Supplemental Information

The Vaporization Enthalpies and Vapor Pressures of Some Deuterated Hydrocarbons. Liquid Vapor Pressure Isotope Effects

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Retention times

Run 1							
T/K <298>	278.35	283.45	288.25	293.05	297.85	302.65	307.55
				t_r/min			
methane	4.893	4.987	5.038	5.094	5.336	4.972	4.959
hexane-d_{14}	12.68	11.355	10.264	9.417	9.034	7.853	7.368
hexane	13.445	11.971	10.757	9.818	9.368	8.108	7.576
cyclohexane-d_{12}	20.012	17.264	15.042	13.31	12.311	10.352	9.426
cyclohexane	21.191	18.2	15.777	13.912	12.812	10.724	9.734
heptane-d_{16}	29.415	24.368	20.419	17.421	15.541	12.624	11.212
heptane	32.169	26.457	22.065	18.708	16.588	13.363	11.825
toluene-d_8	55.068	44.112	35.769	29.496	25.351	19.707	16.973
toluene	56.83	45.568	36.942	30.412	26.063	20.221	17.383

Run 1	slope	intercept	$\Delta_{sln}{}^{g}H_m$(293 K)	$\Delta_l{}^{g}H_m$(298.15 K)/ kJ·mol^{-1}	
	K		kJ·mol^{-1}	lit	calc
hexane-d_{14}	-3439.9	10.286	28.598±0.73		31.46±1.5
hexane	-3472.3	10.308	28.867±0.73	31.52	31.73±1.6
cyclohexane-d_{12}	-3576.4	10.111	29.733±0.76		32.62±1.6
cyclohexane	-3601.7	10.127	29.943±0.77	33.12	32.83±1.6
heptane-d_{16}	-4018.6	11.215	33.409±0.78		36.35±1.8
heptane	-4058.5	11.252	33.741±0.80	36.57	36.69±1.8
toluene-d_8	-4209.2	11.184	34.994±0.84		37.97±1.9
toluene	-4215.1	11.169	35.043±0.86	37.99	38.02±1.9

$\Delta_l{}^{g}H_m$ (298.15 K)/kJ·mol^{-1} = (1.017±0.053) $\Delta_{sln}{}^{g}H_m$(293 K) + (2.38±0.27), (r^2 = 0.9946) (8)

Run 2							
T/K <293>	283.3	288.1	293	297.7	302.6	307.5	312.4
				t_r/min			
methane	4.723	4.79	4.821	4.869	4.893	4.96	5.006
hexane-d_{14}	10.774	9.767	8.921	8.283	7.755	7.384	7.071
hexane	11.364	10.242	9.303	8.594	8.011	7.594	7.247
cyclohexane-d_{12}	16.382	14.306	12.603	11.302	10.256	9.47	8.826
cyclohexane	17.293	15.041	13.183	11.773	10.637	9.782	9.084
heptane-d_{16}	23.141	19.423	16.494	14.302	12.571	11.283	10.25
heptane	25.141	20.985	17.702	15.258	13.334	11.897	10.756
toluene-d_8	41.877	34.027	27.926	23.336	19.798	17.12	15.009
toluene	43.361	35.183	28.778	24.026	20.331	17.557	15.376

Run 2	slope K	intercept	$\Delta_{sln}{}^{g}H_m$(298 K) kJ·mol^{-1}	$\Delta_l{}^{g}H_m$(298.15 K)/ kJ·mol^{-1} lit	 calc
hexane-d_{14}	-3277.6	9.776	27.25±0.17		31.43±1.6
hexane	-3312.3	9.805	27.54±0.17	31.52	31.74±1.6
cyclohexane-d_{12}	-3401.3	9.557	28.28±0.18		32.54±1.6
cyclohexane	-3432.5	9.592	28.54±0.18	33.12	32.82±1.7
heptane-d_{16}	-3827.2	10.605	31.82±0.20		36.37±1,8
heptane	-3862.6	10.627	32.11±0.22	36.57	36.69±1.9
toluene-d_8	-3999.1	10.51	33.25±0.21		37.92±1.9
toluene	-4010.6	10.512	33.34±0.23	38.06	38.02±1.9

