0.0881	0.5075	11.550	8.957	7.090	-3.315	-1.627	-0.789	313.62	373.45	409.60
0.0839	0.4027	10.404	8.140	6.502	-2.548	-1.205	-0.539	408.22	448.32	472.06
0.0801	0.3074	9.546	7.553	6.072	-1.667	-0.666	-0.207	512.00	542.73	551.32
0.0766	0.2205	8.678	6.956	5.626	-0.949	-0.236	0.043	560.75	589.08	583.40
0.0734	0.1409	7.088	5.738	4.708	-1.085	-0.512	-0.238	313.00	329.64	329.16
0.0704	0.0676	5.625	4.626	3.863	-1.211	-0.758	-0.497	-31.36	-10.59	3.59
0.1951	0.6556	8.197	6.472	5.224	-8.873	-5.469	-3.521	-625.63	-509.13	-414.59
0.1848	0.5323	7.650	6.132	5.015	-7.197	-4.372	-2.761	-387.89	-278.61	-188.12
0.1756	0.4214	7.071	5.737	4.742	-5.775	-3.475	-2.163	-222.50	-124.10	-41.76
0.1672	0.3211	6.471	5.303	4.420	-4.564	-2.739	-1.695	-122.35	-37.29	34.35
0.1596	0.2298	5.859	4.842	4.063	-3.530	-2.137	-1.335	-83.43	-12.75	45.55
0.1527	0.1466	5.243	4.364	3.681	-2.644	-1.645	-1.061	-103.76	-48.83	-5.15
0.1463	0.0702	4.627	3.873	3.283	-1.884	-1.246	-0.860	-184.43	-146.57	-118.61
0.2916	0.5598	5.380	4.444	3.723	-9.447	-5.972	-3.940	-913.63	-761.79	-639.14
0.2762	0.4420	5.020	4.187	3.525	-7.709	-4.878	-3.229	-715.77	-581.66	-481.71
0.2625	0.3359	4.739	3.976	3.366	-6.102	-3.872	-2.570	-535.55	-424.08	-342.25
0.2500	0.2400	4.519	3.802	3.237	-4.612	-2.946	-1.959	-369.02	-284.94	-217.37
0.2387	0.1527	4.347	3.656	3.131	-3.231	-2.091	-1.391	-213.30	-161.03	-104.42
0.2283	0.0731	4.213	3.533	3.044	-1.945	-1.300	-0.863	-66.33	-49.81	-1.47
0.3872	0.4646	3.957	3.359	2.859	-8.644	-5.544	-3.731	-924.08	-777.55	-678.54
0.3670	0.3523	3.757	3.210	2.756	-6.870	-4.426	-2.984	-725.83	-601.21	-511.21
0.3487	0.2511	3.740	3.197	2.759	-5.110	-3.299	-2.216	-454.13	-360.91	-284.78
0.3322	0.1595	3.858	3.290	2.841	-3.382	-2.172	-1.442	-129.18	-70.29	-17.37
0.3172	0.0761	4.084	3.464	2.985	-1.692	-1.059	-0.668	230.23	249.66	277.02
0.4822	0.3703	2.884	2.512	2.190	-7.508	-4.890	-3.334	-959.64	-821.77	-724.76
0.4570	0.2632	2.802	2.462	2.157	-5.738	-3.756	-2.576	-746.83	-621.01	-538.52
0.4344	0.1668	2.674	2.351	2.072	-4.198	-2.801	-1.949	-613.06	-517.46	-446.84
0.4139	0.0795	2.512	2.194	1.946	-2.850	-1.991	-1.429	-547.97	-498.25	-435.56
0.5764	0.2766	2.248	1.980	1.764	-5.951	-3.933	-2.702	-834.36	-740.06	-648.42
0.5465	0.1749	2.181	1.928	1.722	-4.288	-2.882	-2.011	-667.39	-594.48	-522.18
0.5195	0.0831	2.118	1.879	1.682	-2.791	-1.938	-1.390	-525.14	-470.92	-415.73

0.6699	0.1837	1.876	1.684	1.519	-4.148	-2.751	-1.897	-548.11	-474.25	-407.04
0.6352	0.0871	1.980	1.775	1.588	-2.432	-1.638	-1.153	-214.57	-168.37	-144.10
0.7626	0.0915	1.491	1.337	1.230	-2.374	-1.631	-1.145	-377.58	-376.81	-319.90
Terpinolene (1) + α -Terpineol (2) + m-Cresol (3)										
0.0981	0.7534	13.881	10.354	8.009	-6.064	-3.579	-2.181	-272.52	-205.64	-142.30
0.0930	0.6252	14.077	10.616	8.258	-4.059	-2.198	-1.215	40.72	99.26	145.32
0.0885	0.5096	13.815	10.515	8.223	-2.690	-1.289	-0.603	238.01	286.13	315.67
0.0843	0.4049	13.264	10.149	7.984	-1.762	-0.740	-0.256	351.75	381.22	397.77
0.0806	0.3094	12.348	9.546	7.556	-1.331	-0.510	-0.150	364.83	389.88	395.15
0.0771	0.2221	11.209	8.782	6.996	-1.238	-0.511	-0.222	294.00	323.87	319.55
0.0740	0.1420	10.078	7.916	6.373	-1.239	-0.678	-0.396	180.62	189.02	187.38
0.0711	0.0682	8.789	6.953	5.667	-1.486	-0.996	-0.689	-24.50	-24.92	-19.45
0.1954	0.6566	8.244	6.497	5.245	-9.434	-5.895	-3.851	-804.51	-681.96	-580.28
0.1854	0.5339	8.512	6.757	5.463	-7.480	-4.599	-2.975	-486.83	-378.09	-300.79
0.1763	0.4232	8.565	6.836	5.544	-5.907	-3.585	-2.300	-264.47	-171.70	-113.41
0.1681	0.3228	8.452	6.777	5.519	-4.640	-2.797	-1.787	-116.48	-40.15	3.76
0.1606	0.2313	8.212	6.610	5.407	-3.623	-2.191	-1.407	-28.44	31.03	63.02
0.1538	0.1476	7.873	6.359	5.232	-2.813	-1.736	-1.134	7.50	50.92	75.40
0.1475	0.0708	7.456	6.043	5.006	-2.174	-1.404	-0.948	-2.92	25.55	47.01
0.2920	0.5606	9.357	4.561	3.796	-6.071	-6.302	-4.214	287.20	-878.61	-765.63
0.2771	0.4433	10.783	4.811	4.015	-3.081	-5.098	-3.395	839.77	-577.09	-481.50
0.2636	0.3374	10.754	4.852	4.062	-1.698	-4.196	-2.806	1004.05	-411.94	-332.52
0.2513	0.2413	9.613	4.732	3.976	-1.558	-3.535	-2.401	871.74	-350.49	-285.31
0.2402	0.1537	7.598	4.490	3.788	-2.406	-3.066	-2.141	411.93	-374.73	-321.66
0.2300	0.0736	4.933	4.151	3.520	-4.003	-2.753	-1.999	-558.34	-478.11	-434.04
0.3878	0.4654	3.978	3.368	2.883	-9.218	-5.978	-4.051	-1100.79	-950.56	-830.23
0.3681	0.3533	4.210	3.546	3.048	-7.542	-4.927	-3.342	-804.01	-690.89	-582.00
0.3502	0.2521	4.244	3.580	3.077	-6.203	-4.105	-2.823	-648.59	-556.21	-468.96
0.3340	0.1603	4.127	3.508	3.005	-5.136	-3.462	-2.450	-601.43	-512.59	-455.33
0.3192	0.0766	3.893	3.349	2.851	-4.291	-2.968	-2.198	-644.51	-547.72	-526.96
0.4829	0.3709	3.171	2.729	2.377	-7.810	-5.112	-3.488	-915.51	-794.50	-690.02
0.4584	0.2640	3.154	2.767	2.409	-6.500	-4.281	-2.969	-810.32	-665.19	-582.32
0.4362	0.1675	3.096	2.714	2.374	-5.360	-3.618	-2.564	-756.01	-634.88	-560.75
0.4161	0.0799	3.006	2.593	2.285	-4.362	-3.088	-2.254	-743.88	-684.27	-610.01
0.5773	0.2771	2.391	2.057	1.816	-6.393	-4.290	-2.988	-868.40	-821.08	-745.20
0.5481	0.1754	2.410	2.097	1.859	-5.163	-3.536	-2.513	-771.83	-716.80	-647.00

0.5217	0.0835	2.427	2.133	1.899	-4.051	-2.854	-2.084	-688.35	-626.47	-562.54
0.6709	0.1840	1.866	1.673	1.506	-4.736	-3.193	-2.246	-742.87	-662.78	-596.02
0.6371	0.0874	1.884	1.682	1.523	-3.622	-2.546	-1.852	-681.16	-628.33	-561.77
0.7638	0.0917	1.690	1.526	1.385	-2.749	-1.869	-1.322	-261.36	-227.54	-194.26
Terpinolene (1) + α -Terpineol (2) + p-Cresol (3)										
0.0981	0.7534	15.626	11.523	8.831	-4.468	-2.532	-1.448	-16.93	23.64	70.38
0.0930	0.6252	15.228	11.356	8.773	-3.192	-1.689	-0.869	166.11	195.70	232.42
0.0885	0.5097	14.603	11.000	8.561	-2.306	-1.135	-0.506	277.61	296.23	323.58
0.0844	0.4049	13.838	10.519	8.244	-1.702	-0.790	-0.303	333.01	341.00	359.90
0.0806	0.3094	12.901	9.898	7.821	-1.392	-0.659	-0.252	325.77	325.46	340.19
0.0771	0.2222	11.862	9.194	7.327	-1.290	-0.675	-0.312	264.85	260.58	273.76
0.0740	0.1420	10.834	8.473	6.814	-1.271	-0.766	-0.426	170.85	161.31	175.68
0.0711	0.0682	9.738	7.700	6.257	-1.402	-0.957	-0.617	22.84	14.29	34.04
0.1954	0.6566	9.058	7.100	5.679	-8.768	-5.413	-3.506	-607.56	-496.81	-412.50
0.1854	0.5339	9.189	7.251	5.819	-7.085	-4.336	-2.787	-366.84	-273.47	-207.13
0.1764	0.4232	9.085	7.208	5.813	-5.790	-3.542	-2.271	-216.83	-141.65	-87.52
0.1681	0.3228	8.801	7.018	5.696	-4.804	-2.975	-1.915	-139.63	-82.22	-34.90
0.1607	0.2313	8.382	6.714	5.490	-4.065	-2.588	-1.690	-123.76	-83.32	-39.32
0.1538	0.1477	7.859	6.323	5.218	-3.530	-2.347	-1.567	-163.11	-138.10	-91.52
0.1475	0.0708	7.256	5.866	4.896	-3.161	-2.223	-1.527	-254.47	-242.99	-187.19
0.2920	0.5606	4.053	4.859	4.048	-11.523	-6.125	-4.051	-1859.60	-756.66	-635.69
0.2771	0.4433	5.174	5.002	4.168	-8.971	-5.137	-3.410	-1080.71	-551.04	-452.05
0.2636	0.3374	5.766	5.013	4.185	-7.088	-4.364	-2.923	-665.65	-432.20	-350.94
0.2514	0.2413	5.948	4.923	4.120	-5.734	-3.762	-2.561	-463.22	-380.70	-313.52
0.2402	0.1537	5.811	4.756	3.994	-4.803	-3.298	-2.299	-412.86	-384.08	-327.92
0.2300	0.0736	5.423	4.529	3.820	-4.213	-2.948	-2.117	-490.59	-435.37	-386.73
0.3878	0.4654	4.152	3.501	2.995	-9.192	-5.966	-4.027	-1029.64	-889.97	-766.19
0.3681	0.3533	4.287	3.636	3.110	-7.745	-5.067	-3.448	-827.49	-700.23	-597.18
0.3502	0.2522	4.306	3.664	3.136	-6.541	-4.348	-3.002	-710.63	-600.33	-514.74
0.3340	0.1603	4.237	3.607	3.094	-5.535	-3.778	-2.664	-658.95	-571.66	-498.85
0.3193	0.0766	4.099	3.488	3.000	-4.692	-3.326	-2.412	-661.26	-598.30	-536.03
0.4829	0.3709	3.053	2.656	2.308	-8.075	-5.306	-3.644	-1042.23	-898.02	-796.65
0.4584	0.2640	3.092	2.702	2.354	-6.842	-4.574	-3.190	-926.44	-794.37	-705.21
0.4363	0.1675	3.168	2.765	2.412	-5.686	-3.892	-2.764	-795.78	-689.19	-613.11
0.4162	0.0799	3.273	2.841	2.479	-4.601	-3.254	-2.362	-657.12	-584.63	-522.04
0.5773	0.2771	2.359	2.084	1.844	-6.571	-4.383	-3.047	-936.66	-824.74	-738.92

0.5481	0.1754	2.492	2.197	1.951	-5.358	-3.664	-2.587	-757.48	-672.16	-589.97
0.5217	0.0835	2.616	2.300	2.050	-4.260	-3.012	-2.170	-603.02	-541.52	-463.46
0.6709	0.1840	1.892	1.700	1.531	-4.857	-3.285	-2.307	-744.24	-659.48	-586.56
0.6371	0.0874	1.916	1.715	1.551	-3.867	-2.739	-1.990	-703.23	-645.67	-577.54
0.7638	0.0917	1.609	1.459	1.332	-2.974	-2.055	-1.462	-413.74	-373.59	-323.43

Standard uncertainties u, in case of viscosity (η), $u(T) = \pm 0.01$ K, $u(\eta) = \pm 0.001$ mPa s, $u(x_1) = \pm 0.0001$. Further fitting coefficients of $\Delta\eta$ and ΔG^{*E} with standard error are given in Table S2 and S3 respectively. All physical quantities are measured at atmospheric pressure.

Table S5 — Fitting Coefficients (A_{ijk}, B_{ijk}, C_{ijk}, D_{ijk}, E_{ijk}) with Standard Deviation (σ) for Least Square Representation of $\Delta\eta$ for Terpinolene (1) + α-Terpineol (2) + o-, m- and p-Cresol (3) Mixtures at 303.15, 308.15 and 313.15K.

T (K)	A_{ijk}	B_{ijk}	C_{ijk}	D_{ijk}	E_{ijk}	σ
Terpinolene (1) + α-Terpineol (2) + o-Cresol (3)						
303.15	-197.0240	-1748.870	-13344.00	70617.30	583596.00	2.47882
308.15	-114.2450	-1070.920	-9788.31	43236.00	393918.00	1.68486
313.15	-69.2102	-682.882	-7231.85	27170.90	271976.00	1.55817
Terpinolene (1) + α-Terpineol (2) + m-Cresol (3)						
303.15	-176.6260	-1686.260	-17942.50	92671.70	715858.00	2.48024
308.15	-114.1890	-971.025	-13068.60	47389.10	446709.00	1.62581
313.15	-71.3419	-610.433	-9469.50	30698.80	305184.00	1.83987
Terpinolene (1) + α-Terpineol (2) + p-Cresol (3)						
303.15	-183.9900	-1025.330	-18934.80	37308.20	545987.00	1.93042
308.15	-110.7640	-572.101	-13397.80	27429.10	400720.00	1.63865
313.15	-68.4551	-347.347	-9803.82	17947.20	281452.00	1.98284

Table S6 — Fitting Coefficients (A_{ijk}, B_{ijk}, C_{ijk}, D_{ijk}, E_{ijk}) with Standard Deviation (σ) for Least Square Representation of (ΔG^{*E}) for Terpinolene (1) + α-Terpineol (2) + o-, m- and p-Cresol (3) Mixtures at 303.15, 308.15 and 313.15K.

T (K)	A_{ijk}	B_{ijk}	C_{ijk}	D_{ijk}	E_{ijk}	σ
Terpinolene (1) + α-Terpineol (2) + o-Cresol (3)						
303.15	-2006.07	-220939.0	-3211910.0	9319080.0	105876000.0	1738.5
308.15	1250.07	-198478.0	-3022000.0	8550040.0	98196500.0	984.8
313.15	3706.83	-178433.0	-2831120.0	7553600.0	90495200.0	510.6
Terpinolene (1) + α-Terpineol (2) + m-Cresol (3)						
303.15	743.43	-279730.0	-3435280.0	19499100.0	122320000.0	1499.6
308.15	-1304.21	-219178.0	-3462740.0	12272800.0	101493000.0	733.7
313.15	594.26	-195171.0	-3188360.0	11042600.0	91397700.0	548.5
Terpinolene (1) + α-Terpineol (2) + p-Cresol (3)						
303.15	-3494.97	-121708.0	-3758610.0	2811090.0	76742900.0	1442.1
308.15	-1073.08	-111277.0	-3471280.0	6895530.0	95614500.0	688.1
313.15	1099.75	-104101.0	-3218560.0	6564320.0	88651900.0	601.2

Table S7 — Refractive Index (n_D) and Deviation in Refractive Index (Δn_D) vs Volume Fraction (ϕ_1, ϕ_2) for Terpinolene (1) + α-Terpineol (2) + o-, m- and p-Cresol (3) Mixtures at 303.15, 308.15 and 313.15K.

