

**Table S1. Coefficients of polynomials**

**Таблица S1. Коэффициенты полинома**

$$\Phi^{\circ}(T) = a \ln x + bx^{-2} + cx^{-1} + dx + ex^2 + fx^3, [\text{J mol}^{-1} \text{K}^{-1}; x = 10^{-4} \cdot T/\text{K}];$$

$$H^{\circ}(T) - H^{\circ}(0) = 10(ax - 2bx^{-1} - c + dx^2 + 2ex^3 + 3fx^4), [\text{kJ mol}^{-1}; x = 10^{-4} \cdot T/\text{K}].$$

Compound	$\Delta T$ , K	$a$	$b$	$c$	$d$	$e$	$f$
1	2	3	4	5	6	7	8
LaI <sub>3,cr</sub>	298–1051	-41.2039	0.0212521	-3.46131	2391.07	-9228.29	19277.7
	1051–2000	-101.154	0.248113	-18.1855	1780.95	-3099.55	2846.57
CeI <sub>3,cr</sub>	298.15–1033	-45.3319	0.0211380	-3.62515	2452.02	-9289.39	19500.9
	1033–2000	-106.897	0.260267	-18.5991	1829.94	-3164.62	2889.88
PrI <sub>3,cr</sub>	298.15–1011	-42.7778	0.0175379	-3.24705	2594.85	-10473.8	23384.6
	1011–2000	-110.465	0.261810	-19.1578	1854.59	-3198.41	2905.43
NdI <sub>3,cr</sub>	298.15–847	26.0410	-0.0495321	4.39812	5511.51	-42263.0	140086
	847–1060	-55.7744	-0.245857	1.51582	794.493	9109.86	-40291.6
	1060–2000	-115.324	0.290566	-20.1945	1817.48	-3004.26	2615.33
GdI <sub>3,cr</sub>	298.15–1013	-46.0975	0.0193661	-3.41485	2612.66	-10738.5	22942.6
	1013–1203	-70.2306	-1.33123	24.5432	-3079.02	39566.3	-111044
	1203–2000	-110.093	0.295518	-19.1016	1767.15	-2914.03	2545.74
TbI <sub>3,cr</sub>	298.15–1080	-48.7355	0.0211117	-3.63148	2571.75	-10008.2	20493.2
	1080–1228	237.643	-1.26146	57.5892	5575.01	-24514.9	40597.4
	1228–2000	-104.198	0.239091	-17.4827	1860.93	-3249.39	2973.50
DyI <sub>3,cr</sub>	298.15–1101	-63.6238	0.0356338	-5.27070	2017.24	-4448.69	3012.62
	1101–1256	-1.05652	-4.19573	74.1374	-1696.33	7634.71	24192.8
	1256–2000	-103.799	0.229214	-17.4659	1894.60	-3372.77	3146.31
HoI <sub>3,cr</sub>	298.15–1280	-55.0914	0.027120	-4.30731	2372.34	-8124.19	14965.0
	1280–2000	-90.4045	0.136400	-13.8815	1956.82	-3693.33	3578.51
ErI <sub>3,cr</sub>	298.15–1288	-55.1890	0.0274025	-4.33422	2361.42	-8040.64	14718.9
	1288–2000	113.306	-1.16398	36.1450	3548.56	-10932.7	13752.2
TmI <sub>3,cr</sub>	298.15–1294	-54.5861	0.0292837	-4.41862	2413.22	-8529.59	15573.8
	1294–2000	-106.996	0.255549	-18.2457	1818.06	-3100.57	2777.82
LuI <sub>3,cr</sub>	298.15–1320	-48.2643	0.0272987	-4.07362	2254.09	-7684.56	13858.5
	1320–2000	-122.804	0.403373	-24.1554	1594.87	-2251.03	1662.75
LaI <sub>3</sub>	298.15–2000	-135.525	0.0569545	-7.94652	2623.43	-7224.76	9829.29
CeI <sub>3</sub>	298.15–2000	-139.813	0.0571837	-8.08816	2684.56	-7274.64	9761.52
PrI <sub>3</sub>	298.15–2000	-141.106	0.0579951	-8.20852	2692.31	-7271.29	9800.73
NdI <sub>3</sub>	298.15–2000	-141.122	0.0581504	-8.25291	2701.11	-7293.43	9803.13
GdI <sub>3</sub>	298.15–2000	-130.413	0.0444075	-6.79353	2979.39	-9774.78	16167.4
TbI <sub>3</sub>	298.15–2000	-141.916	0.0583013	-8.24552	2691.50	-7261.16	9761.71
DyI <sub>3</sub>	298.15–2000	-142.742	0.0591105	-8.28097	2699.53	-7393.41	10094.60
HoI <sub>3</sub>	298.15–2000	-142.748	0.0592491	-8.33792	2707.00	-7450.80	10170.00
ErI <sub>3</sub>	298.15–2000	-142.422	0.0590567	-8.31467	2707.42	-7463.30	10178.72
TmI <sub>3</sub>	298.15–2000	-131.044	0.0445026	-6.92092	2997.59	-9864.99	16384.1
LuI <sub>3</sub>	298.15–2000	-134.154	0.0565422	-7.87454	2606.46	-7176.58	9761.86
LaI <sub>4</sub> <sup>-</sup>	298.15–2000	-117.337	0.0171012	-4.58269	4028.39	-14914.8	25310.2
CeI <sub>4</sub> <sup>-</sup>	298.15–2000	-121.497	0.0175776	-4.73338	4084.99	-14949.3	25222.3
PrI <sub>4</sub> <sup>-</sup>	298.15–2000	-122.269	0.0178179	-4.79817	4098.51	-14994.6	25370.0
NdI <sub>4</sub> <sup>-</sup>	298.15–2000	-122.040	0.0180573	-4.84196	4100.36	-14986.7	25316.6
GdI <sub>4</sub> <sup>-</sup>	298.15–2000	-120.366	0.0172937	-4.62496	4082.34	-15114.3	25648.5