$\Delta_l{}^{g}H_m$ (298.15 K)/kJ·mol^{-1} = (1.081±0.057) $\Delta_{sln}{}^{g}H_m$(293 K) + (1.97±0.28), (r^2 = 0.9944) (9)

Run 3 T/K <273.6>	258.6	263.5	268.5	273.3	278.6	283.8	288.7
				t_r/min			
methane	4.204	4.266	4.34	4.373	4.413	4.465	4.522
hexane-d_{14}	21.918	18.073	15.284	13.063	11.391	10.133	9.172
hexane	23.87	19.554	16.424	13.945	12.085	10.686	9.614
benzene-d_6	41.918	33.273	27.009	22.163	18.543	15.819	13.733
benzene	42.697	33.903	27.486	22.543	18.842	16.061	13.925
heptane-d_{16}	69.105	52.859	41.349	32.655	26.333	21.675	18.172
heptane	77.121	58.653	45.643	35.908	28.779	23.548	19.625

Run 3	slope K	intercept	$\Delta_{sln}{}^{g}H_m$(274 K) kJ·mol^{-1}	$\Delta_l{}^{g}H_m$(298.15 K)/ kJ·mol^{-1} lit	 calc
hexane-d_{14}	-3307.3	9.9266	27.496±0.21		31.73±7.0
hexane	-3340.7	9.9517	27.773±0.21	31.52	32.01±7.0
benzene-d_6	-3484.4	9.8571	28.968±0.22		33.25±7.4
benzene	-3484.5	9.8363	28.969±0.22	33.92	33.25±7.4
heptane-d_{18}	-3855.0	10.748	32.049±0.24		36.43±8.2
heptane	-3891.3	10.773	32.351±0.24	36.57	36.74±8.2

$\Delta_l{}^{g}H_m$ (298.15 K)/kJ·mol^{-1} = (1.0333±0.253) $\Delta_{sln}{}^{g}H_m$(274 K) + (3.316±0.88), (r^2 = 0.943) (10)

Run 4 T/K <281>	263.6	268.6	273.7	278.9	284.0	288.8	293.7	298.5
				t_r/min				
methane	4.274	4.392	4.416	4.473	4.572	4.645	4.549	4.626
hexane-d_{14}	18.144	15.419	13.147	11.517	10.337	9.427	8.413	7.852
hexane	19.621	16.569	14.035	12.215	10.895	9.88	8.774	8.145
benzene-d_6	33.365	27.275	22.31	18.731	16.116	14.11	12.128	10.892
benzene	33.976	27.765	22.695	19.04	16.356	14.311	12.287	11.025
heptane-d_{16}	53.06	41.745	32.894	26.601	22.06	18.668	15.539	13.521
heptane	58.84	46.096	36.157	29.072	23.968	20.164	16.679	14.435

Run 4	slope K	intercept	$\Delta_{sln}{}^{g}H_m$(281 K) kJ·mol^{-1}	$\Delta_l{}^{g}H_m$(298.15 K)/ kJ·mol^{-1} lit	 calc
hexane-d_{14}	-3270.8	9.7785	27.192±0.20		31.74±7.0
hexane	-3302.8	9.7985	27.458±0.20	31.52	32.02±7.0
benzene-d_6	-3446	9.7015	28.649±0.20		33.25±7.3
benzene	-3446.4	9.682	28.652±0.20	33.92	33.25±7.3
heptane-d_{18}	-3820.3	10.605	31.760±0.20		36.46±8.1
heptane	-3854	10.62	32.041±0.20	36.57	36.74±8.2

$\Delta_l{}^{g}H_m$ (298.15 K)/kJ·mol^{-1} = (1.032±0.254) $\Delta_{sln}{}^{g}H_m$(281 K) + (3.684±0.853), (r^2 = 0.9429)