ϕ_1	ϕ_2		n_D			Δn_D	
		303.15 K	308.15 K	313.15 K	303.15 K	308.15 K	313.15 K
Terpinolene (1) + α-Terpineol (2) + o-Cresol (3)							
0.1000	0.8000	1.4888	1.4868	1.4844	0.0018	0.0018	0.0016
0.1000	0.7000	1.4954	1.4934	1.4912	0.0023	0.0024	0.0024
0.1000	0.6000	1.5021	1.4999	1.4979	0.0029	0.0028	0.0030
0.1000	0.5000	1.5082	1.5062	1.5042	0.0029	0.0030	0.0033
0.1000	0.4000	1.5147	1.5123	1.5105	0.0034	0.0030	0.0036
0.1000	0.3000	1.5212	1.5180	1.5165	0.0038	0.0027	0.0036
0.1000	0.2000	1.5265	1.5238	1.5221	0.0030	0.0024	0.0031
0.1000	0.1000	1.5319	1.5292	1.5274	0.0023	0.0017	0.0025
0.2000	0.7000	1.4893	1.4873	1.4849	0.0017	0.0017	0.0015
0.2000	0.6000	1.4959	1.4933	1.4904	0.0023	0.0016	0.0010
0.2000	0.5000	1.5025	1.4993	1.4963	0.0027	0.0016	0.0009
0.2000	0.4000	1.5088	1.5054	1.5025	0.0030	0.0016	0.0010
0.2000	0.3000	1.5148	1.5115	1.5088	0.0029	0.0016	0.0013
0.2000	0.2000	1.5207	1.5174	1.5151	0.0027	0.0015	0.0016
0.2000	0.1000	1.5263	1.5232	1.5213	0.0022	0.0012	0.0018
0.3000	0.6000	1.4898	1.4875	1.4851	0.0016	0.0013	0.0011
0.3000	0.5000	1.4958	1.4938	1.4914	0.0016	0.0016	0.0014
0.3000	0.4000	1.5021	1.5003	1.4977	0.0018	0.0020	0.0017
0.3000	0.3000	1.5084	1.5067	1.5040	0.0020	0.0023	0.0019
0.3000	0.2000	1.5146	1.5130	1.5100	0.0022	0.0026	0.0020
0.3000	0.1000	1.5208	1.5192	1.5160	0.0022	0.0027	0.0019
0.4000	0.5000	1.4902	1.4883	1.4864	0.0015	0.0015	0.0018
0.4000	0.4000	1.4964	1.4945	1.4917	0.0016	0.0017	0.0011
0.4000	0.3000	1.5030	1.5010	1.4980	0.0021	0.0021	0.0014
0.4000	0.2000	1.5099	1.5076	1.5047	0.0029	0.0026	0.0020
0.4000	0.1000	1.5168	1.5141	1.5118	0.0038	0.0031	0.0031
0.5000	0.4000	1.4909	1.4889	1.4862	0.0016	0.0015	0.0010
0.5000	0.3000	1.4971	1.4958	1.4931	0.0017	0.0024	0.0019
0.5000	0.2000	1.5032	1.5015	1.4989	0.0018	0.0020	0.0017
0.5000	0.1000	1.5092	1.5063	1.5040	0.0017	0.0007	0.0008
0.6000	0.3000	1.4911	1.4889	1.4868	0.0013	0.0009	0.0010
0.6000	0.2000	1.4979	1.4958	1.4926	0.0020	0.0018	0.0008
0.6000	0.1000	1.5040	1.5021	1.4979	0.0020	0.0020	0.0001

0.7000	0.2000	1.4919	1.4895	1.4865	0.0015	0.0009	0.0002
0.7000	0.1000	1.4989	1.4962	1.4943	0.0024	0.0016	0.0019
0.8000	0.1000	1.4919	1.4900	1.4878	0.0009	0.0008	0.0009
Terpinolene (1) + α-Terpineol (2) + m-Cresol (3)							
0.1000	0.8000	1.4882	1.4865	1.4839	0.0017	0.0020	0.0015
0.1000	0.7000	1.4930	1.4916	1.4927	0.0010	0.0015	0.0047
0.1000	0.6000	1.4983	1.4971	1.4994	0.0007	0.0014	0.0059
0.1000	0.5000	1.5045	1.5031	1.5041	0.0014	0.0018	0.0050
0.1000	0.4000	1.5098	1.5089	1.5080	0.0012	0.0021	0.0033
0.1000	0.3000	1.5151	1.5147	1.5110	0.0010	0.0023	0.0008
0.1000	0.2000	1.5217	1.5210	1.5123	0.0021	0.0029	-0.0034
0.1000	0.1000	1.5280	1.5270	1.5133	0.0028	0.0034	-0.0080
0.2000	0.7000	1.4881	1.4855	1.4838	0.0011	0.0004	0.0009
0.2000	0.6000	1.4946	1.4918	1.4903	0.0020	0.0011	0.0017
0.2000	0.5000	1.5008	1.4980	1.4965	0.0027	0.0017	0.0024
0.2000	0.4000	1.5069	1.5040	1.5025	0.0033	0.0021	0.0028
0.2000	0.3000	1.5127	1.5098	1.5082	0.0035	0.0024	0.0029
0.2000	0.2000	1.5182	1.5155	1.5136	0.0035	0.0024	0.0028
0.2000	0.1000	1.5235	1.5209	1.5188	0.0033	0.0023	0.0024
0.3000	0.6000	1.4894	1.4860	1.4849	0.0018	0.0003	0.0014
0.3000	0.5000	1.4959	1.4929	1.4909	0.0028	0.0017	0.0018
0.3000	0.4000	1.5013	1.4990	1.4968	0.0027	0.0021	0.0021
0.3000	0.3000	1.5059	1.5042	1.5026	0.0017	0.0017	0.0024
0.3000	0.2000	1.5097	1.5089	1.5081	0.0000	0.0009	0.0023
0.3000	0.1000	1.5130	1.5130	1.5135	-0.0023	-0.0006	0.0021
0.4000	0.5000	1.4889	1.4870	1.4850	0.0007	0.0007	0.0009
0.4000	0.4000	1.4946	1.4930	1.4912	0.0009	0.0011	0.0015
0.4000	0.3000	1.5005	1.4990	1.4972	0.0013	0.0015	0.0019
0.4000	0.2000	1.5064	1.5047	1.5030	0.0017	0.0016	0.0022
0.4000	0.1000	1.5124	1.5102	1.5085	0.0021	0.0015	0.0021
0.5000	0.4000	1.4904	1.4892	1.4861	0.0017	0.0023	0.0014
0.5000	0.3000	1.4959	1.4936	1.4919	0.0016	0.0011	0.0016
0.5000	0.2000	1.5014	1.4990	1.4975	0.0016	0.0009	0.0016
0.5000	0.1000	1.5070	1.5050	1.5028	0.0017	0.0013	0.0014
0.6000	0.3000	1.4900	1.4878	1.4861	0.0007	0.0003	0.0008
0.6000	0.2000	1.4967	1.4947	1.4926	0.0019	0.0016	0.0017

0.6000	0.1000	1.5028	1.5010	1.4984	0.0025	0.0023	0.0019
0.7000	0.2000	1.4904	1.4880	1.4866	0.0006	-0.0001	0.0007
0.7000	0.1000	1.4962	1.4941	1.4924	0.0008	0.0004	0.0009
0.8000	0.1000	1.4910	1.4907	1.4880	0.0006	0.0020	0.0015
Terpinolene (1) + α-Terpineol (2) + p-Cresol (3)							
0.1000	0.8000	1.4885	1.4869	1.4843	0.0021	0.0025	0.0021
0.1000	0.7000	1.4929	1.4916	1.4903	0.0010	0.0016	0.0027
0.1000	0.6000	1.4980	1.4969	1.4962	0.0006	0.0013	0.0032
0.1000	0.5000	1.5037	1.5027	1.5020	0.0008	0.0016	0.0035
0.1000	0.4000	1.5095	1.5082	1.5076	0.0011	0.0016	0.0036
0.1000	0.3000	1.5153	1.5138	1.5129	0.0014	0.0016	0.0035
0.1000	0.2000	1.5216	1.5199	1.5181	0.0022	0.0021	0.0033
0.1000	0.1000	1.5278	1.5258	1.5230	0.0029	0.0025	0.0028
0.2000	0.7000	1.4900	1.4868	1.4832	0.0030	0.0017	0.0004
0.2000	0.6000	1.4951	1.4924	1.4912	0.0026	0.0018	0.0030
0.2000	0.5000	1.5005	1.4982	1.4976	0.0025	0.0020	0.0040
0.2000	0.4000	1.5060	1.5040	1.5028	0.0025	0.0023	0.0037
0.2000	0.3000	1.5117	1.5097	1.5070	0.0027	0.0024	0.0025
0.2000	0.2000	1.5173	1.5152	1.5104	0.0029	0.0024	0.0004
0.2000	0.1000	1.5229	1.5207	1.5131	0.0029	0.0024	-0.0023
0.3000	0.6000	1.4893	1.4871	1.4845	0.0017	0.0014	0.0011
0.3000	0.5000	1.4949	1.4924	1.4908	0.0018	0.0012	0.0020
0.3000	0.4000	1.5006	1.4982	1.4969	0.0021	0.0014	0.0026
0.3000	0.3000	1.5064	1.5042	1.5027	0.0024	0.0019	0.0030
0.3000	0.2000	1.5122	1.5103	1.5082	0.0026	0.0025	0.0030
0.3000	0.1000	1.5178	1.5165	1.5134	0.0028	0.0031	0.0029
0.4000	0.5000	1.4899	1.4873	1.4851	0.0018	0.0011	0.0011
0.4000	0.4000	1.4954	1.4936	1.4914	0.0018	0.0018	0.0019
0.4000	0.3000	1.5011	1.4995	1.4973	0.0020	0.0022	0.0025
0.4000	0.2000	1.5069	1.5050	1.5028	0.0023	0.0021	0.0025
0.4000	0.1000	1.5127	1.5103	1.5080	0.0026	0.0018	0.0023
0.5000	0.4000	1.4904	1.4874	1.4851	0.0017	0.0006	0.0005
0.5000	0.3000	1.4952	1.4939	1.4919	0.0010	0.0015	0.0019
0.5000	0.2000	1.5012	1.5000	1.4979	0.0015	0.0021	0.0025
0.5000	0.1000	1.5081	1.5058	1.5030	0.0029	0.0023	0.0021
0.6000	0.3000	1.4906	1.4879	1.4864	0.0014	0.0005	0.0012

0.6000	0.2000	1.4964	1.4948	1.4925	0.0017	0.0018	0.0019
0.6000	0.1000	1.5018	1.5010	1.4981	0.0016	0.0025	0.0021
0.7000	0.2000	1.4918	1.4890	1.4870	0.0020	0.0010	0.0012
0.7000	0.1000	1.4973	1.4951	1.4910	0.0020	0.0015	-0.0002
0.8000	0.1000	1.4920	1.4896	1.4870	0.0016	0.0010	0.0007

Standard uncertainties u are $u(T)$ = ±0.01 K, $u(n_D)$ = ±0.0001, $u(\phi_1)$ = ±0.0001. Further fitting coefficients of n_D with standard error are given in Table S4. All physical quantities are measured at atmospheric pressure.

Table S8 — Fitting Coefficients (A_{ijk}, B_{ijk}, C_{ijk}, D_{ijk}, E_{ijk}) with Standard Deviation (σ) for Least Square Representation of Δn_D for Terpinolene (1) + α-Terpineol (2) + o-, m- and p-Cresol (3) Mixtures at 303.15, 308.15 and 313.15K.

T (K)	A_{ijk}	B_{ijk}	C_{ijk}	D_{ijk}	E_{ijk}	σ
Terpinolene (1) + α-Terpineol (2) + o-Cresol (3)						
303.15	0.12072	-0.24396	-0.65914	3.14067	6.32630	0.00416
308.15	0.10521	-0.03221	-1.77948	-4.25823	56.71330	0.00333
313.15	0.10965	-0.30386	-4.26894	9.94626	137.12800	0.00312
Terpinolene (1) + α-Terpineol (2) + m-Cresol (3)						
303.15	0.07152	-0.41127	7.10243	20.11610	-332.98900	0.00376
308.15	0.09772	-0.54268	-0.40243	22.78180	-72.92260	0.00307
313.15	0.09576	1.68565	-13.75400	-85.04300	580.43900	0.00294
Terpinolene (1) + α-Terpineol (2) + p-Cresol (3)						
303.15	0.07732	-0.21704	9.89966	3.56264	-349.47000	0.00356
308.15	0.08103	-0.21913	6.42073	-0.97887	-260.76200	0.00255
313.15	0.14351	0.23375	-10.62420	-17.69990	327.87200	0.00222

Table S9 — Speed of Sound ($\boldsymbol{u}$) and Deviation in Speed of Sound ($\boldsymbol{\Delta u}$) vs Mole Fraction ($\boldsymbol{x_1, x_2}$) for Terpinolene (1) + α-Terpineol (2) + o-, m- and p-Cresol (3) Mixtures at 303.15, 308.15 and 313.15K.

x_1	x_2		u (m·s^{-1})			Δu (m·s^{-1})	
		303.15 K	308.15 K	313.15 K	303.15 K	308.15 K	313.15 K
Terpinolene (1) + α-Terpineol (2) + o-Cresol (3)							
0.0979	0.7522	1412.68	1395.04	1377.18	-1.27	-1.05	-1.21
0.0928	0.6234	1425.68	1407.88	1389.97	0.69	0.65	0.38
0.0881	0.5075	1436.22	1418.33	1400.42	1.30	1.08	0.76
0.0839	0.4027	1444.13	1426.19	1408.30	0.23	-0.11	-0.47
0.0801	0.3074	1451.60	1433.80	1416.00	-0.47	-0.74	-1.04
0.0766	0.2205	1458.08	1440.34	1422.65	-1.43	-1.71	-1.95
0.0734	0.1409	1461.67	1444.21	1426.60	-4.66	-4.73	-4.92
0.0704	0.0676	1464.97	1447.66	1430.16	-7.65	-7.61	-7.73
0.1951	0.6556	1404.72	1386.60	1368.52	-3.64	-3.73	-3.91
0.1848	0.5323	1415.06	1396.76	1378.64	-4.59	-4.98	-5.26
0.1756	0.4214	1423.84	1405.56	1387.47	-5.97	-6.43	-6.75
0.1672	0.3211	1431.34	1413.26	1395.25	-7.67	-8.01	-8.31
0.1596	0.2298	1437.92	1419.95	1402.02	-9.45	-9.76	-10.02
0.1527	0.1466	1443.61	1425.88	1408.07	-11.39	-11.53	-11.72
0.1463	0.0702	1448.55	1431.18	1413.52	-13.44	-13.28	-13.38
0.2916	0.5598	1396.63	1378.26	1359.95	-6.18	-6.36	-6.56
0.2762	0.4420	1404.96	1386.63	1368.30	-9.39	-9.65	-9.95
0.2625	0.3359	1413.10	1394.84	1376.58	-11.64	-11.93	-12.24
0.2500	0.2400	1420.99	1402.82	1384.69	-13.16	-13.45	-13.69
0.2387	0.1527	1428.65	1410.63	1392.62	-14.06	-14.27	-14.46
0.2283	0.0731	1435.97	1418.09	1400.27	-14.54	-14.70	-14.75
0.3872	0.4646	1389.77	1371.48	1353.03	-7.54	-7.48	-7.61
0.3670	0.3523	1397.94	1379.53	1361.17	-11.15	-11.33	-11.48
0.3487	0.2511	1406.89	1388.47	1370.13	-12.82	-13.12	-13.32
0.3322	0.1595	1416.14	1397.76	1379.64	-13.19	-13.54	-13.60
0.3172	0.0761	1425.64	1407.39	1389.39	-12.43	-12.74	-12.75
0.4822	0.3703	1382.22	1363.49	1344.82	-9.63	-9.84	-10.00
0.4570	0.2632	1390.42	1371.67	1353.13	-13.46	-13.82	-13.96
0.4344	0.1668	1396.83	1378.22	1359.85	-17.89	-18.23	-18.28
0.4139	0.0795	1401.85	1383.52	1365.22	-22.68	-22.85	-22.91
0.5764	0.2766	1376.22	1357.46	1338.65	-10.21	-10.29	-10.39
0.5465	0.1749	1382.99	1364.45	1345.76	-15.70	-15.71	-15.80
0.5195	0.0831	1389.09	1370.73	1352.20	-20.66	-20.61	-20.64

0.6699	0.1837	1370.95	1351.95	1332.97	-10.10	-10.27	-10.34
0.6352	0.0871	1379.13	1360.54	1341.79	-14.42	-14.32	-14.29
0.7626	0.0915	1364.41	1345.17	1326.01	-11.30	-11.55	-11.61
Terpinolene (1) + α-Terpineol (2) + m-Cresol (3)							
0.0981	0.7534	1410.75	1393.03	1375.35	0.20	0.12	-0.08
0.0930	0.6252	1423.58	1405.70	1387.91	5.00	4.47	3.90
0.0885	0.5096	1433.14	1415.29	1397.56	7.33	6.56	5.81
0.0843	0.4049	1440.09	1422.25	1404.68	7.71	6.72	5.91
0.0806	0.3094	1445.14	1427.76	1410.40	6.78	6.04	5.24
0.0771	0.2221	1448.68	1431.84	1414.79	4.86	4.45	3.79
0.0740	0.1420	1450.72	1434.15	1417.37	1.88	1.56	1.00
0.0711	0.0682	1451.87	1435.66	1419.23	-1.60	-1.72	-2.08
0.1954	0.6566	1402.24	1384.64	1366.83	-2.73	-2.52	-2.64
0.1854	0.5339	1413.36	1395.81	1377.97	0.11	0.07	-0.36
0.1763	0.4232	1422.00	1404.51	1386.75	1.27	1.03	0.43
0.1681	0.3228	1428.68	1411.27	1393.65	1.18	0.76	0.09
0.1606	0.2313	1433.80	1416.52	1399.16	0.13	-0.38	-1.01
0.1538	0.1476	1437.70	1420.54	1403.46	-1.63	-2.22	-2.75
0.1475	0.0708	1440.61	1423.57	1406.77	-3.90	-4.56	-4.98
0.2920	0.5606	1394.76	1376.96	1358.92	-4.66	-4.49	-4.64
0.2771	0.4433	1404.99	1387.31	1369.24	-2.97	-2.98	-3.45
0.2636	0.3374	1412.28	1394.72	1376.78	-3.38	-3.55	-4.15
0.2513	0.2413	1417.30	1399.86	1382.16	-5.36	-5.65	-6.23
0.2402	0.1537	1420.54	1403.26	1385.78	-8.48	-8.85	-9.43
0.2300	0.0736	1422.41	1405.26	1388.12	-12.45	-12.89	-13.31
0.3878	0.4654	1387.57	1369.58	1351.36	-6.35	-6.21	-6.34
0.3681	0.3533	1396.66	1378.75	1360.66	-6.05	-6.14	-6.43
0.3502	0.2521	1402.82	1385.07	1367.08	-7.82	-8.03	-8.48
0.3340	0.1603	1406.62	1389.11	1371.42	-11.22	-11.45	-11.84
0.3192	0.0766	1408.70	1391.47	1374.01	-15.71	-15.88	-16.26
0.4829	0.3709	1381.63	1363.43	1345.02	-6.84	-6.74	-6.85
0.4584	0.2640	1388.75	1370.66	1352.37	-8.75	-8.86	-9.16
0.4362	0.1675	1393.13	1375.25	1357.16	-12.53	-12.71	-13.08
0.4161	0.0799	1395.47	1377.87	1360.07	-17.59	-17.76	-18.09
0.5773	0.2771	1374.39	1356.01	1337.41	-8.66	-8.58	-8.69
0.5481	0.1754	1379.38	1361.10	1342.66	-12.95	-13.09	-13.35