TbI <sub>4</sub> <sup>-</sup>	298.15–2000	-121.763	0.0176224	-4.76440	4085.69	-14961.7	25312.6
DyI <sub>4</sub> <sup>-</sup>	298.15–2000	-121.582	0.0175488	-4.70938	4099.67	-15162.2	25806.4
HoI <sub>4</sub> <sup>-</sup>	298.15–2000	-121.442	0.0177009	-4.76405	4103.34	-15201.9	25846.6
ErI <sub>4</sub> <sup>-</sup>	298.15–2000	-120.885	0.0176185	-4.74369	4094.68	-15170.4	25769.9
TmI <sub>4</sub> <sup>-</sup>	298.15–2000	-120.483	0.0176541	-4.75648	4086.15	-15138.2	25727.7
LuI <sub>4</sub> <sup>-</sup>	298.15–2000	-113.527	0.0167140	-4.45060	3959.80	-14659.8	24876.4
La <sub>2</sub> I <sub>6</sub>	298.15–2000	-168.130	0.0264224	-7.01629	6275.56	-23244.2	39458.9
Ce <sub>2</sub> I <sub>6</sub>	298.15–2000	-172.364	0.0269102	-7.17091	6333.57	-23284.1	39380.4
Pr <sub>2</sub> I <sub>6</sub>	298.15–2000	-172.818	0.0271217	-7.22618	6341.41	-23308.5	39492.5
Nd <sub>2</sub> I <sub>6</sub>	298.15–2000	-172.411	0.0273509	-7.26582	6340.14	-23289.2	39420.1
Gd <sub>2</sub> I <sub>6</sub>	298.15–2000	-170.260	0.0265584	-7.03977	6313.58	-23384.9	39697.6
Tb <sub>2</sub> I <sub>6</sub>	298.15–2000	-171.194	0.0268450	-7.16463	6308.69	-23202.1	39310.6
Dy <sub>2</sub> I <sub>6</sub>	298.15–2000	-171.219	0.0267935	-7.11652	6326.38	-23416.3	39827.6
Ho <sub>2</sub> I <sub>6</sub>	298.15–2000	-170.975	0.0269362	-7.16826	6328.21	-23449.2	39856.6
Er <sub>2</sub> I <sub>6</sub>	298.15–2000	-170.305	0.0268465	-7.14530	6317.57	-23410.4	39767.5
Tm <sub>2</sub> I <sub>6</sub>	298.15–2000	-169.351	0.0268355	-7.14269	6299.15	-23341.7	39663.2
Lu <sub>2</sub> I <sub>6</sub>	298.15–2000	-162.241	0.0258893	-6.83449	6170.02	-22852.7	38793.7
La <sub>2</sub> I <sub>7</sub> <sup>-</sup>	298.15–2000	-146.311	-0.0150118	-3.42294	7639.88	-30823.3	54818.6
Ce <sub>2</sub> I <sub>7</sub> <sup>-</sup>	298.15–2000	-150.921	-0.0140286	-3.63523	7661.70	-30618.5	54163.7
Pr <sub>2</sub> I <sub>7</sub> <sup>-</sup>	298.15–2000	-150.860	-0.0137936	-3.65922	7680.81	-30763.6	54589.2
Nd <sub>2</sub> I <sub>7</sub> <sup>-</sup>	298.15–2001	-150.506	-0.0133401	-3.72288	7662.91	-30645.1	54303.4
Gd <sub>2</sub> I <sub>7</sub> <sup>-</sup>	298.15–2000	-149.692	-0.0113747	-3.74029	7569.53	-30286.9	53599.0
Tb <sub>2</sub> I <sub>7</sub> <sup>-</sup>	298.15–2000	-149.090	-0.0130594	-3.66812	7604.86	-30424.7	53949.1
Dy <sub>2</sub> I <sub>7</sub> <sup>-</sup>	298.15–2000	-148.556	-0.0134750	-3.58234	7619.01	-30640.2	54484.3
Ho <sub>2</sub> I <sub>7</sub> <sup>-</sup>	298.15–2000	-147.840	-0.0139072	-3.57841	7622.61	-30690.7	54562.4
Er <sub>2</sub> I <sub>7</sub> <sup>-</sup>	298.15–2000	-147.649	-0.0127372	-3.65697	7591.43	-30547.1	54292.8
Tm <sub>2</sub> I <sub>7</sub> <sup>-</sup>	298.15–2000	-146.974	-0.0128039	-3.66047	7572.89	-30435.8	54034.8
Lu <sub>2</sub> I <sub>7</sub> <sup>-</sup>	298.15–2000	-139.687	-0.0135526	-3.36491	7440.06	-29930.3	53143.2