Run 5 T/K <366>	353.65	358.85	363.95 t_r/min	368.95	373.95	379.15
methane	0.646	0.647	0.653	0.66	0.665	0.668
heptane-d_{16}	1.022	0.971	0.938	0.911	0.888	0.866
heptane	1.052	0.996	0.959	0.93	0.904	0.879
toluene-d_8	1.272	1.186	1.126	***1.072***	***1.028***	***0.988***
toluene	1.291	1.202	1.139	***1.083***	***1.038***	***0.996***
octane-d_{18}	1.421	1.306	1.223	1.151	1.093	1.041
octane	1.488	1.362	1.271	1.191	1.127	1.071
p-xylene-d_{10}	1.942	1.752	1.607	1.472	1.371	1.285
p-xylene	1.993	1.796	1.645	1.504	1.398	1.308
o-xylene-d_{10}	2.158	1.932	1.761	1.602	1.482	1.381
o-xylene	2.229	1.999	1.819	1.647	1.521	1.416
decane-d_{22}	3.863	3.295	2.866	2.491	2.209	1.983
decane	4.216	3.594	3.116	2.688	2.374	2.124
naphthalene-d_{10}	11.046	9.128	7.673	6.407	5.471	4.731
naphthalene	11.231	9.294	7.807	6.518	5.56	4.804
biphenyl-d_{10}	36.907	29.116	23.343	18.664	15.204	12.556
diphenyl	37.692	29.853	23.95	19.113	15.58	12.859
hexamethylbenzene-d_{18}	57.206	44.716	35.394	27.959	22.498	18.306
hexamethylbenzene	62.675	49.02	38.769	30.516	24.51	19.929

Run 5	slope K	intercept	$\Delta_{sln}{}^{g}H_m$(366 K) kJ·mol^{-1}	$\Delta_l{}^{g}H_m$(298.15 K)/ kJ·mol^{-1} lit	 calc
heptane-d_{16}	-3361.3	10.489	27.946±0.26		35.81±0.9
heptane	-3420.8	10.58	28.441±0.23	36.57	36.50±0.9
toluene-d_8	-3448.3	10.226	28.669±0.15		37.76±0.9
toluene	-3558.9	10.503	29.589±0.64	38.06	38.10±0.9
octane-d_{18}	-3847.7	11.137	31.990±0.16		41.44±1.0
octane	-3882.2	11.151	32.277±0.19	41.56	41.84±1.0
p-xylene-d_{10}	-3934.5	10.865	32.711±0.33		42.45±1.0
p-xylene	-3945.5	10.857	32.803±0.32	42.42	42.58±1.0
o-xylene-d_{10}	-3982.4	10.847	33.110±0.32		43.00±1.0
o-xylene	-3987.1	10.811	33.149±0.41	43.45	43.06±1.0
decane-d_{22}	-4738.1	12.23	39.393±0.35		51.76±1.1
decane	-4762.2	12.192	39.593±0.42	51.42	52.04±1.1
naphthlene-d_{10}	-4981.5	11.745	41.416±0.39		54.58±1.2
naphthlene	-4982.8	11.73	41.427±0.38	55.40	54.59±1.2
biphenyl-d_{10}	-5901.8	13.098	49.068±0.36		65.23±1.4
diphenyl	-5888.7	13.038	48.959±0.38	64.90	65.08±1.4
hexamethylbenzene-d_{18}	-6166.2	13.399	51.266±0.33		68.30±1.4
hexamethylbenzene	-6195.8	13.39	51.512±0.37		68.64±1.4

$\Delta_l{}^{g}H_m$ (298.15 K)/kJ·mol^{-1} = (1.393±0.026) $\Delta_{sln}{}^{g}H_m$(366 K) - (3.132±0.471), (r^2 = 0.9980)

Run 6 T/K <366> Run 6	353.65	358.75	363.75 t_r/min	368.95	373.95	378.95
methane	0.646	0.653	0.652	0.658	0.666	0.671
heptane-d_{16}	1.023	0.977	0.937	0.91	0.89	0.87
heptane	1.052	1.002	0.958	0.928	0.905	0.884
toluene-d_8	1.274	1.191	1.123	1.073	***1.03***	***0.993***
toluene	1.293	1.206	1.135	1.083	***1.04***	***1.002***
octane-d_{18}	1.424	1.308	1.218	1.15	1.094	1.046
octane	1.491	1.364	1.265	1.19	1.128	1.076
p-xylene-d_{10}	1.946	1.741	1.59	1.471	1.368	1.286
p-xylene	1.998	1.784	1.626	1.502	1.395	1.309
o-xylene-d_{10}	2.162	1.92	1.741	1.6	1.479	1.381
o-xylene	2.234	1.977	1.791	1.644	1.514	1.414
decane-d_{22}	3.873	3.266	2.83	2.487	2.2	1.977
decane	4.226	3.543	3.061	2.68	2.356	2.111
naphthalene-d_{10}	11.055	9.027	7.555	6.39	5.427	4.688
naphthalene	11.238	9.171	7.678	6.497	5.511	4.76
biphenyl-d_{10}	36.909	28.909	23.087	18.637	15.118	12.447
diphenyl	37.704	29.502	23.583	19.055	15.438	12.729
hexamethylbenzene-d_{18}	57.25	44.36	34.993	27.919	22.351	18.171
hexamethylbenzene	62.725	48.503	38.216	30.438	24.309	19.737