0.5217	0.0835	1383.91	1365.66	1347.48	-16.79	-17.20	-17.48
0.6709	0.1840	1368.45	1349.90	1331.12	-9.23	-9.16	-9.25
0.6371	0.0874	1373.24	1354.93	1336.43	-13.95	-13.97	-14.10
0.7638	0.0917	1365.40	1346.01	1327.06	-6.95	-7.56	-7.62
Terpinolene (1) + α-Terpineol (2) + p-Cresol (3)							
0.0981	0.7534	1414.31	1396.53	1378.79	3.76	3.62	3.36
0.0930	0.6252	1426.82	1409.06	1391.37	8.25	7.83	7.35
0.0885	0.5097	1436.29	1418.62	1401.04	10.47	9.89	9.29
0.0844	0.4049	1443.21	1425.52	1408.20	10.83	9.99	9.43
0.0806	0.3094	1448.52	1431.25	1414.04	10.16	9.53	8.88
0.0771	0.2222	1452.43	1435.56	1418.49	8.61	8.17	7.49
0.0740	0.1420	1454.68	1437.99	1421.23	5.84	5.40	4.87
0.0711	0.0682	1456.15	1439.64	1423.19	2.69	2.26	1.89
0.1954	0.6566	1404.78	1368.80	1368.87	-0.18	-18.36	-0.60
0.1854	0.5339	1416.70	1389.85	1380.94	3.45	-5.88	2.62
0.1764	0.4232	1425.46	1404.54	1389.98	4.74	1.06	3.67
0.1681	0.3228	1431.77	1414.32	1396.65	4.27	3.82	3.09
0.1607	0.2313	1436.28	1420.33	1401.59	2.60	3.43	1.43
0.1538	0.1477	1439.25	1423.37	1405.03	-0.07	0.62	-1.16
0.1475	0.0708	1441.01	1424.11	1407.29	-3.50	-4.02	-4.45
0.2920	0.5606	1396.63	1378.75	1360.66	-2.79	-2.70	-2.90
0.2771	0.4433	1407.49	1389.76	1371.55	-0.47	-0.53	-1.14
0.2636	0.3374	1415.14	1397.54	1379.47	-0.52	-0.73	-1.45
0.2514	0.2413	1420.32	1402.83	1385.09	-2.33	-2.68	-3.30
0.2402	0.1537	1423.57	1406.25	1388.86	-5.45	-5.86	-6.34
0.2300	0.0736	1425.33	1408.12	1391.26	-9.52	-10.03	-10.17
0.3878	0.4654	1388.81	1370.43	1352.13	-5.11	-5.36	-5.56
0.3681	0.3533	1398.79	1380.77	1362.55	-3.92	-4.11	-4.53
0.3502	0.2522	1405.25	1387.42	1369.40	-5.39	-5.68	-6.16
0.3340	0.1603	1408.99	1391.37	1373.55	-8.85	-9.19	-9.70
0.3193	0.0766	1410.68	1393.11	1375.59	-13.72	-14.24	-14.68
0.4829	0.3709	1381.75	1363.19	1344.72	-6.72	-6.98	-7.15
0.4584	0.2640	1389.72	1371.10	1353.08	-7.78	-8.42	-8.44
0.4363	0.1675	1395.20	1376.96	1359.12	-10.45	-11.00	-11.12
0.4162	0.0799	1398.81	1381.18	1363.37	-14.25	-14.45	-14.78
0.5773	0.2771	1375.13	1356.57	1337.89	-7.92	-8.02	-8.21

0.5481	0.1754	1381.40	1362.91	1344.48	-10.92	-11.27	-11.53
0.5217	0.0835	1387.14	1368.69	1350.48	-13.56	-14.17	-14.48
0.6709	0.1840	1369.32	1350.43	1331.58	-8.36	-8.63	-8.78
0.6371	0.0874	1373.60	1354.93	1336.33	-13.59	-13.97	-14.19
0.7638	0.0917	1364.36	1345.34	1326.36	-7.99	-8.23	-8.32

Standard uncertainties u, $u(T) = \pm 0.001$ K, $u(x) = \pm 0.0001$, $u(u) = \pm 0.1$ m·s-1. Further fitting coefficients of Δu with standard error are given in Table S5. All physical quantities are measured at atmospheric pressure.

Table S10 — Fitting Coefficients (A_{ijk}, B_{ijk}, C_{ijk}, D_{ijk}, E_{ijk}) with Standard Deviation (σ) for Least Square Representation of Δu for Terpinolene (1) + α-Terpineol (2) + o-, m- and p-Cresol (3) Mixtures at 303.15, 308.15 and 313.15K.

T (K)	A_{ijk}	B_{ijk}	C_{ijk}	D_{ijk}	E_{ijk}	σ
Terpinolene (1) + α-Terpineol (2) + o-Cresol (3)						
303.15	-280.024	3793.36	-33186.30	-67680.50	487206.00	8.32980
308.15	-291.661	3880.46	-31376.00	-74551.00	402443.00	7.11688
313.15	-304.976	3929.02	-30326.20	-78760.80	365012.00	6.25025
Terpinolene (1) + α-Terpineol (2) + m-Cresol (3)						
303.15	59.170	-552.50	-55980.80	166744.00	1467990.00	8.29898
308.15	38.253	-305.00	-54293.70	158056.00	1414450.00	7.01198
313.15	9.620	-74.13	-52205.70	147289.00	1334480.00	6.04209
Terpinolene (1) + α-Terpineol (2) + p-Cresol (3)						
303.15	235.234	-1472.44	-68744.90	213658.00	1994110.00	9.09432
308.15	195.152	-3310.95	-84382.30	319678.00	2816160.00	8.54512
313.15	183.890	-1046.09	-66025.00	195353.00	1884590.00	7.11795

Table S11 — Isentropic Compressibility (k_s) and Deviation in Isentropic Compressibility (Δk_s) vs Mole Fraction (x_1, x_2) for Terpinolene (1) + α-Terpineol (2) + o-, m- and p-Cresol (3) Mixtures at 303.15, 308.15 and 313.15K.

x_1	x_2	k_s (TPa^{-1})			Δk_s (TPa^{-1})		
		303.15 K	308.15 K	313.15 K	303.15 K	308.15 K	313.15 K
Terpinolene (1) + α-Terpineol (2) + o-Cresol (3)							
0.0979	0.7522	536.63	552.65	569.55	-0.67	-0.95	-0.95
0.0928	0.6234	519.92	535.43	551.67	-2.37	-2.56	-2.59
0.0881	0.5075	505.94	520.99	536.67	-2.85	-2.96	-3.00
0.0839	0.4027	494.63	509.28	524.51	-1.95	-1.96	-1.96
0.0801	0.3074	484.14	498.33	513.11	-1.34	-1.36	-1.37
0.0766	0.2205	474.87	488.68	503.03	-0.49	-0.48	-0.51
0.0734	0.1409	468.05	481.49	495.55	1.97	1.98	2.05
0.0704	0.0676	461.78	474.90	488.69	4.24	4.27	4.41
0.1951	0.6556	546.83	563.65	581.19	-0.08	-0.10	-0.07
0.1848	0.5323	532.45	548.85	565.82	1.00	1.18	1.29
0.1756	0.4214	519.71	535.59	552.03	2.17	2.41	2.55
0.1672	0.3211	508.36	523.67	539.58	3.41	3.59	3.73
0.1596	0.2298	498.13	513.00	528.47	4.62	4.82	5.00
0.1527	0.1466	488.94	503.31	518.36	5.87	6.01	6.19
0.1463	0.0702	480.64	494.49	509.12	7.15	7.15	7.32
0.2916	0.5598	557.95	575.45	593.68	1.51	1.62	1.73
0.2762	0.4420	545.45	562.37	580.12	4.91	5.10	5.40
0.2625	0.3359	532.72	549.08	566.25	6.49	6.72	7.05
0.2500	0.2400	520.11	535.97	552.50	6.84	7.11	7.33
0.2387	0.1527	507.89	523.16	539.14	6.40	6.55	6.74
0.2283	0.0731	496.16	510.94	526.31	5.43	5.54	5.56
0.3872	0.4646	567.63	585.46	604.24	1.73	1.64	1.69
0.3670	0.3523	554.54	571.92	590.09	4.97	5.12	5.26
0.3487	0.2511	539.97	556.80	574.33	5.12	5.33	5.46
0.3322	0.1595	524.86	541.08	557.83	3.33	3.48	3.41
0.3172	0.0761	509.68	525.24	541.29	0.27	0.27	0.01
0.4822	0.3703	579.03	597.72	617.21	3.74	3.97	4.14
0.4570	0.2632	565.12	583.23	602.01	6.59	6.96	7.15
0.4344	0.1668	553.25	570.80	588.94	9.83	10.28	10.48
0.4139	0.0795	543.08	560.04	577.73	13.35	13.77	14.11
0.5764	0.2766	588.68	607.79	627.84	4.07	4.20	4.33
0.5465	0.1749	575.30	593.75	613.06	7.88	8.08	8.23

0.5195	0.0831	563.66	581.45	600.19	11.73	11.94	12.20
0.6699	0.1837	596.87	616.54	637.13	3.01	3.18	3.25
0.6352	0.0871	580.56	599.21	618.86	4.31	4.21	4.14
0.7626	0.0915	609.05	629.46	650.77	6.02	6.41	6.61
Terpinolene (1) + α-Terpineol (2) + m-Cresol (3)							
0.0981	0.7534	538.67	554.82	571.64	-1.46	-1.55	-1.56
0.0930	0.6252	522.97	538.62	554.84	-4.64	-4.58	-4.50
0.0885	0.5096	510.33	525.45	541.11	-6.00	-5.87	-5.74
0.0843	0.4049	499.99	514.71	529.85	-6.12	-5.83	-5.67
0.0806	0.3094	491.56	505.64	520.26	-5.23	-5.10	-4.94
0.0771	0.2221	484.52	497.98	512.12	-3.74	-3.78	-3.65
0.0740	0.1420	478.66	491.74	505.47	-1.78	-1.79	-1.65
0.0711	0.0682	473.71	486.39	499.71	0.47	0.45	0.57
0.1954	0.6566	549.87	566.38	583.77	0.13	-0.15	-0.19
0.1854	0.5339	535.22	551.05	567.85	-1.57	-1.84	-1.77
0.1763	0.4232	522.75	538.05	554.27	-2.34	-2.52	-2.39
0.1681	0.3228	512.04	526.92	542.58	-2.45	-2.49	-2.34
0.1606	0.2313	502.83	517.25	532.37	-2.00	-1.99	-1.85
0.1538	0.1476	494.78	508.83	523.44	-1.21	-1.10	-0.99
0.1475	0.0708	487.68	501.45	515.59	-0.19	0.07	0.14
0.2920	0.5606	560.01	577.08	595.12	0.72	0.47	0.46
0.2771	0.4433	545.46	561.85	579.33	-0.43	-0.65	-0.49
0.2636	0.3374	533.89	549.73	566.62	0.10	-0.03	0.21
0.2513	0.2413	524.60	540.00	556.26	1.79	1.80	2.01
0.2402	0.1537	517.05	532.06	547.91	4.23	4.38	4.73
0.2300	0.0736	510.91	525.61	540.92	7.24	7.57	7.88
0.3878	0.4654	570.36	588.02	606.67	1.61	1.41	1.40
0.3681	0.3533	556.29	573.36	591.21	1.37	1.32	1.28
0.3502	0.2521	545.35	561.80	579.16	2.92	2.91	3.07
0.3340	0.1603	536.76	552.76	569.47	5.67	5.81	5.94
0.3192	0.0766	530.02	545.51	561.83	9.26	9.44	9.76
0.4829	0.3709	578.95	597.15	616.35	0.81	0.61	0.55
0.4584	0.2640	567.00	584.55	603.15	3.12	3.04	3.16
0.4362	0.1675	557.65	574.71	592.66	6.65	6.76	6.96
0.4161	0.0799	550.29	566.85	584.30	10.98	11.22	11.56
0.5773	0.2771	590.61	609.44	629.34	3.15	3.06	3.09

0.5481	0.1754	579.52	597.73	617.04	6.73	6.81	7.08
0.5217	0.0835	569.59	587.46	606.07	10.07	10.51	10.83
0.6709	0.1840	600.67	620.07	640.58	3.96	3.91	3.97
0.6371	0.0874	589.46	608.18	627.93	7.84	7.92	8.07
0.7638	0.0917	605.43	625.80	646.72	-0.46	-0.06	-0.17
Terpinolene (1) + α-Terpineol (2) + p-Cresol (3)							
0.0981	0.7534	534.56	550.60	567.30	-4.97	-5.14	-5.23
0.0930	0.6252	519.79	535.21	551.21	-6.70	-6.78	-6.88
0.0885	0.5097	507.64	522.52	537.92	-7.08	-7.08	-7.15
0.0844	0.4049	497.63	512.14	526.98	-6.43	-6.22	-6.28
0.0806	0.3094	489.10	502.99	517.38	-5.24	-5.13	-5.11
0.0771	0.2222	481.80	495.15	509.18	-3.66	-3.60	-3.48
0.0740	0.1420	475.86	488.89	502.46	-1.44	-1.27	-1.17
0.0711	0.0682	470.66	483.41	496.60	0.88	1.16	1.29
0.1954	0.6566	546.94	578.56	581.03	-2.22	12.66	-2.29
0.1854	0.5339	531.73	554.86	564.40	-3.94	3.17	-3.97
0.1764	0.4232	519.51	537.39	550.97	-3.98	-1.47	-3.92
0.1681	0.3228	509.61	524.41	540.00	-2.84	-2.82	-2.66
0.1607	0.2313	501.34	514.79	530.78	-1.06	-1.83	-0.74
0.1538	0.1477	494.52	507.70	523.12	1.33	0.77	1.79
0.1475	0.0708	488.88	502.55	516.72	4.13	4.52	4.75
0.2920	0.5606	558.00	575.04	593.03	-0.69	-0.94	-0.97
0.2771	0.4433	543.17	559.45	576.92	-1.60	-1.86	-1.65
0.2636	0.3374	531.44	547.16	564.02	-0.76	-0.89	-0.62
0.2514	0.2413	522.07	537.39	553.57	1.28	1.36	1.56
0.2402	0.1537	514.57	529.47	545.10	4.18	4.39	4.62
0.2300	0.0736	508.50	523.14	538.11	7.62	8.08	8.16
0.3878	0.4654	569.15	587.10	605.78	0.99	1.11	1.16
0.3681	0.3533	554.25	571.27	589.17	0.44	0.42	0.47
0.3502	0.2522	543.11	559.53	576.82	2.28	2.35	2.50
0.3340	0.1603	534.78	550.73	567.52	5.71	5.95	6.24
0.3193	0.0766	528.58	544.27	560.65	10.24	10.79	11.26
0.4829	0.3709	579.73	598.27	617.58	2.17	2.36	2.43
0.4584	0.2640	566.67	584.67	603.02	3.89	4.34	4.26
0.4363	0.1675	555.72	573.00	590.69	6.30	6.74	6.74
0.4162	0.0799	546.45	562.87	580.15	9.15	9.39	9.65

0.5773	0.2771	590.23	608.99	628.95	3.35	3.23	3.35
0.5481	0.1754	577.03	595.31	614.52	5.35	5.57	5.78
0.5217	0.0835	565.43	583.30	601.76	7.49	8.05	8.27
0.6709	0.1840	599.81	619.48	640.04	3.68	3.94	4.07
0.6371	0.0874	589.75	608.80	628.67	9.23	9.72	10.03
0.7638	0.0917	607.78	627.91	648.95	2.47	2.67	2.70

Table S12 — Fitting Coefficients (A_{ijk}, B_{ijk}, C_{ijk}, D_{ijk}, E_{ijk}) with Standard Deviation (σ) for Least Square Representation of Δk_s for Terpinolene (1) + α-Terpineol (2) + o-, m- and p-Cresol (3) Mixtures at 303.15, 308.15 and 313.15K.