Run 6	slope K	intercept	$\Delta_{sln}{}^{g}H_m$(366 K) / kJ·mol^{-1}	$\Delta_l{}^{g}H_m$(298 K)/ kJ·mol^{-1} lit	 calc
heptane-d_{16}	-3347.2	10.45	27.827±0.39		35.79±0.9
heptane	-3393.7	10.507	28.214±0.36	36.57	36.31±0.9
toluene-d_8	-3489.3	10.34	28.879±0.38		37.39±0.9
toluene	-3576.1	10.554	29.628±0.36	38.06	38.38±0.9
octane-d_{18}	-3831.6	11.095	31.854±0.40		41.26±1.0
octane	-3866.9	11.113	32.148±0.40	41.56	41.66±1.0
p-xylene-d_{10}	-3933.2	10.87	32.699±0.44		42.41±1.0
p-xylene	-3945.2	10.865	32.799±0.44	42.42	42.55±1.0
o-xylene-d_{10}	-3985.3	10.863	33.132±0.43		43.00±1.0
o-xylene	-3992.8	10.839	33.195±0.48	43.45	43.08±1.0
decane-d_{22}	-4761.7	12.304	39.587±0.45		51.77±1.1
decane	-4794.2	12.293	39.857±0.49	51.42	52.14±1.1
naphthlene-d_{10}	-5022.4	11.868	41.754±0.38		54.72±1.2
naphthlene	-5019.5	11.842	41.730±0.39	55.40	54.69±1.2
biphenyl-d_{10}	-5941.4	13.216	49.394±0.30		65.10±1.4
biphenyl	-5930.6	13.164	49.305±0.33	64.90	64.98±1.4
hexamethylbenzene-d_{18}	-6203.1	13.51	51.570±0.28		68.06±1.4
hexamethylbenzene	-6238.5	13.518	51.864±0.28		68.46±1.4

$\Delta_l{}^{g}H_m$ (298.15 K)/kJ·mol^{-1} = (1.36±0.025) $\Delta_{sln}{}^{g}H_m$(366 K) - (2.05±0.48), (r^2 = 0.9979)

Run 7 *T*/K <432>	419.45	424.25	429.15 t_r/min	434.15	439.05	443.65
CH_2Cl_2	0.742	0.753	0.753	0.76	0.759	0.773
naphthalene	1.93	1.795	1.669	1.565	1.477	1.416
biphenyl-d_{10}	3.518	3.141	2.806	***2.529***	***2.301***	***2.129***
biphenyl	3.573	3.185	2.842	***2.560***	***2.328***	***2.152***
hexamethylbenzene-d_{18}	4.589	4.034	3.548	3.151	2.826	2.578
hexamethylbenzene	4.863	4.266	3.742	3.315	2.964	2.698
phenanthrene-d_{10}	16.287	13.725	11.552	9.809	8.411	7.325
phenanthrene	16.561	13.955	11.745	9.969	8.543	7.438
anthracene-d_{10}	17.032	14.34	12.054	10.222	8.752	7.616
anthracene	17.272	14.53	12.217	10.355	8.865	7.706

Run 7	slope K	intercept	$\Delta_{sln}{}^{g}H_m$(432 K) / kJ·mol^{-1}	$\Delta_l{}^{g}H_m$(298.15 K)/ kJ·mol^{-1} lit	 calc
naphthalene	-4715.8	11.074	39.205±0.28	55.40	55.36±0.3
diphenyl-d_{10}	-5510.3	12.118	45.810±0.21		64.77±.03
diphenyl	-5528.6	12.143	45.963±0.24	64.90	64.99±0.3
hexamethylbenzene-d_{18}	-5819	12.528	48.377±0.23		68.43±0.3
hexamethylbenzene	-5856.2	12.548	48.686±0.22		68.87±0.3
phenanthrene-d_{10}	-6642.8	13.096	55.226±0.22		78.20±0.4
phenanthrene	-6646.5	13.087	55.256±0.21	78.30	78.24±0.4
anthracene-d_{10}	-6670.9	13.116	55.459±0.22		78.53±0.4
anthracene	-6679.3	13.121	55.529±0.21	78.60	78.63±0.4

$\Delta_l{}^{g}H_m$ (298.15 K)/kJ·mol^{-1} = (1.426±0.006) $\Delta_{sln}{}^{g}H_m$(432 K) - (0.55±0.084), (r^2 = 0.9999)

Run 8 T/K <424>	409.45	414.35	419.45	424.35 t_r/min	429.35	434.25	439.25
CH_2Cl_2	0.737	0.736	0.739	0.746	0.748	0.754	0.759
naphthalene	2.288	2.093	1.925	1.781	1.658	1.558	1.473
diphenyl-d_{10}	4.55	3.979	3.507	3.113	2.787	2.517	***2.293***
diphenyl	4.626	4.045	3.563	3.159	2.822	2.547	***2.319***
hexamethylbenzene-d_{18}	6.113	5.268	4.575	3.999	3.522	3.134	2.814
hexamethylbenzene	6.515	5.598	4.848	4.227	3.713	3.296	2.951
phenanthrene-d_{10}	23.609	19.506	16.242	13.597	11.467	9.752	8.361
phenanthrene	24.033	19.851	16.516	13.83	11.659	9.913	8.492
anthracene-d_{10}	24.751	20.431	16.976	14.207	11.969	10.162	8.702
anthracene	25.105	20.732	17.223	14.403	12.132	10.298	8.811

Run 8	slope K	intercept	$\Delta_{sln}{}^{g}H_m$(424 K) kJ·mol^{-1}	$\Delta_l{}^{g}H_m$(298.15 K)/ kJ·mol^{-1} lit	 calc
naphthalene	-4706.3	11.054	39.13±0.16	55.40	55.09±0.2
diphenyl-d_{10}	-5504.8	12.108	45.77±0.15		64.46±0.3
diphenyl	-5528.5	12.145	45.96±0.15	64.90	64.73±0.3
hexamethylbenzene-d_{18}	-5816.5	12.525	48.36±0.15		68.11±0.3
hexamethylbenzene	-5860.2	12.56	48.72±0.15		68.63±0.3
phenanthrene-d_{10}	-6653.2	13.122	55.32±0.18		77.93±0.3
phenanthrene	-6659.1	13.118	55.36±0.17	78.30	78.00±0.3
anthracene-d_{10}	-6681.8	13.143	55.55±0.17		78.27±0.3
anthracene	-6688.6	13.145	55.61±0.16	78.60	78.35±0.3

$\Delta_l{}^{g}H_m$ (298.15 K)/kJ·mol^{-1} = (1.411±0.006) $\Delta_{sln}{}^{g}H_m$(424 K) - (0.13±0.08), (r^2 = 0.9999)

Run 9	454.9	459.9	464.7	469.6	474.6	479.6	484.5
				t_r/min			
CH_2Cl_2	0.76	0.76	0.77	0.77	0.77	0.78	0.78
naphthalene	1.24	1.19	1.16	1.13	1.1	1.07	1.05
acenaphthene-d_{10}	2.317	2.132	1.973	1.841	1.719	1.636	1.545
acenaphthene	2.35	2.16	2	1.86	1.74	1.65	1.55
phenanthrene-d_{10}	5.32	4.685	4.162	3.72	3.39	3.035	2.759
phenanthrene	5.4	4.75	4.22	3.77	3.39	3.07	2.79
p-terphenyl-d_{10}	19.09	15.93	13.42	11.38	9.71	8.33	7.19
p-terphenyl	19.43	16.21	13.65	11.57	9.87	8.46	7.3
chrysene-d_{12}	42.41	34.99	29.1	24.36	20.49	17.33	14.73
chrysene	43.23	35.63	29.65	24.81	20.86	17.63	14.98
perylene-d_{12}	141.22	113.76	92.2	74.88	61.64	50.78	42.05
perylene	144.04	115.44	93.79	76.38	62.59	51.53	42.7