T (K)	A_{ijk}	B_{ijk}	C_{ijk}	D_{ijk}	E_{ijk}	σ
Terpinolene (1) + α-Terpineol (2) + o-Cresol (3)						
303.15	106.027	-2746.8	9358.0	96410.2	146580.0	5.06114
308.15	111.149	-2871.8	8316.5	104810.0	215850.0	4.47957
313.15	116.955	-2952.9	7898.9	110180.0	244566.0	4.13667
Terpinolene (1) + α-Terpineol (2) + m-Cresol (3)						
303.15	-125.709	658.1	33107.2	-128016.0	-838721.0	7.18997
308.15	-125.123	563.6	33071.4	-127903.0	-834551.0	6.69983
313.15	-119.442	494.6	32779.7	-126980.0	-814368.0	6.33860
Terpinolene (1) + α-Terpineol (2) + p-Cresol (3)						
303.15	-159.272	-1098.5	39212.9	-40327.1	-926729.0	7.00844
308.15	-142.567	383.4	53615.3	-127173.0	-1634330.0	6.27501
313.15	-152.861	-1385.3	40192.2	-32096.7	-922770.0	6.26266

Table S13 — Acoustical Impedances (z) and Deviation in Acoustical impedances (Δz) vs Mole Fraction (x_1, x_2) for Terpinolene (1) + α-Terpineol (2) + o-, m- and p-Cresol (3) Mixtures at 303.15, 308.15 and 313.15K.

x_1	x_2	z (g·m^{-2}·s^{-1}) × 10^{-3}			Δz (g·m^{-2}·s^{-1}) × 10^{-3}		
		303.15 K	308.15 K	313.15 K	303.15 K	308.15 K	313.15 K
Terpinolene (1) + α-Terpineol (2) + o-Cresol (3)							
0.0979	0.7522	1.3191	1.2971	1.2749	-0.0076	-0.0074	-0.0074
0.0928	0.6234	1.3491	1.3266	1.3041	-0.0101	-0.0100	-0.0101
0.0881	0.5075	1.3762	1.3533	1.3306	-0.0123	-0.0123	-0.0123
0.0839	0.4027	1.3999	1.3768	1.3538	-0.0149	-0.0150	-0.0150
0.0801	0.3074	1.4229	1.3996	1.3763	-0.0160	-0.0160	-0.0160
0.0766	0.2205	1.4443	1.4207	1.3974	-0.0166	-0.0165	-0.0165
0.0734	0.1409	1.4617	1.4381	1.4145	-0.0192	-0.0191	-0.0190
0.0704	0.0676	1.4782	1.4545	1.4308	-0.0212	-0.0209	-0.0209
0.1951	0.6556	1.3018	1.2795	1.2573	-0.0099	-0.0099	-0.0101
0.1848	0.5323	1.3272	1.3045	1.2819	-0.0177	-0.0178	-0.0179
0.1756	0.4214	1.3514	1.3284	1.3056	-0.0233	-0.0235	-0.0235
0.1672	0.3211	1.3743	1.3512	1.3283	-0.0274	-0.0274	-0.0274
0.1596	0.2298	1.3961	1.3728	1.3497	-0.0301	-0.0301	-0.0301
0.1527	0.1466	1.4168	1.3934	1.3701	-0.0319	-0.0317	-0.0316
0.1463	0.0702	1.4363	1.4130	1.3896	-0.0329	-0.0325	-0.0323
0.2916	0.5598	1.2833	1.2609	1.2386	-0.0135	-0.0137	-0.0139
0.2762	0.4420	1.3049	1.2824	1.2598	-0.0257	-0.0257	-0.0258
0.2625	0.3359	1.3284	1.3057	1.2829	-0.0327	-0.0325	-0.0326
0.2500	0.2400	1.3530	1.3300	1.3071	-0.0356	-0.0355	-0.0354
0.2387	0.1527	1.3782	1.3551	1.3319	-0.0355	-0.0353	-0.0353
0.2283	0.0731	1.4036	1.3802	1.3569	-0.0330	-0.0329	-0.0327
0.3872	0.4646	1.2676	1.2454	1.2232	-0.0144	-0.0143	-0.0145
0.3670	0.3523	1.2900	1.2674	1.2450	-0.0265	-0.0265	-0.0265
0.3487	0.2511	1.3164	1.2935	1.2708	-0.0312	-0.0312	-0.0312
0.3322	0.1595	1.3454	1.3222	1.2994	-0.0303	-0.0303	-0.0302
0.3172	0.0761	1.3762	1.3528	1.3297	-0.0250	-0.0251	-0.0250
0.4822	0.3703	1.2495	1.2270	1.2048	-0.0179	-0.0181	-0.0182
0.4570	0.2632	1.2727	1.2500	1.2276	-0.0298	-0.0299	-0.0299
0.4344	0.1668	1.2940	1.2711	1.2486	-0.0401	-0.0401	-0.0399
0.4139	0.0795	1.3135	1.2906	1.2679	-0.0492	-0.0491	-0.0488
0.5764	0.2766	1.2343	1.2120	1.1898	-0.0185	-0.0185	-0.0186
0.5465	0.1749	1.2569	1.2344	1.2121	-0.0317	-0.0316	-0.0315

0.5195	0.0831	1.2772	1.2547	1.2322	-0.0436	-0.0432	-0.0430
0.6699	0.1837	1.2221	1.1997	1.1775	-0.0163	-0.0164	-0.0165
0.6352	0.0871	1.2490	1.2266	1.2043	-0.0258	-0.0255	-0.0255
0.7626	0.0915	1.2034	1.1810	1.1588	-0.0206	-0.0208	-0.0208
Terpinolene (1) + α-Terpineol (2) + m-Cresol (3)							
0.0981	0.7534	1.3159	1.2939	1.2719	-0.0047	-0.0048	-0.0050
0.0930	0.6252	1.3432	1.3208	1.2986	-0.0045	-0.0050	-0.0055
0.0885	0.5096	1.3673	1.3447	1.3224	-0.0049	-0.0056	-0.0062
0.0843	0.4049	1.3888	1.3660	1.3436	-0.0055	-0.0064	-0.0071
0.0806	0.3094	1.4077	1.3852	1.3628	-0.0068	-0.0075	-0.0081
0.0771	0.2221	1.4247	1.4025	1.3802	-0.0083	-0.0086	-0.0092
0.0740	0.1420	1.4401	1.4180	1.3958	-0.0098	-0.0101	-0.0106
0.0711	0.0682	1.4540	1.4321	1.4100	-0.0115	-0.0116	-0.0119
0.1954	0.6566	1.2969	1.2751	1.2533	-0.0087	-0.0085	-0.0087
0.1854	0.5339	1.3220	1.3001	1.2780	-0.0114	-0.0113	-0.0117
0.1763	0.4232	1.3453	1.3233	1.3010	-0.0132	-0.0133	-0.0138
0.1681	0.3228	1.3670	1.3448	1.3225	-0.0142	-0.0145	-0.0151
0.1606	0.2313	1.3870	1.3648	1.3425	-0.0148	-0.0152	-0.0158
0.1538	0.1476	1.4058	1.3835	1.3612	-0.0150	-0.0155	-0.0160
0.1475	0.0708	1.4234	1.4009	1.3787	-0.0148	-0.0155	-0.0159
0.2920	0.5606	1.2803	1.2585	1.2365	-0.0104	-0.0103	-0.0105
0.2771	0.4433	1.3049	1.2829	1.2607	-0.0143	-0.0143	-0.0148
0.2636	0.3374	1.3262	1.3042	1.2819	-0.0186	-0.0187	-0.0193
0.2513	0.2413	1.3450	1.3229	1.3007	-0.0231	-0.0233	-0.0238
0.2402	0.1537	1.3615	1.3394	1.3170	-0.0278	-0.0281	-0.0287
0.2300	0.0736	1.3760	1.3539	1.3318	-0.0327	-0.0330	-0.0333
0.3878	0.4654	1.2636	1.2417	1.2198	-0.0124	-0.0123	-0.0125
0.3681	0.3533	1.2871	1.2650	1.2431	-0.0179	-0.0181	-0.0183
0.3502	0.2521	1.3071	1.2851	1.2630	-0.0241	-0.0242	-0.0246
0.3340	0.1603	1.3245	1.3023	1.2804	-0.0306	-0.0309	-0.0310
0.3192	0.0766	1.3393	1.3174	1.2954	-0.0375	-0.0375	-0.0378
0.4829	0.3709	1.2502	1.2283	1.2063	-0.0111	-0.0111	-0.0113
0.4584	0.2640	1.2700	1.2481	1.2260	-0.0210	-0.0210	-0.0213
0.4362	0.1675	1.2872	1.2652	1.2433	-0.0306	-0.0307	-0.0309
0.4161	0.0799	1.3022	1.2803	1.2584	-0.0400	-0.0400	-0.0402
0.5773	0.2771	1.2319	1.2101	1.1881	-0.0148	-0.0147	-0.0149

0.5481	0.1754	1.2510	1.2292	1.2070	-0.0261	-0.0260	-0.0264
0.5217	0.0835	1.2686	1.2465	1.2245	-0.0359	-0.0361	-0.0364
0.6709	0.1840	1.2166	1.1947	1.1728	-0.0157	-0.0157	-0.0158
0.6371	0.0874	1.2354	1.2135	1.1916	-0.0278	-0.0278	-0.0279
0.7638	0.0917	1.2097	1.1872	1.1652	-0.0082	-0.0088	-0.0091
Terpinolene (1) + α-Terpineol (2) + p-Cresol (3)							
0.0981	0.7534	1.3227	1.3005	1.2785	0.0011	0.0008	0.0005
0.0930	0.6252	1.3483	1.3260	1.3039	-0.0012	-0.0017	-0.0021
0.0885	0.5097	1.3715	1.3491	1.3269	-0.0033	-0.0039	-0.0044
0.0844	0.4049	1.3924	1.3697	1.3476	-0.0053	-0.0062	-0.0067
0.0806	0.3094	1.4115	1.3891	1.3669	-0.0070	-0.0077	-0.0082
0.0771	0.2222	1.4290	1.4068	1.3845	-0.0086	-0.0091	-0.0097
0.0740	0.1420	1.4446	1.4224	1.4003	-0.0104	-0.0110	-0.0114
0.0711	0.0682	1.4591	1.4369	1.4149	-0.0121	-0.0126	-0.0130
0.1954	0.6566	1.3015	1.2627	1.2573	-0.0051	-0.0219	-0.0056
0.1854	0.5339	1.3275	1.2967	1.2830	-0.0077	-0.0166	-0.0086
0.1764	0.4232	1.3503	1.3249	1.3058	-0.0107	-0.0144	-0.0118
0.1681	0.3228	1.3705	1.3483	1.3259	-0.0140	-0.0145	-0.0151
0.1607	0.2313	1.3888	1.3677	1.3442	-0.0171	-0.0165	-0.0182
0.1538	0.1477	1.4050	1.3838	1.3605	-0.0204	-0.0199	-0.0215
0.1475	0.0708	1.4195	1.3973	1.3752	-0.0238	-0.0244	-0.0248
0.2920	0.5606	1.2832	1.2613	1.2393	-0.0085	-0.0085	-0.0088
0.2771	0.4433	1.3080	1.2862	1.2638	-0.0129	-0.0129	-0.0136
0.2636	0.3374	1.3297	1.3077	1.2853	-0.0177	-0.0179	-0.0186
0.2514	0.2413	1.3486	1.3265	1.3042	-0.0228	-0.0232	-0.0237
0.2402	0.1537	1.3651	1.3431	1.3209	-0.0282	-0.0285	-0.0290
0.2300	0.0736	1.3797	1.3575	1.3357	-0.0335	-0.0341	-0.0342
0.3878	0.4654	1.2651	1.2429	1.2209	-0.0118	-0.0121	-0.0124
0.3681	0.3533	1.2899	1.2678	1.2457	-0.0170	-0.0172	-0.0176
0.3502	0.2522	1.3103	1.2882	1.2660	-0.0236	-0.0239	-0.0244
0.3340	0.1603	1.3271	1.3050	1.2828	-0.0313	-0.0316	-0.0321
0.3193	0.0766	1.3411	1.3189	1.2966	-0.0397	-0.0402	-0.0407
0.4829	0.3709	1.2484	1.2262	1.2041	-0.0138	-0.0142	-0.0144
0.4584	0.2640	1.2698	1.2474	1.2256	-0.0230	-0.0235	-0.0236
0.4363	0.1675	1.2898	1.2674	1.2456	-0.0307	-0.0312	-0.0313
0.4162	0.0799	1.3083	1.2863	1.2643	-0.0372	-0.0375	-0.0377

0.5773	0.2771	1.2321	1.2104	1.1884	-0.0156	-0.0153	-0.0156
0.5481	0.1754	1.2545	1.2325	1.2104	-0.0243	-0.0245	-0.0249
0.5217	0.0835	1.2750	1.2526	1.2305	-0.0321	-0.0327	-0.0330
0.6709	0.1840	1.2175	1.1954	1.1734	-0.0157	-0.0160	-0.0162
0.6371	0.0874	1.2344	1.2123	1.1903	-0.0306	-0.0309	-0.0311
0.7638	0.0917	1.2059	1.1838	1.1618	-0.0129	-0.0132	-0.0135

Table S14 — Fitting Coefficients (A_{ijk}, B_{ijk}, C_{ijk}, D_{ijk}, E_{ijk}) with Standard Deviation (σ) for Least Square Representation of Δz for Terpinolene (1) + α-Terpineol (2) + o-, m- and p-Cresol (3) Mixtures at 303.15, 308.15 and 313.15K.

T (K)	A_{ijk}	B_{ijk}	C_{ijk}	D_{ijk}	E_{ijk}	σ
Terpinolene (1) + α-Terpineol (2) + o-Cresol (3)						
303.15	-1.0733	11.6484	-13.0029	-359.1360	-901.2490	0.04573
308.15	-1.0725	11.5840	-11.6639	-360.5190	-963.1260	0.04709
313.15	-1.0735	11.5267	-11.5050	-361.1840	-967.3870	0.04814
Terpinolene (1) + α-Terpineol (2) + m-Cresol (3)						
303.15	-0.5388	4.0651	-49.3429	83.0389	765.9710	0.03445
308.15	-0.5564	4.2748	-48.3024	75.5331	743.6980	0.03608
313.15	-0.5829	4.4876	-46.3803	63.9387	665.3300	0.03764
Terpinolene (1) + α-Terpineol (2) + p-Cresol (3)						
303.15	-0.4893	7.0334	-64.7051	-54.1667	1133.5700	0.03724
308.15	-0.5323	5.4004	-78.4090	39.1625	1855.5900	0.03947
313.15	-0.5427	7.4859	-61.7539	-76.2636	1001.7800	0.04055

Table S15 — Intermolecular Free Length (L_f) vs Mole Fraction (x_1, x_2) for Terpinolene (1) + α-Terpineol (2) + o-, m- and p-Cresol (3) Mixtures at 303.15, 308.15 and 313.15K.

x_1	x_2	L_f (A^0)		
		303.15 K	308.15 K	313.15 K
Terpinolene (1) + α-Terpineol (2) + o-Cresol (3)				
0.0979	0.7522	0.4808	0.4923	0.5043
0.0928	0.6234	0.4732	0.4846	0.4963
0.0881	0.5075	0.4668	0.4780	0.4895
0.0839	0.4027	0.4616	0.4726	0.4839
0.0801	0.3074	0.4567	0.4675	0.4786
0.0766	0.2205	0.4523	0.4630	0.4739
0.0734	0.1409	0.4490	0.4595	0.4704
0.0704	0.0676	0.4460	0.4564	0.4671
0.1951	0.6556	0.4853	0.4972	0.5094
0.1848	0.5323	0.4789	0.4906	0.5026
0.1756	0.4214	0.4732	0.4847	0.4965
0.1672	0.3211	0.4680	0.4793	0.4908
0.1596	0.2298	0.4632	0.4743	0.4857
0.1527	0.1466	0.4589	0.4698	0.4811
0.1463	0.0702	0.4550	0.4657	0.4768
0.2916	0.5598	0.4903	0.5024	0.5148
0.2762	0.4420	0.4847	0.4967	0.5089
0.2625	0.3359	0.4790	0.4907	0.5028
0.2500	0.2400	0.4733	0.4849	0.4967
0.2387	0.1527	0.4677	0.4790	0.4906
0.2283	0.0731	0.4623	0.4734	0.4848
0.3872	0.4646	0.4945	0.5067	0.5194
0.3670	0.3523	0.4888	0.5009	0.5133
0.3487	0.2511	0.4823	0.4942	0.5064
0.3322	0.1595	0.4755	0.4872	0.4991
0.3172	0.0761	0.4686	0.4800	0.4916
0.4822	0.3703	0.4994	0.5120	0.5249
0.4570	0.2632	0.4934	0.5058	0.5184
0.4344	0.1668	0.4882	0.5004	0.5128
0.4139	0.0795	0.4837	0.4956	0.5079
0.5764	0.2766	0.5036	0.5163	0.5294
0.5465	0.1749	0.4978	0.5103	0.5232

0.5195	0.0831	0.4928	0.5050	0.5177
0.6699	0.1837	0.5071	0.5200	0.5333
0.6352	0.0871	0.5001	0.5127	0.5256
0.7626	0.0915	0.5122	0.5254	0.5390
Terpinolene (1) + α-Terpineol (2) + m-Cresol (3)				
0.0981	0.7534	0.4817	0.4933	0.5052
0.0930	0.6252	0.4746	0.4860	0.4977
0.0885	0.5096	0.4689	0.4801	0.4915
0.0843	0.4049	0.4641	0.4751	0.4864
0.0806	0.3094	0.4602	0.4709	0.4820
0.0771	0.2221	0.4569	0.4674	0.4782
0.0740	0.1420	0.4541	0.4644	0.4751
0.0711	0.0682	0.4517	0.4619	0.4723
0.1954	0.6566	0.4867	0.4984	0.5105
0.1854	0.5339	0.4802	0.4916	0.5035
0.1763	0.4232	0.4745	0.4858	0.4975
0.1681	0.3228	0.4696	0.4807	0.4922
0.1606	0.2313	0.4654	0.4763	0.4875
0.1538	0.1476	0.4617	0.4724	0.4834
0.1475	0.0708	0.4583	0.4690	0.4798
0.2920	0.5606	0.4912	0.5031	0.5155
0.2771	0.4433	0.4847	0.4964	0.5086
0.2636	0.3374	0.4796	0.4910	0.5030
0.2513	0.2413	0.4754	0.4867	0.4984
0.2402	0.1537	0.4719	0.4831	0.4946
0.2300	0.0736	0.4691	0.4801	0.4914
0.3878	0.4654	0.4957	0.5078	0.5204
0.3681	0.3533	0.4895	0.5015	0.5138
0.3502	0.2521	0.4847	0.4964	0.5085
0.3340	0.1603	0.4809	0.4924	0.5042
0.3192	0.0766	0.4778	0.4891	0.5008
0.4829	0.3709	0.4994	0.5118	0.5246
0.4584	0.2640	0.4942	0.5064	0.5189
0.4362	0.1675	0.4901	0.5021	0.5144
0.4161	0.0799	0.4869	0.4986	0.5108
0.5773	0.2771	0.5044	0.5170	0.5301