Run 9	slope	intercept	$\Delta_{sln}{}^{g}H_m$(470 K)	$\Delta_l{}^{g}H_m$(298.15 K)/ kJ·mol^{-1}	
	K		kJ·mol^{-1}	lit	calc
naphthalene	-4278.7	10.143	35.57±	55.40	53.45±3.1
acenaphthene-d_{10}	-5288.3	11.189	44.00±		67.18±3.5
acenaphthene	-5369.8	11.334	44.64±	66.20	68.28±3.5
phenanthrene-d_{10}	-6178.1	12.068	51.36±		79.27±3.8
phenanthrene	-6217.9	12.139	51.69±	78.30	79.82±3.9
p-terphenyl-d_{10}	-7812.9	14.272	64.95±		101.5±4.6
p-terphenyl	-7823.8	14.278	65.04±	102.00	101.65±4.6
chrysene-d_{12}	-8136.1	14.162	67.64±		105.9±4.7
chrysene	-8147.2	14.167	67.73±	108.40	106.05±4.7
perylene-d_{12}	-9117.2	15.103	75.80±		119.24±5.2
perylene	-9140.1	15.135	75.99±	118.50	119.55±5.2

$\Delta_l{}^{g}H_m$ (298.15 K)/kJ·mol^{-1} = (1.636±0.060) $\Delta_{sln}{}^{g}H_m$(470 K) - (4.433±2.07), (r^2 = 0.9946)

Run 10	455.5	460.8	465.8	469.9	476.1	480.8	485.9
				t_r/min			
CH_2Cl_2	0.78	0.78	0.79	0.79	0.8	0.8	0.8
naphthalene	1.27	1.22	1.18	1.15	1.13	1.1	1.07
acenaphthene-d_{10}	2.363	2.17	2.018	1.8805	1.78	1.666	1.574
acenaphthene	2.4	2.2	2.04	1.9	1.796	1.68	1.59
phenanthrene-d_{10}	5.44	4.8	4.254	3.802	3.449	3.14	2.822
phenanthrene	5.51	4.85	4.31	3.85	3.49	3.14	2.85
p-terphenyl-d_{10}	19.49	16.26	13.69	11.6	9.98	8.53	7.35
p-terphenyl	19.84	16.54	13.93	11.8	10.14	8.66	7.47
chrysene-d_{12}	43.33	35.71	29.71	24.84	21.06	17.73	15.06
chrysene	44.16	36.37	30.26	25.28	21.43	18.04	15.32
perylene-d_{12}	144.66	115.84	93.92	76.53	63.31	51.93	43
perylene	146.56	117.77	95.41	77.85	64.18	52.8	43.77

Run 10	slope	intercept	$\Delta_{sln}{}^{g}H_m$(471 K)	$\Delta_l{}^{g}H_m$(298.15 K)/ kJ·mol^{-1}	
	K		kJ·mol^{-1}	lit	calc
naphthalene	-4253.2	10.058	35.359±	55.40	54.07±2.6
acenaphthene-d_{10}	-5185.4	10.929	43.109±		67.23±2.9
acenaphthene	-5217.5	10.978	43.376±	66.20	67.68±2.9
phenanthrene-d_{10}	-6024.5	11.692	50.085±		79.07±3.2
phenanthrene	-6069.7	11.775	50.461±	78.30	79.71±3.2
p-terphenyl-d_{10}	-7623	13.812	63.375±		101.63±3.8
p-terphenyl	-7630.6	13.811	63.438±	102.00	101.74±3.8
chrysene-d_{12}	-7945.3	13.698	66.054±		106.18±3.9
chrysene	-7954.1	13.698	66.127±	108.40	106.3±3.9
perylene-d_{12}	-8908.9	14.597	74.065±		119.78±4.3
perylene	-8888.5	14.538	73.896±	118.50	119.49±4.3

$\Delta_l{}^{g}H_m$ (298.15 K)/kJ·mol^{-1} = (1.698±0.053) $\Delta_{sln}{}^{g}H_m$(471 K) - (5.954±1.75), (r^2 = 0.9961)