0.5481	0.1754	0.4996	0.5120	0.5249
0.5217	0.0835	0.4953	0.5076	0.5202
0.6709	0.1840	0.5087	0.5215	0.5348
0.6371	0.0874	0.5039	0.5165	0.5295
0.7638	0.0917	0.5107	0.5239	0.5374
Terpinolene (1) + α-Terpineol (2) + p-Cresol (3)				
0.0981	0.7534	0.4799	0.4914	0.5033
0.0930	0.6252	0.4732	0.4845	0.4961
0.0885	0.5097	0.4676	0.4787	0.4901
0.0844	0.4049	0.4630	0.4739	0.4851
0.0806	0.3094	0.4590	0.4697	0.4806
0.0771	0.2222	0.4556	0.4660	0.4768
0.0740	0.1420	0.4528	0.4631	0.4736
0.0711	0.0682	0.4503	0.4605	0.4709
0.1954	0.6566	0.4854	0.5037	0.5093
0.1854	0.5339	0.4786	0.4933	0.5020
0.1764	0.4232	0.4731	0.4855	0.4960
0.1681	0.3228	0.4685	0.4796	0.4910
0.1607	0.2313	0.4647	0.4752	0.4868
0.1538	0.1477	0.4615	0.4719	0.4833
0.1475	0.0708	0.4589	0.4695	0.4803
0.2920	0.5606	0.4903	0.5022	0.5146
0.2771	0.4433	0.4837	0.4954	0.5075
0.2636	0.3374	0.4785	0.4899	0.5018
0.2514	0.2413	0.4742	0.4855	0.4971
0.2402	0.1537	0.4708	0.4819	0.4933
0.2300	0.0736	0.4680	0.4790	0.4902
0.3878	0.4654	0.4951	0.5075	0.5201
0.3681	0.3533	0.4886	0.5006	0.5129
0.3502	0.2522	0.4837	0.4954	0.5075
0.3340	0.1603	0.4800	0.4915	0.5034
0.3193	0.0766	0.4772	0.4886	0.5003
0.4829	0.3709	0.4997	0.5123	0.5251
0.4584	0.2640	0.4941	0.5064	0.5189
0.4363	0.1675	0.4893	0.5013	0.5135
0.4162	0.0799	0.4852	0.4969	0.5089

0.5773	0.2771	0.5042	0.5168	0.5299
0.5481	0.1754	0.4986	0.5110	0.5238
0.5217	0.0835	0.4935	0.5058	0.5183
0.6709	0.1840	0.5083	0.5213	0.5346
0.6371	0.0874	0.5040	0.5167	0.5298
0.7638	0.0917	0.5117	0.5248	0.5383

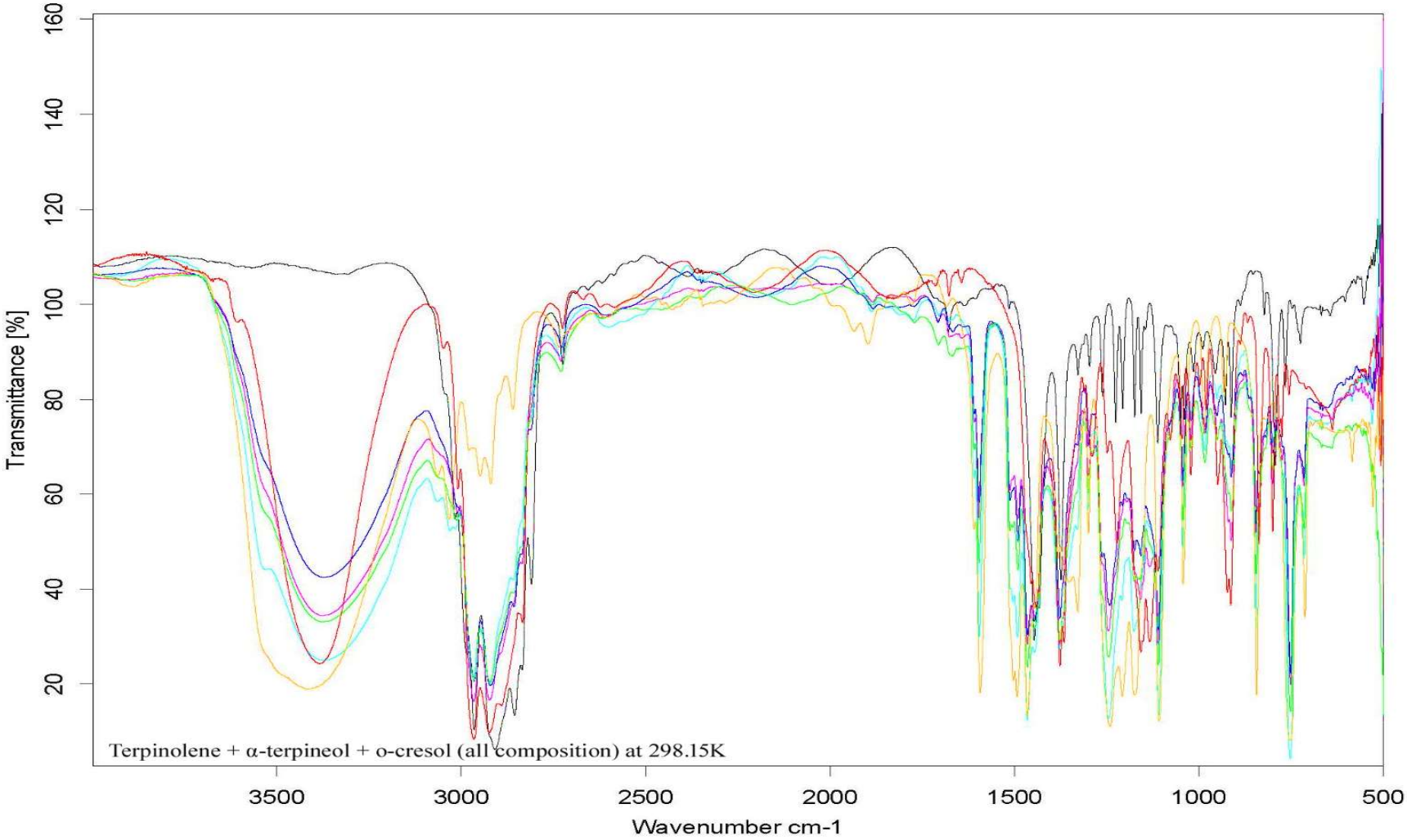
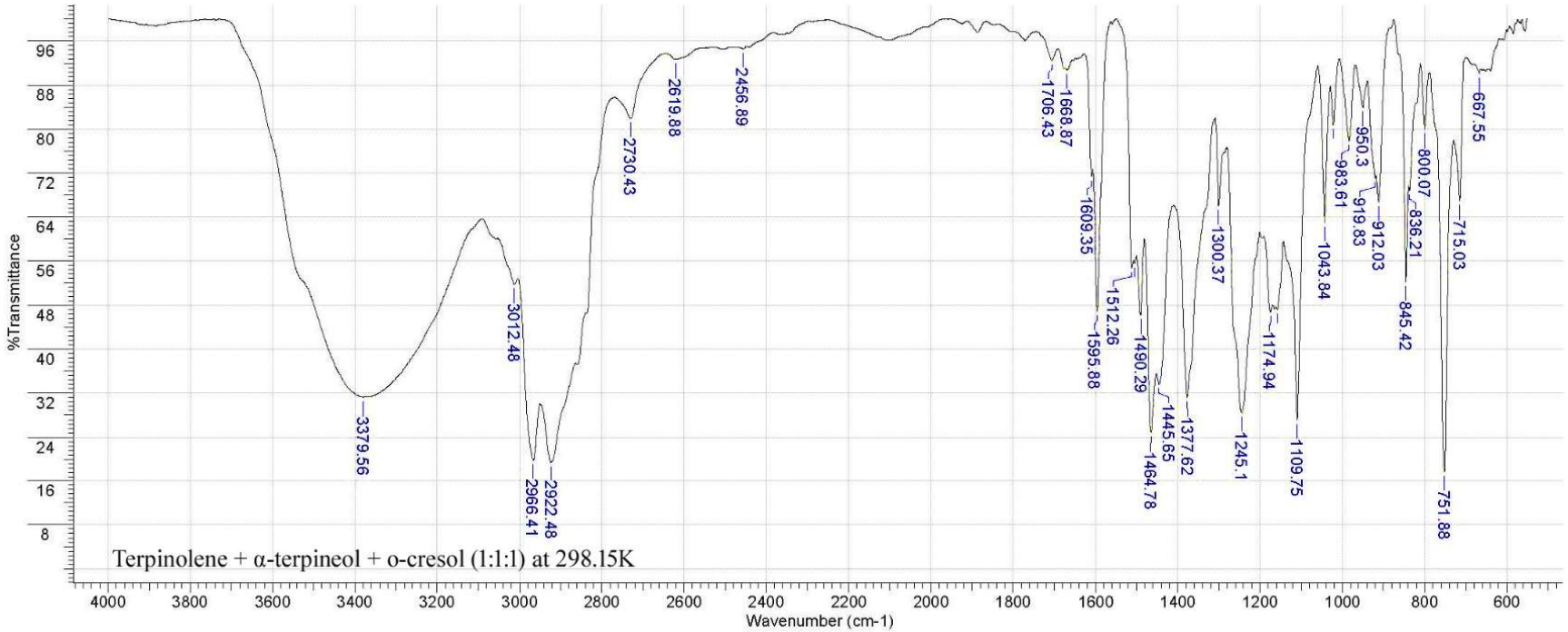


Fig. S1 — Experimental FT-IR transmittances spectra at 298.15K for Terpinolene (1) + α-terpineol (2) + o-cresol (3); ——, pure α-terpineol; ——, 1:1:1 composition ratio; ——, 2:1:1 composition ratio; ——, 1:2:1 composition ratio; ——, 1:1:2 composition ratio; ——, pure Terpinolene and ——, pure o-cresol.

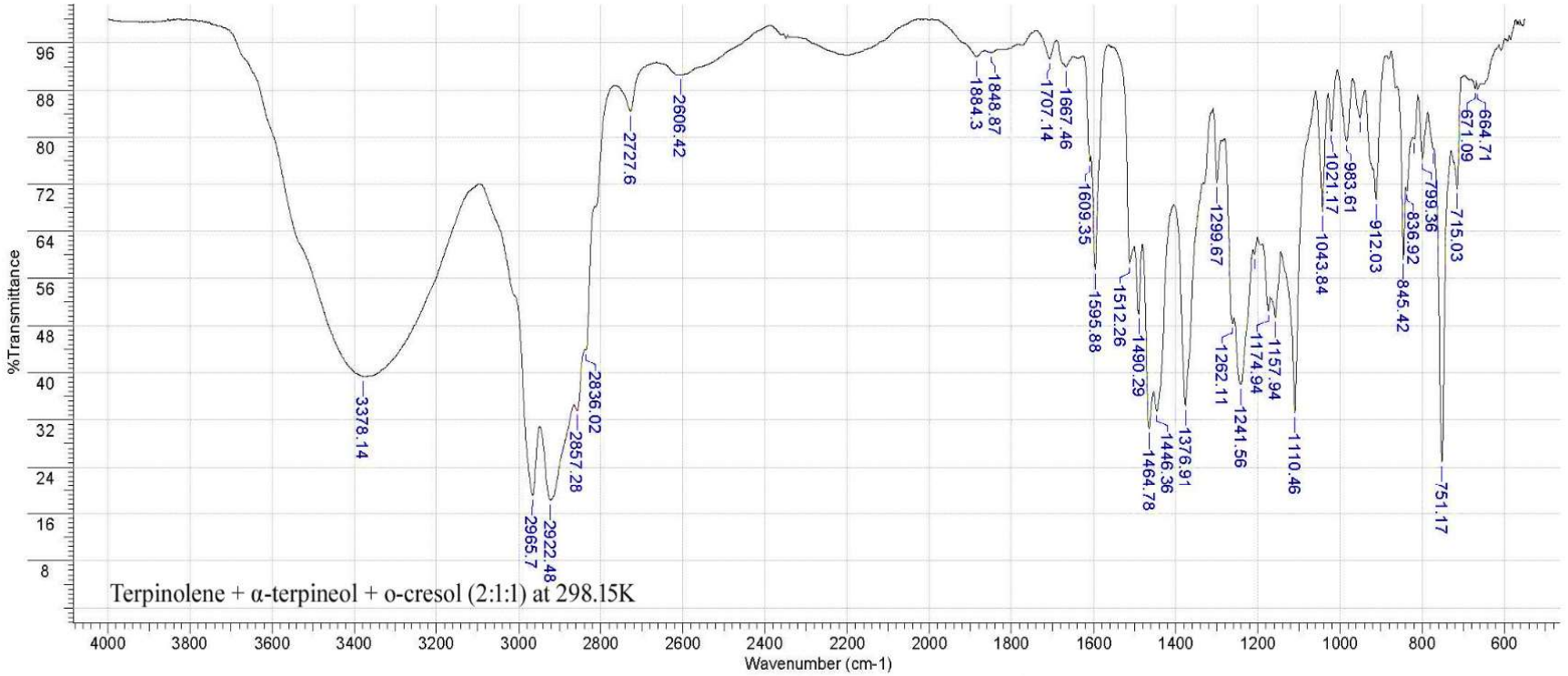


No	cm-1	%T	Intensity
1	667.55	90.088	W
2	715.03	66.867	M
3	751.88	17.685	VS
4	800.07	79.898	W
5	836.21	68.869	M
6	845.42	52.251	M
7	912.03	66.719	M
8	919.83	71.040	M
9	950.30	83.871	W
10	983.61	77.870	W
11	1021.87	80.724	W
12	1043.84	63.002	M

No	cm-1	%T	Intensity
13	1109.75	27.132	S
14	1157.94	47.203	S
15	1174.94	46.764	S
16	1245.10	28.450	S
17	1300.37	65.991	M
18	1377.62	31.213	S
19	1445.65	33.617	S
20	1464.78	24.827	VS
21	1490.29	46.181	S
22	1505.17	55.610	M
23	1512.26	54.808	M
24	1595.88	46.878	S

No	cm-1	%T	Intensity
25	1609.35	71.364	M
26	1668.87	90.735	W
27	1706.43	92.531	VW
28	2456.89	94.609	VW
29	2619.88	92.699	VW
30	2730.43	81.983	W
31	2922.48	19.466	VS
32	2966.41	19.785	VS
33	3012.48	51.731	M
34	3379.56	31.274	S

Fig. S2 — Experimental FT-IR transmittances spectra of Terpinolene (1) + α-Terpineol (2) + o-Cresol (3) at 1:1:1 composition ratio at 298.15K.



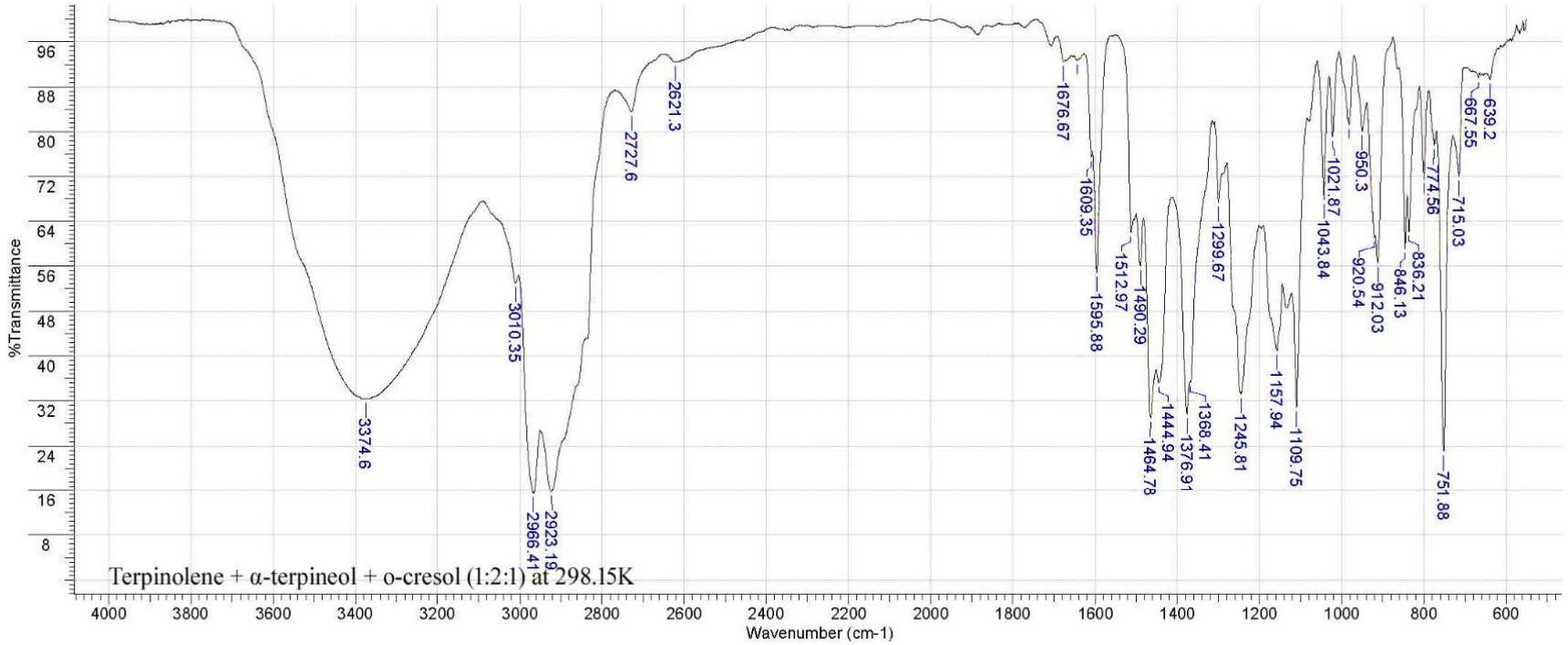
No	cm-1	%T	Intensity
1	664.71	88.047	W
2	671.09	88.194	W
3	715.03	71.226	M
4	751.17	24.936	VS
5	773.85	77.965	W
6	799.36	76.196	W
7	818.49	79.685	W
8	836.92	70.866	M
9	845.42	59.323	M
10	912.03	69.408	M

No	cm-1	%T	Intensity
11	951.01	83.261	W
12	983.61	79.324	W
13	1021.17	80.995	W
14	1043.84	67.341	M
15	1110.46	33.241	S
16	1157.94	49.386	S
17	1174.94	50.447	S
18	1207.54	60.107	M
19	1241.56	37.958	S
20	1262.11	48.428	S

No	cm-1	%T	Intensity
21	1299.67	72.225	M
22	1376.91	34.433	S
23	1446.36	33.449	S
24	1464.78	30.544	S
25	1490.29	50.015	S
26	1512.26	58.569	M
27	1595.88	57.503	M
28	1609.35	75.846	W
29	1667.46	91.931	VW
30	1707.14	93.302	VW

No	cm-1	%T	Intensity
31	1848.87	94.373	VW
32	1884.30	93.654	VW
33	2606.42	90.618	W
34	2727.60	84.380	W
35	2836.02	43.812	S
36	2857.28	33.596	S
37	2922.48	18.296	VS
38	2965.70	19.077	VS
39	3378.14	39.385	S

Fig. S3 — Experimental FT-IR transmittances spectra of Terpinolene (1) + α-Terpineol (2) + o-Cresol (3) at 2:1:1 composition ratio at 298.15K.

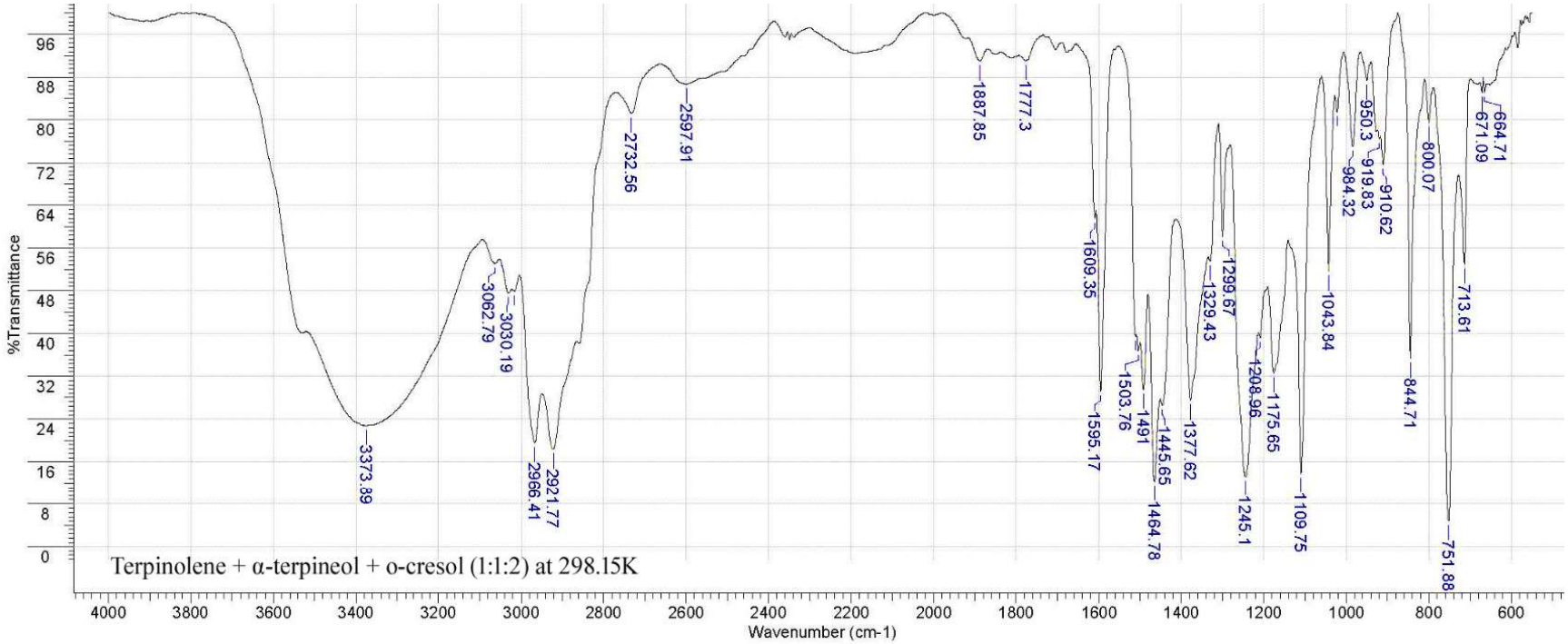


No	cm-1	%T	Intensity
1	639.20	89.299	W
2	667.55	89.516	W
3	715.03	71.973	M
4	751.88	22.976	VS
5	774.56	77.520	W
6	800.07	71.393	M
7	836.21	62.165	M
8	846.13	59.107	M
9	912.03	56.561	M
10	920.54	61.026	M
11	950.30	80.109	W
12	982.19	81.165	W

No	cm-1	%T	Intensity
13	1021.87	79.078	W
14	1043.84	67.894	M
15	1109.75	30.806	S
16	1157.94	40.966	S
17	1245.81	33.240	S
18	1299.67	67.315	M
19	1368.41	35.285	S
20	1376.91	29.674	S
21	1444.94	35.230	S
22	1464.78	29.062	S
23	1490.29	56.138	M
24	1512.97	61.997	M

No	cm-1	%T	Intensity
25	1595.88	54.865	M
26	1609.35	75.446	W
27	1643.36	92.759	VW
28	1676.67	92.419	VW
29	2621.30	92.408	VW
30	2727.60	83.560	W
31	2923.19	15.757	VS
32	2966.41	15.439	VS
33	3010.35	53.031	M
34	3374.60	32.393	S

Fig. S4 — Experimental FT-IR transmittances spectra of Terpinolene (1) + α-Terpineol (2) + o-Cresol (3) at 1:2:1 composition ratio at 298.15K.



No	cm-1	%T	Intensity
1	664.71	85.169	W
2	671.09	85.166	W
3	713.61	52.966	M
4	751.88	4.818	VS
5	800.07	79.523	W
6	844.71	35.334	S
7	910.62	71.571	W
8	919.83	76.497	W
9	950.30	87.452	W
10	984.32	74.970	W
11	1021.87	81.452	W
12	1043.84	51.616	M

No	cm-1	%T	Intensity
13	1109.75	13.800	VS
14	1175.65	32.593	S
15	1208.96	39.228	S
16	1245.10	13.262	VS
17	1299.67	58.088	M
18	1329.43	53.514	M
19	1377.62	27.434	S
20	1445.65	26.566	S
21	1464.78	12.262	VS
22	1491.00	29.580	S
23	1503.76	36.771	S
24	1511.55	39.437	S

No	cm-1	%T	Intensity
25	1595.17	29.204	S
26	1609.35	61.485	M
27	1777.30	91.098	VW
28	1887.85	90.992	VW
29	2597.91	86.651	W
30	2732.56	81.197	W
31	2921.77	18.350	S
32	2966.41	19.575	S
33	3016.02	47.889	M
34	3030.19	47.578	M
35	3062.79	53.179	M
36	3373.89	22.771	S

Fig. S5 — Experimental FT-IR transmittances spectra of Terpinolene (1) + α-Terpineol (2) + o-Cresol (3) at 1:1:2 composition ratio at 298.15K.

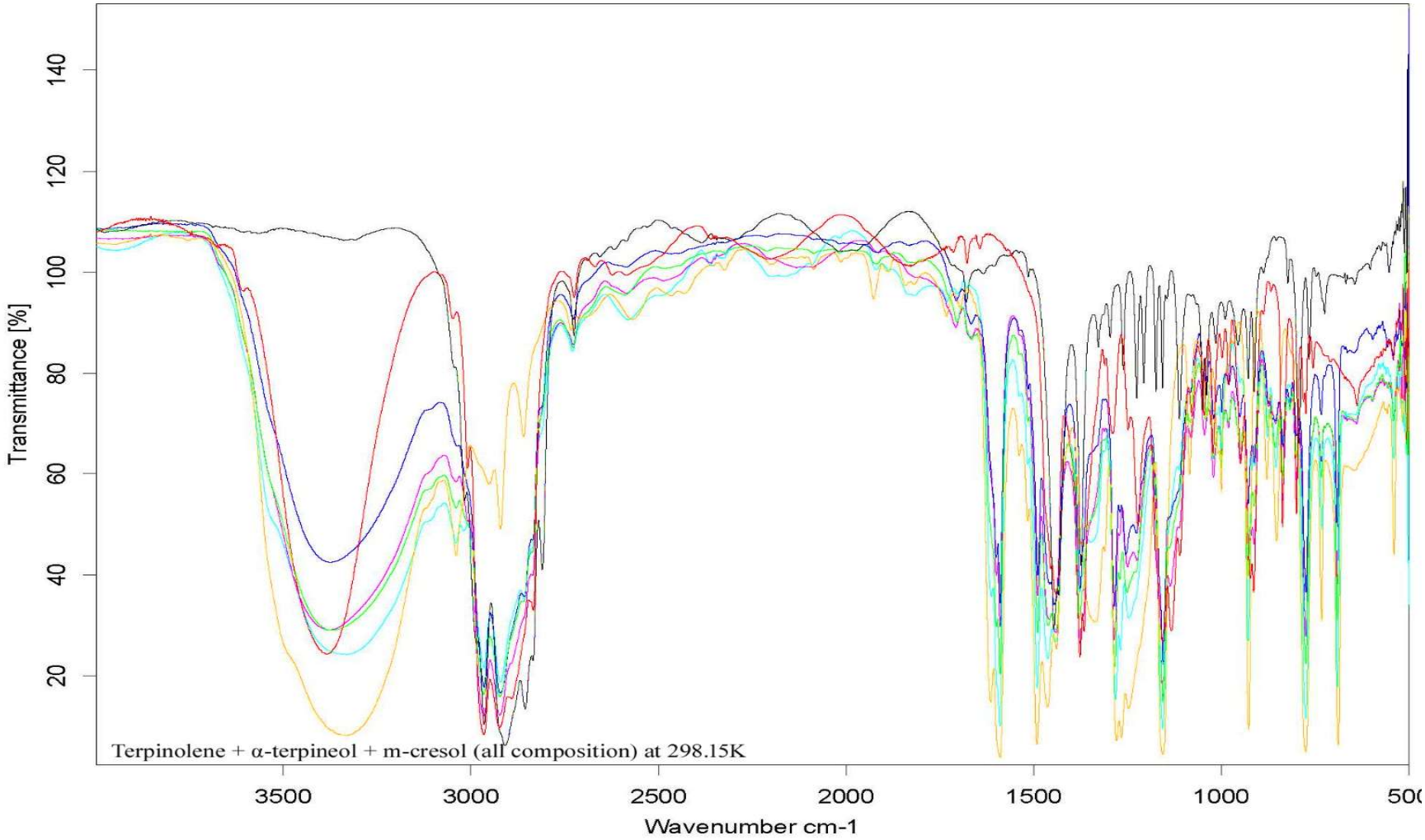
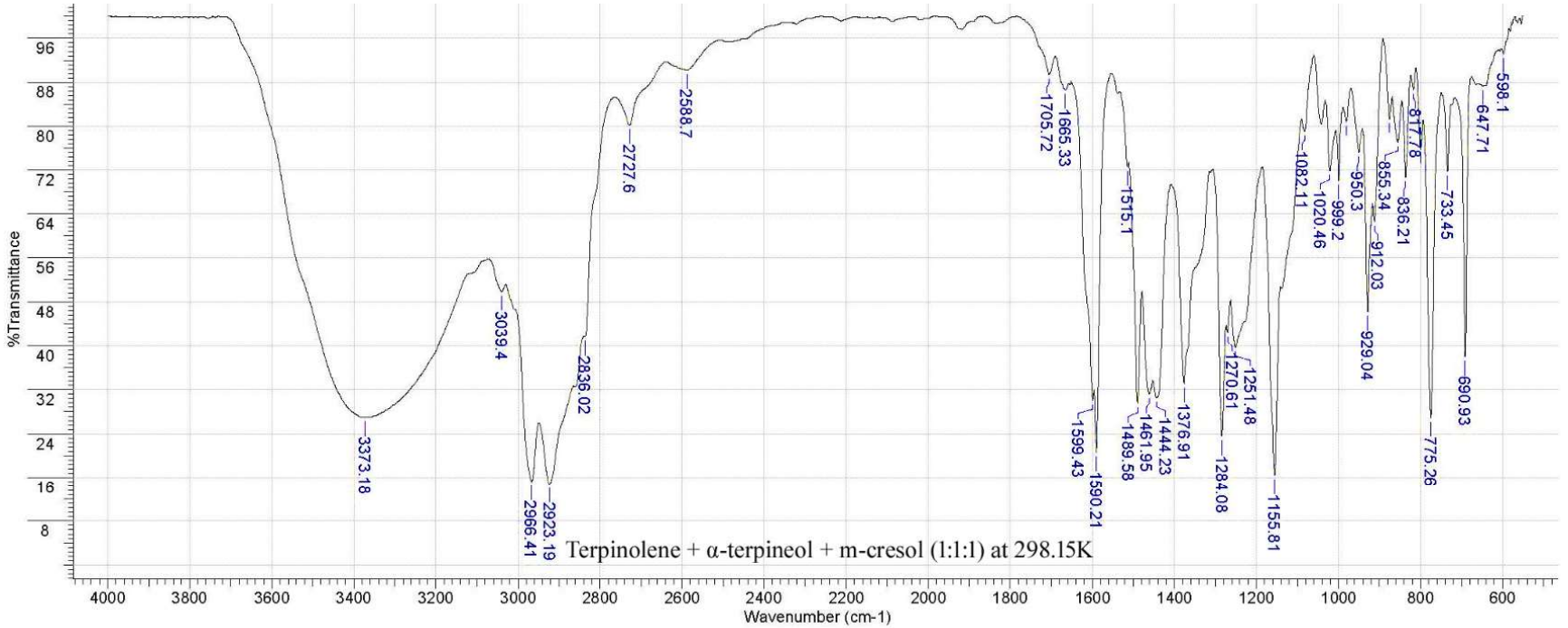


Fig. S6 — Experimental FT-IR transmittances spectra at 298.15K for Terpinolene (1) + α-terpineol (2) + m-cresol (3); ——, pure α-terpineol; ——, 1:1:1 composition ratio; ——, 2:1:1 composition ratio; ——, 1:2:1 composition ratio; ——, 1:1:2 composition ratio; ——, pure Terpinolene and ——, pure m-cresol.

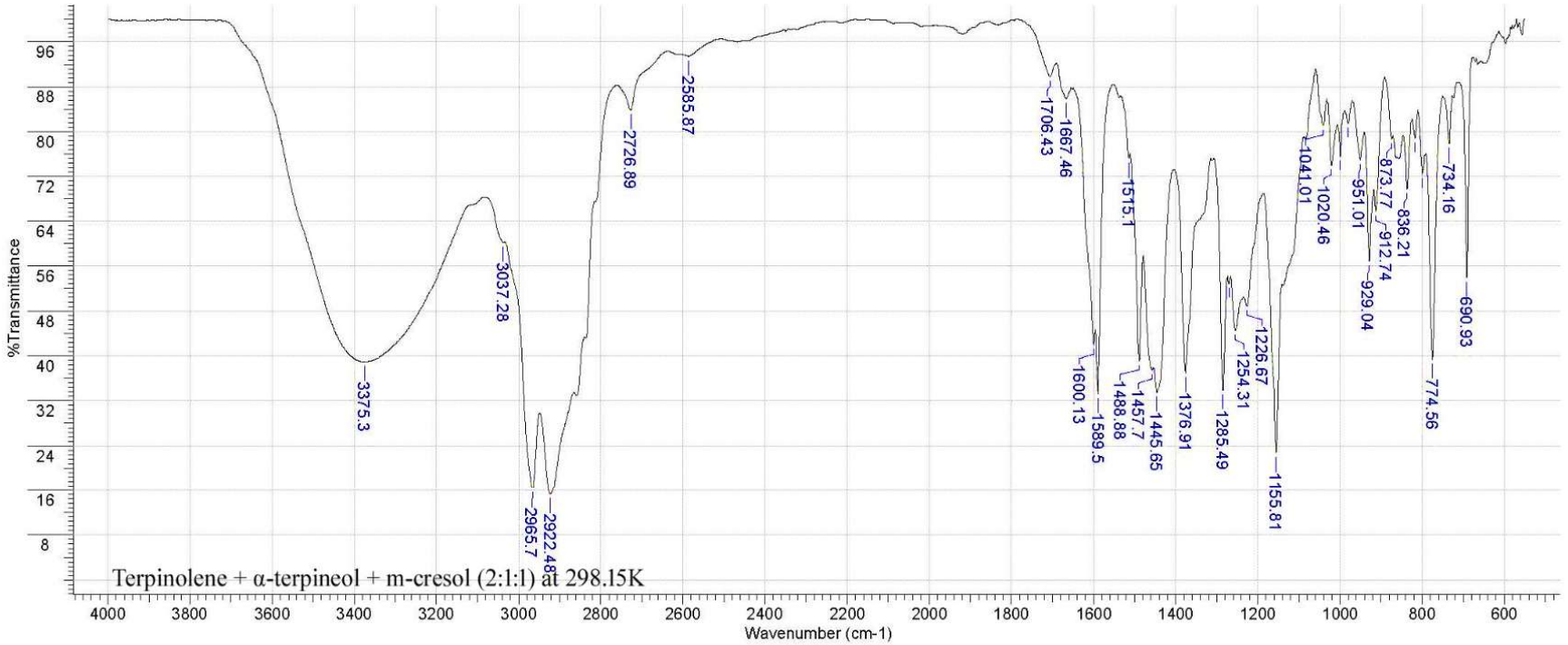


No	cm-1	%T	Intensity
1	598.10	93.081	VW
2	647.71	87.284	W
3	690.93	37.959	S
4	733.45	71.788	M
5	775.26	26.923	S
6	799.36	75.680	W
7	817.78	86.615	W
8	836.21	70.657	M
9	855.34	77.103	W
10	875.18	81.294	W
11	912.03	62.612	M
12	929.04	46.216	S
13	950.30	75.220	W

No	cm-1	%T	Intensity
14	980.77	80.766	W
15	999.20	70.043	M
16	1020.46	71.897	M
17	1082.11	79.052	W
18	1155.81	16.334	VS
19	1251.48	39.750	S
20	1270.61	42.383	S
21	1284.08	23.550	S
22	1376.91	33.101	S
23	1444.23	30.528	S
24	1461.95	31.243	S
25	1489.58	29.484	S
26	1515.10	72.537	M

No	cm-1	%T	Intensity
27	1590.21	20.629	VS
28	1599.43	30.060	S
29	1665.33	86.652	W
30	1705.72	89.400	W
31	2588.70	90.167	W
32	2727.60	80.151	W
33	2836.02	41.677	S
34	2923.19	14.828	VS
35	2966.41	15.247	VS
36	3039.40	49.821	M
37	3373.18	26.946	S

Fig. S7 — Experimental FT-IR transmittances spectra of Terpinolene (1) + α-Terpineol (2) + m-Cresol (3) at 1:1:1 composition ratio at 298.15K.