Run 11							
	528.9	534	539.1	544.2	549.2	554.35	559.45
				t_r/min			
carbon tetrachloride	0.405	0.408	0.403	0.395	0.392	0.390	0.382
octacosane	10.831	9.115	7.650	6.484	5.535	4.755	4.105
perylene	14.380	12.412	10.693	9.270	8.080	7.080	6.260
triacontane	18.122	14.995	12.401	10.352	8.705	7.364	6.260
hentricontane	23.413	19.231	15.798	13.092	10.933	9.183	7.758
dibenz[a,h]anthracene	27.433	23.276	19.709	16.815	14.432	12.437	10.766
dotriacontane	30.275	24.640	20.112	16.570	13.735	11.463	9.619
tritriacontane	39.103	31.618	25.598	20.950	17.265	14.330	11.941

Run 11	slope	intercept	$\Delta_{sln}{}^{g}H_m$(544 K)	$\Delta_l{}^{g}H_m$(298.15 K)/ kJ·mol^{-1}	
	K		kJ·mol^{-1}	lit	calc
perylene	-8434	13.312	70.117		118.3
dibenz[a,h]anthracene	-9288	14.266	77.217		131.1
octacosane	-10001	16.568	83.144	141.9	141.8
triacontane	-10706	17.372	89.005	152.3	152.4
hentricontane	-11041	17.744	91.791	157.3	157.4
dotriacontane	-11381	18.126	94.617	162.5	162.5
tritriacontane	-11715	18.499	97.394	167.6	167.5

$\Delta_l{}^{g}H_m$ (298.15 K)/kJ·mol^{-1} = (1.803±0.009) $\Delta_{sln}{}^{g}H_m$(544 K) - (8.098±0.11), (r^2 = 0.9999)

Run 12	528.85	534	539.1	544.2	549.3	554.4	559.5
				t_r/min			
octacosane	0.373	0.359	0.360	0.413	0.406	0.403	0.395
perylene	10.775	9.135	7.700	6.546	5.577	4.784	4.130
triacontane	14.307	12.472	10.781	9.359	8.147	7.122	6.291
hentricontane	18.105	15.056	12.490	10.436	8.767	7.405	6.291
1,2:3,4 dibenzanthracene	23.403	19.323	15.905	13.192	11.002	9.227	7.795
dotriacontane	27.615	23.465	19.895	16.935	14.532	12.490	10.808
tritriacontane	30.292	24.804	20.270	16.709	13.824	11.516	9.669

Run 12	slope	intercept	$\Delta_{sln}{}^{g}H_m$(544 K)	$\Delta_l{}^{g}H_m$(298.15 K)/ kJ·mol^{-1}	
	K		kJ·mol^{-1}	lit	calc
perylene	-8397.1	13.237	69.810		118.5
1,2:3,4 dibenzanthracene	-9327.7	14.332	77.547		132.3
octacosane	-9963.2	16.492	82.830	141.9	141.8
triacontane	-10680	17.316	88.789	152.3	152.4
hentricontane	-11013	17.686	91.558	157.3	157.4
dotriacontane	-11357	18.075	94.418	162.5	162.5
tritriacontane	-11693	18.452	97.211	167.6	167.5

$\Delta_l{}^{g}H_m$ (298.15 K)/kJ·mol^{-1} = (1.787±0.012) $\Delta_{sln}{}^{g}H_m$(544 K) - (6.27±0.13), (r^2 = 0.9999)

Equations used in evaluating the vapor pressure of perylene from T = 298 to T = 500 K at 20 K intervals[1]

	$\frac{A*10^{-8}}{T^3}$	$\frac{B*10^{-6}}{T^2}$	$\frac{C}{T}$	D
octacosane	3.1389	-4.312	1279.4	5.8835
triacontane	3.4404	-4.6998	1601.6	5.7696
hentriacontane	3.6037	-4.9002	1791.2	5.679
dotriacontane	3.7524	-5.0921	1947.2	5.63
tritriacontane	3.8983	-5.2809	2098	5.585

1. Chickos, J. S.; Hanshaw, W. "Vapor pressures and vaporization enthalpies of the n-alkanes from C_{31}-C_{38} at T = 298.15 by correlation-gas chromatography, *J. Chem. Eng. Data.* **2004**, *49*, 620-630.