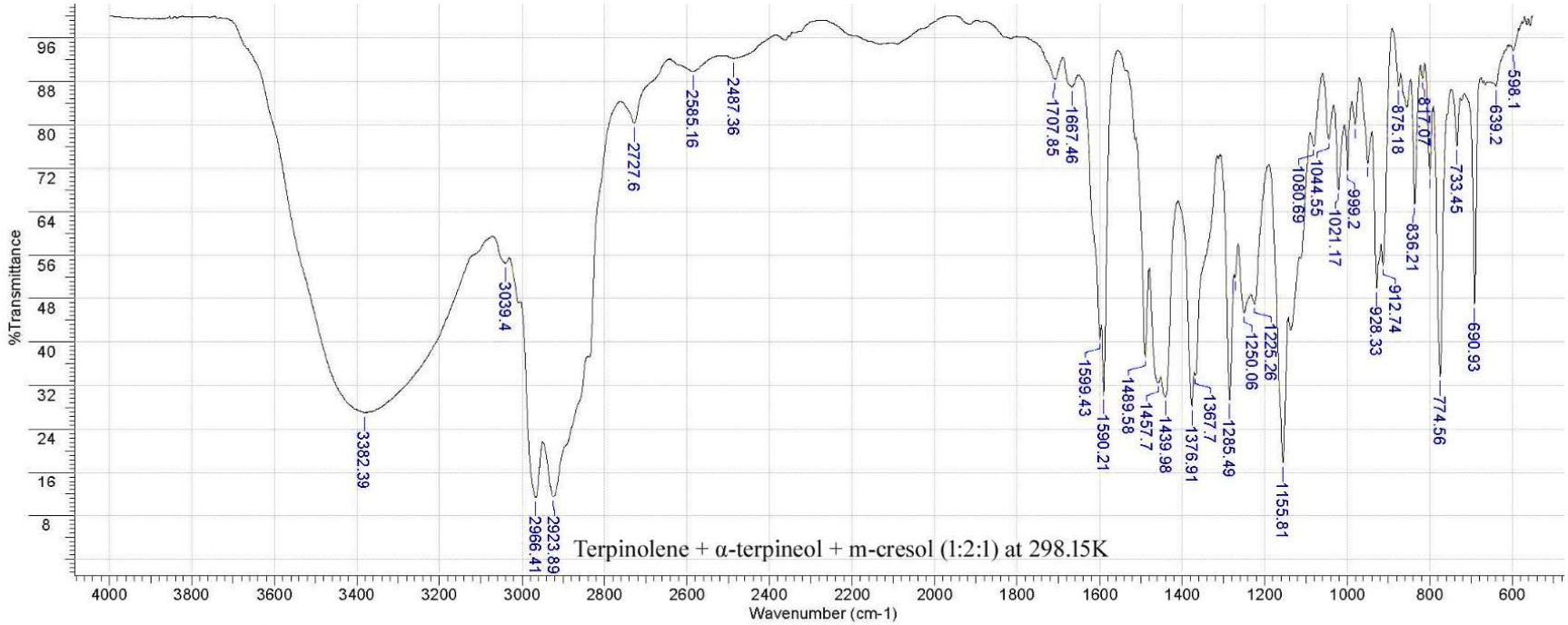


No	cm-1	%T	Intensity
1	690.93	53.969	M
2	734.16	77.811	W
3	774.56	39.391	S
4	799.36	72.438	M
5	817.78	78.756	W
6	836.21	69.734	M
7	873.77	78.662	W
8	912.74	65.791	M
9	929.04	56.930	M
10	951.01	74.951	W
11	980.77	81.465	W
12	999.20	75.596	W

No	cm-1	%T	Intensity
13	1020.46	73.950	M
14	1041.01	80.982	W
15	1155.81	22.748	VS
16	1226.67	48.867	S
17	1254.31	44.547	S
18	1270.61	52.839	M
19	1285.49	33.930	S
20	1376.91	36.942	S
21	1445.65	33.547	S
22	1457.70	37.518	S
23	1488.88	39.132	S
24	1515.10	75.140	W

No	cm-1	%T	Intensity
25	1589.50	33.228	S
26	1600.13	41.918	S
27	1667.46	85.876	W
28	1706.43	89.747	W
29	2585.87	93.411	VW
30	2726.89	83.785	W
31	2922.48	15.261	VS
32	2965.70	16.348	VS
33	3037.28	60.177	M
34	3375.30	38.908	S

Fig. S8 — Experimental FT-IR transmittances spectra of Terpinolene (1) + α-Terpineol (2) + m-Cresol (3) at 2:1:1 composition ratio at 298.15K.

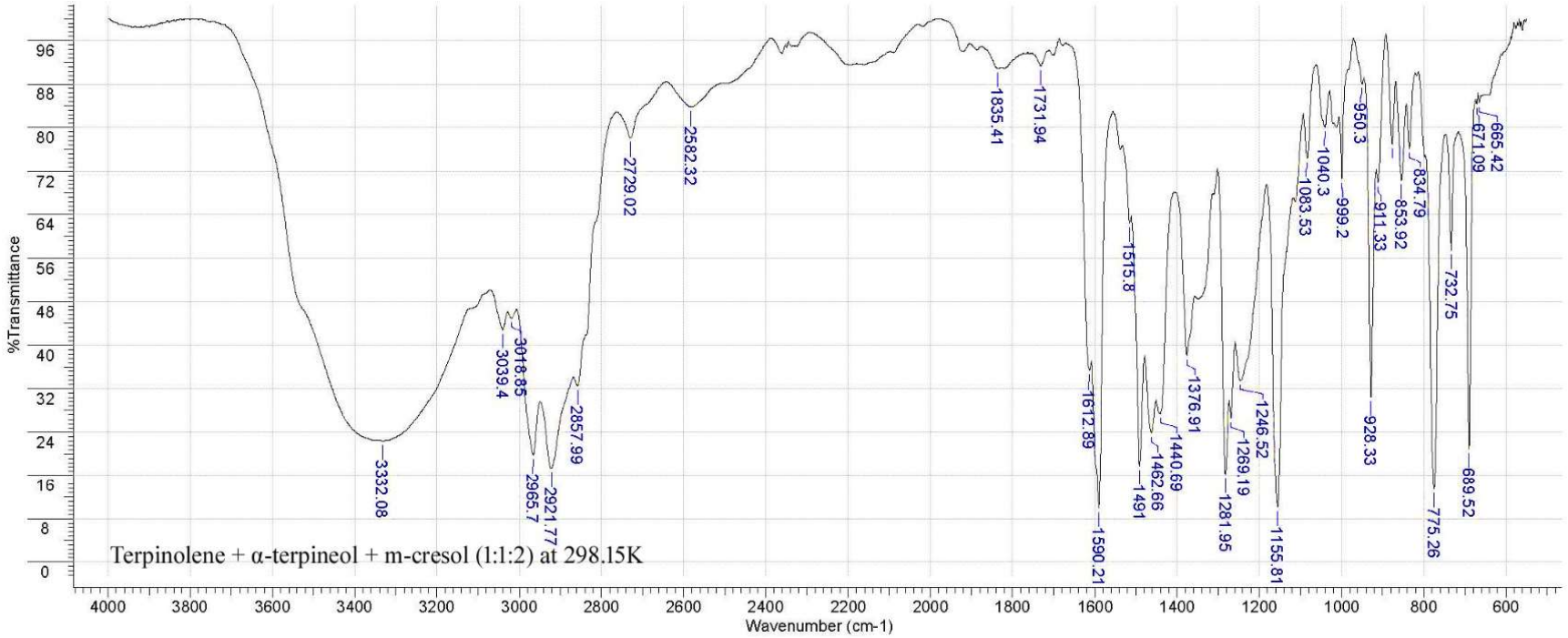


No	cm-1	%T	Intensity
1	598.10	93.621	VW
2	639.20	87.086	W
3	690.93	47.031	M
4	733.45	76.200	W
5	774.56	33.608	S
6	800.07	70.855	M
7	817.07	88.524	W
8	836.21	65.372	M
9	875.18	87.066	W
10	912.74	54.119	M
11	928.33	50.036	M
12	950.30	72.954	M
13	980.77	80.017	W

No	cm-1	%T	Intensity
14	999.20	71.580	M
15	1021.17	68.039	M
16	1044.55	77.307	W
17	1080.69	76.029	W
18	1155.81	17.762	VS
19	1225.26	47.074	M
20	1250.06	45.369	S
21	1271.32	51.958	M
22	1285.49	29.364	S
23	1367.70	33.944	S
24	1376.91	28.181	S
25	1439.98	29.967	S
26	1457.70	32.536	S

No	cm-1	%T	Intensity
27	1489.58	37.232	S
28	1590.21	30.240	S
29	1599.43	40.493	S
30	1667.46	86.933	W
31	1707.85	88.343	W
32	2487.36	92.204	VW
33	2585.16	89.824	W
34	2727.60	80.232	W
35	2923.89	11.359	VS
36	2966.41	11.291	VS
37	3039.40	54.559	M
38	3382.39	27.075	S

Fig. S9 — Experimental FT-IR transmittances spectra of Terpinolene (1) + α-Terpineol (2) + m-Cresol (3) at 1:2:1 composition ratio at 298.15K.



No	cm-1	%T	Intensity
1	665.42	84.575	W
2	671.09	84.369	W
3	689.52	21.009	S
4	732.75	57.474	M
5	775.26	13.448	VS
6	834.79	76.121	W
7	853.92	70.366	M
8	876.60	76.932	W
9	911.33	69.939	M
10	928.33	30.505	S
11	950.30	88.094	W
12	999.20	70.644	M

No	cm-1	%T	Intensity
13	1040.30	80.133	W
14	1083.53	74.389	W
15	1155.81	10.108	VS
16	1246.52	33.490	S
17	1269.19	26.544	S
18	1281.95	16.247	VS
19	1376.91	38.015	S
20	1440.69	27.399	S
21	1462.66	23.901	S
22	1491.00	17.811	VS
23	1515.80	62.468	M
24	1590.21	9.992	VS

No	cm-1	%T	Intensity
25	1612.89	35.340	S
26	1731.94	91.269	VW
27	1835.41	90.914	W
28	2582.32	83.825	W
29	2729.02	78.093	W
30	2857.99	32.500	S
31	2921.77	17.330	VS
32	2965.70	19.902	S
33	3018.85	45.021	S
34	3039.40	42.799	S
35	3332.08	22.402	S

Fig. S10 — Experimental FT-IR transmittances spectra of Terpinolene (1) + α-Terpineol (2) + m-Cresol (3) at 1:1:2 composition ratio at 298.15K.

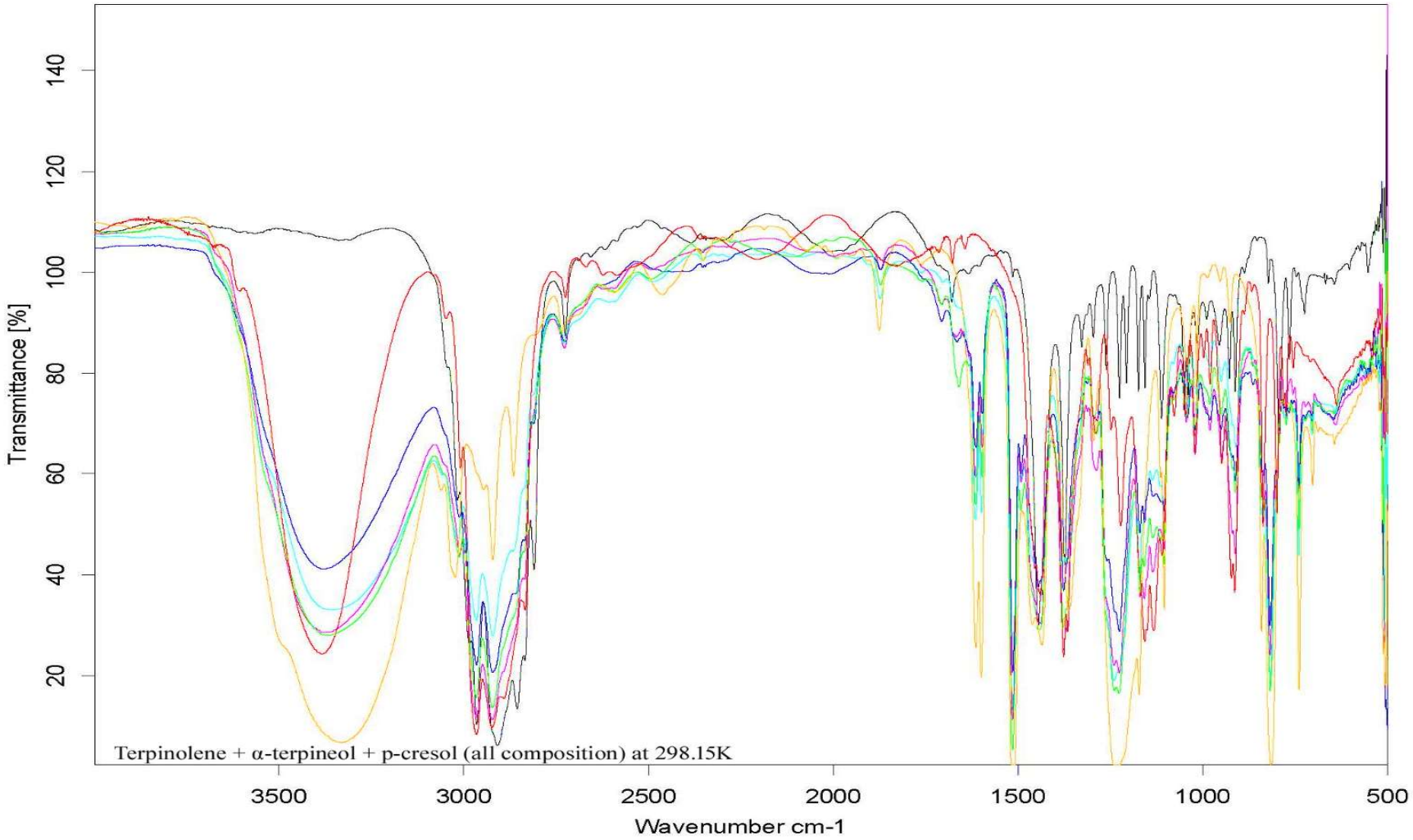
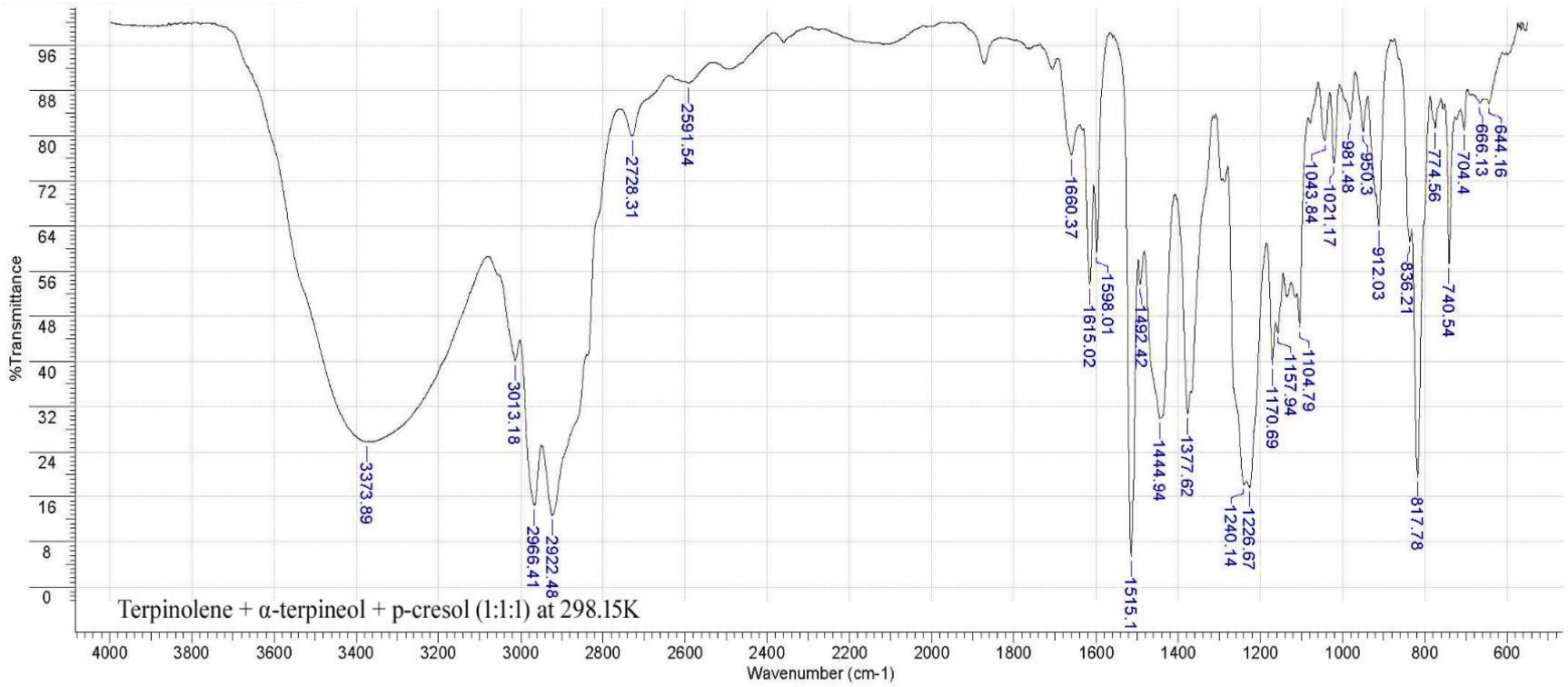
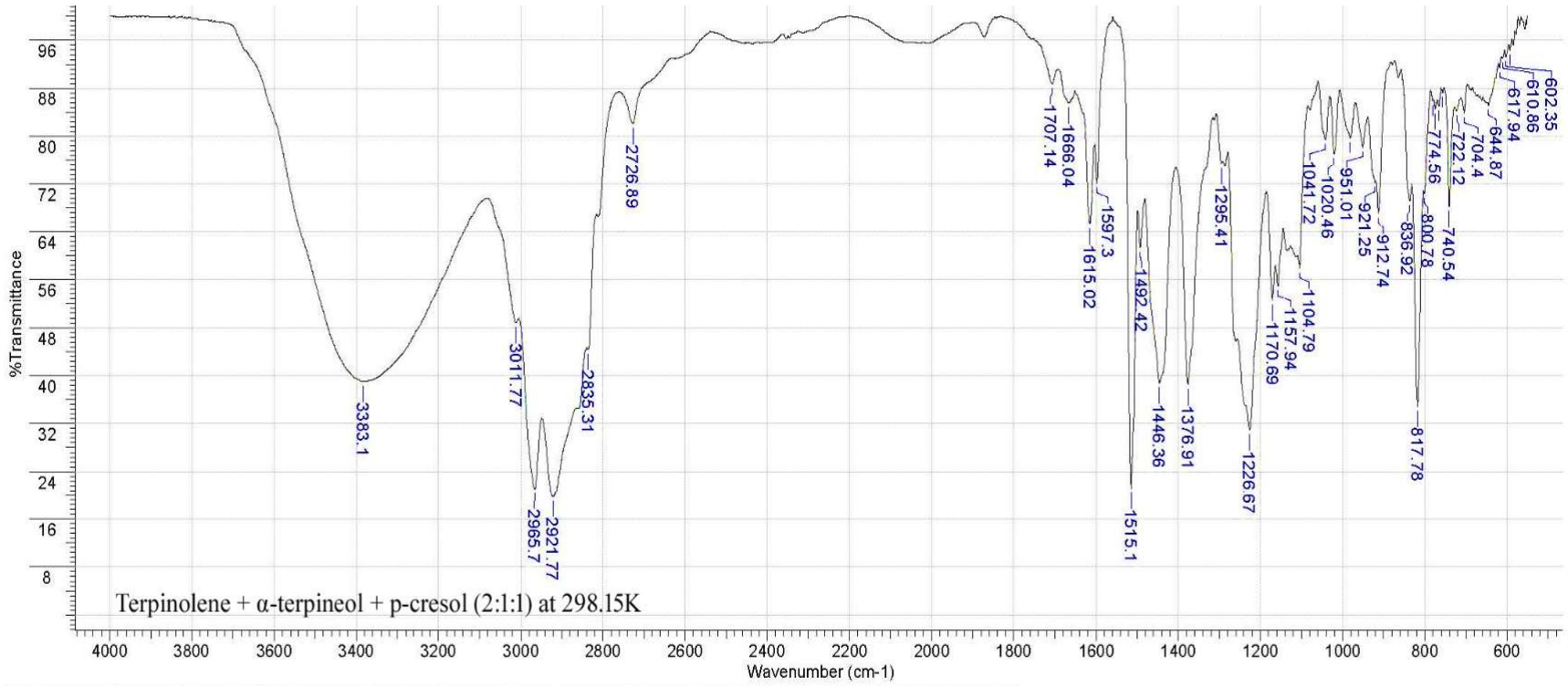


Fig. S11 — Experimental FT-IR transmittances spectra at 298.15K for Terpinolene (1) + α-terpineol (2) + p-cresol (3); ——, pure α-terpineol; ——, 1:1:1 composition ratio; ——, 2:1:1 composition ratio; ——, 1:2:1 composition ratio; ——, 1:1:2 composition ratio; ——, pure Terpinolene and ——, pure p-cresol.



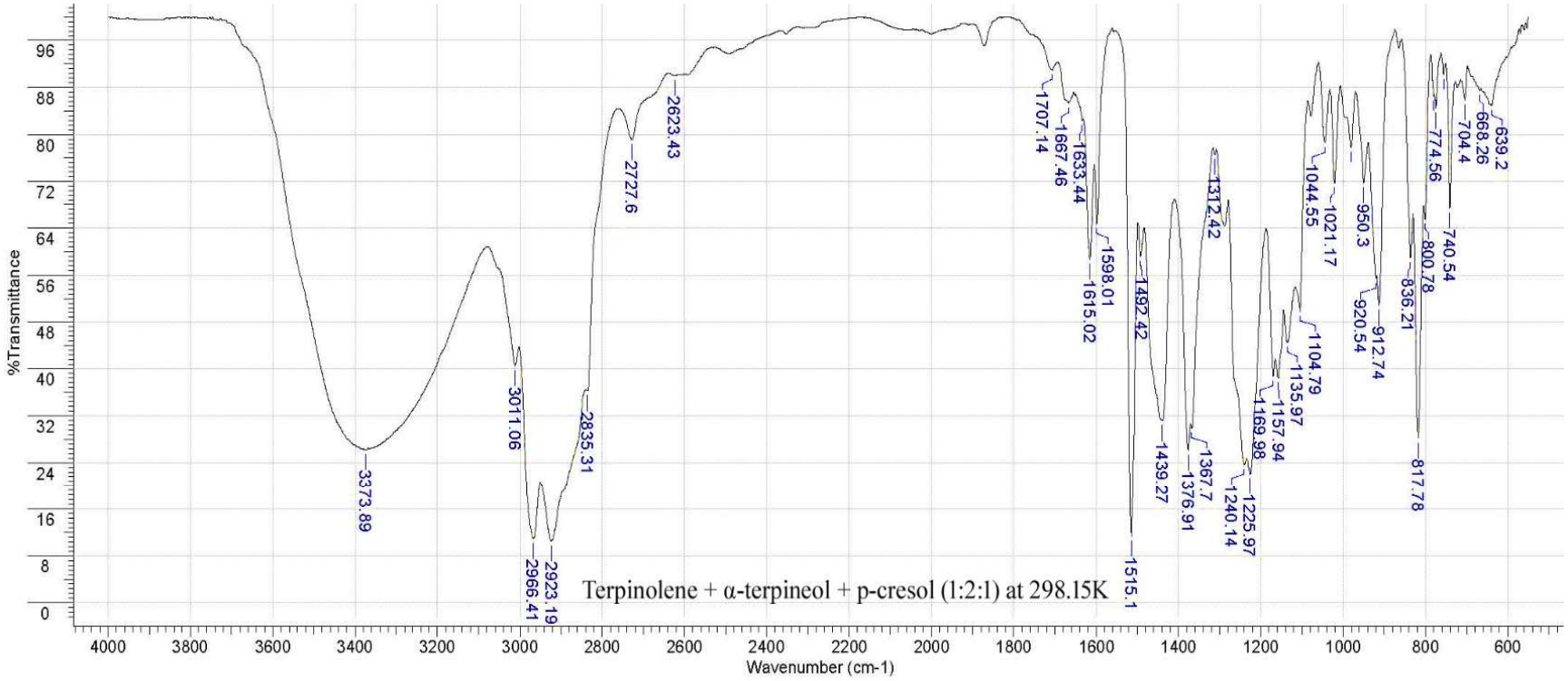
No	cm-1	%T	Intensity	No	cm-1	%T	Intensity	No	cm-1	%T	Intensity
1	644.16	85.658	W	11	1021.17	75.100	W	21	1515.10	5.403	VS
2	666.13	85.733	W	12	1043.84	79.121	W	22	1598.01	59.300	M
3	704.40	80.905	W	13	1104.79	46.017	M	23	1615.02	53.741	M
4	740.54	57.348	M	14	1157.94	45.090	M	24	1660.37	76.489	W
5	774.56	81.260	W	15	1170.69	39.346	S	25	2591.54	89.305	W
6	817.78	19.557	S	16	1226.67	17.697	S	26	2728.31	79.964	W
7	836.21	61.293	M	17	1240.14	18.250	S	27	2922.48	12.634	VS
8	912.03	63.968	M	18	1377.62	30.735	S	28	2966.41	14.455	VS
9	950.30	80.735	W	19	1444.94	29.866	S	29	3013.18	40.178	S
10	981.48	82.878	W	20	1492.42	53.685	M	30	3373.89	25.779	S

Fig. S12 — Experimental FT-IR transmittances spectra of Terpinolene (1) + α-Terpineol (2) + p-Cresol (3) at 1:1:1 composition ratio at 298.15K.



No	cm-1	%T	Intensity	No	cm-1	%T	Intensity	No	cm-1	%T	Intensity	No	cm-1	%T	Intensity
1	593.14	94.352	VW	11	774.56	84.484	W	21	1041.72	79.353	W	31	1597.30	72.166	M
2	602.35	93.243	VW	12	780.93	85.805	W	22	1104.79	57.955	M	32	1615.02	65.285	M
3	610.86	92.919	VW	13	800.78	70.440	M	23	1157.94	54.938	M	33	1666.04	85.470	W
4	617.94	91.460	W	14	817.78	34.866	S	24	1170.69	52.533	M	34	1707.14	88.761	W
5	644.87	85.186	W	15	836.92	69.172	M	25	1226.67	31.005	S	35	2726.89	82.082	W
6	704.40	83.811	W	16	912.74	67.116	M	26	1295.41	75.398	M	36	2835.31	44.401	S
7	722.12	84.160	W	17	921.25	72.291	M	27	1376.91	38.532	S	37	2921.77	19.687	VS
8	740.54	68.245	M	18	951.01	78.127	W	28	1446.36	38.749	S	38	2965.70	21.064	VS
9	756.84	87.262	W	19	981.48	79.721	W	29	1492.42	61.407	M	39	3011.77	48.829	S
10	766.05	84.979	W	20	1020.46	77.028	W	30	1515.10	21.142	VS	40	3383.10	39.020	S

Fig. S13 — Experimental FT-IR transmittances spectra of Terpinolene (1) + α-Terpineol (2) + p-Cresol (3) at 2:1:1 composition ratio at 298.15K.



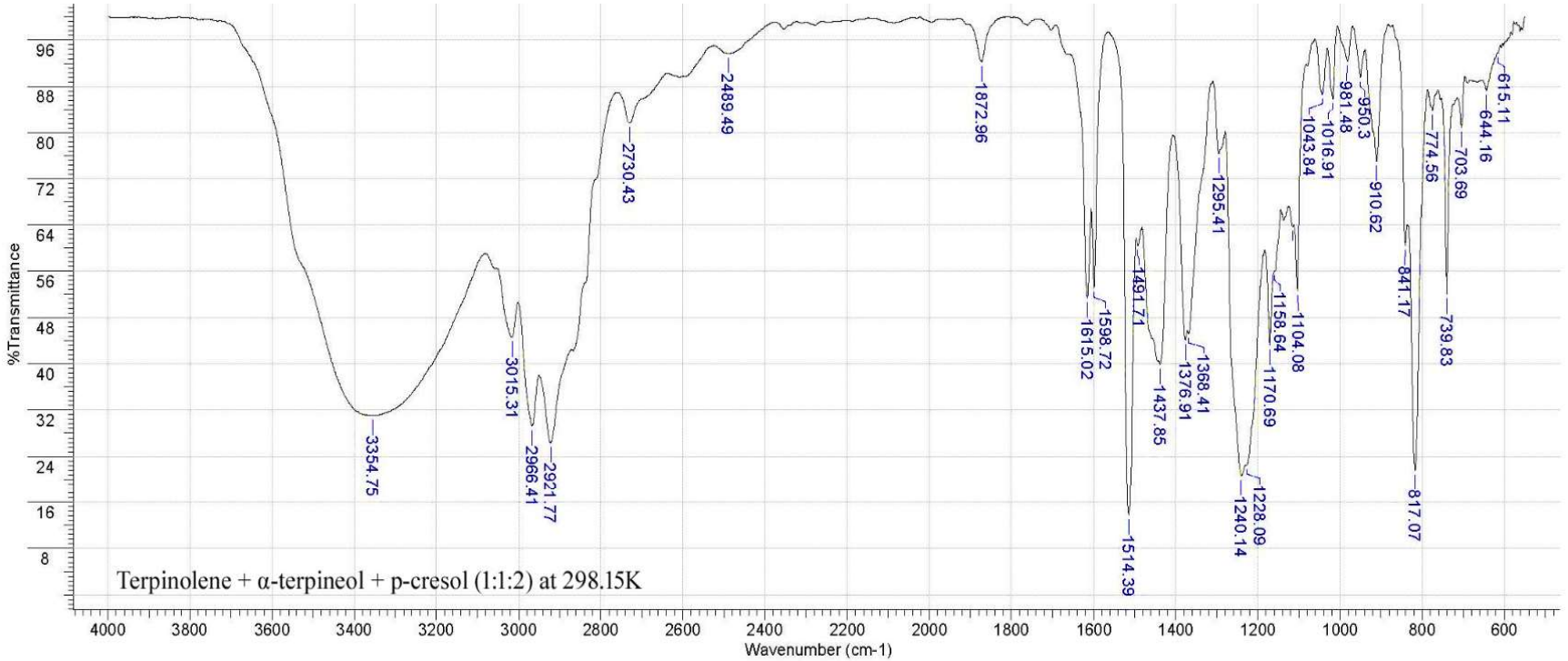
No	cm-1	%T	Intensity
1	639.20	84.942	W
2	668.26	87.429	W
3	704.40	85.904	W
4	740.54	67.385	M
5	756.13	90.209	W
6	774.56	84.457	W
7	780.22	86.534	W
8	800.78	65.546	M
9	817.78	28.204	S
10	836.21	58.936	M

No	cm-1	%T	Intensity
11	912.74	50.819	M
12	920.54	55.396	M
13	950.30	71.742	M
14	980.77	77.692	W
15	1021.17	71.737	M
16	1044.55	78.506	W
17	1104.79	49.808	M
18	1135.97	44.499	S
19	1157.94	38.431	S
20	1169.98	38.772	S

No	cm-1	%T	Intensity
21	1225.97	22.103	S
22	1240.14	23.669	S
23	1312.42	76.530	W
24	1367.70	29.927	S
25	1376.91	26.091	S
26	1439.27	31.166	S
27	1492.42	59.269	M
28	1515.10	11.309	VS
29	1598.01	64.695	M
30	1615.02	58.747	M

No	cm-1	%T	Intensity
31	1633.44	82.353	W
32	1667.46	85.395	W
33	1707.14	91.004	W
34	2623.43	90.000	W
35	2727.60	79.041	W
36	2835.31	36.229	S
37	2923.19	10.472	VS
38	2966.41	10.928	VS
39	3011.06	40.477	S
40	3373.89	26.278	S

Fig. S14 — Experimental FT-IR transmittances spectra of Terpinolene (1) + α-Terpineol (2) + p-Cresol (3) at 1:2:1 composition ratio at 298.15K.



No	cm-1	%T	Intensity
1	615.11	93.698	VW
2	644.16	87.235	W
3	703.69	80.874	W
4	739.83	52.057	M
5	774.56	83.785	W
6	817.07	21.548	VS
7	841.17	60.436	M
8	910.62	75.082	W
9	950.30	89.573	W
10	981.48	92.344	VW
11	1016.91	85.730	W

No	cm-1	%T	Intensity
12	1043.84	86.557	W
13	1104.08	52.582	M
14	1115.42	63.727	M
15	1158.64	55.995	M
16	1170.69	43.180	S
17	1228.09	22.525	S
18	1240.14	20.623	VS
19	1295.41	76.369	W
20	1368.41	45.254	S
21	1376.91	44.062	S
22	1437.85	39.938	S

No	cm-1	%T	Intensity
23	1491.71	60.420	M
24	1514.39	13.760	VS
25	1598.72	53.131	M
26	1615.02	51.431	M
27	1872.96	92.265	VW
28	2489.49	93.653	VW
29	2730.43	81.671	W
30	2921.77	26.391	S
31	2966.41	29.259	S
32	3015.31	44.597	S
33	3354.75	31.020	S

Fig. S15 — Experimental FT-IR transmittances spectra of Terpinolene (1) + α-Terpineol (2) + p-Cresol (3) at 1:1:2 composition ratio at 298.15K.