Table 2. Recommended high-temperature thermodynamic properties of iron[a]

T K	Condensed phase				Gas phase Fe(g)			
	C_p° $J \cdot mol^{-1} \cdot K^{-1}$	$H^\circ - H^\circ(T_r)$ $J \cdot mol^{-1}$	S° $J \cdot mol^{-1} \cdot K^{-1}$	$-[G^\circ - H^\circ(T_r)]/T$	C_p° $J \cdot mol^{-1} \cdot K^{-1}$	$H^\circ - H^\circ(T_r)$ $J \cdot mol^{-1}$	S° $J \cdot mol^{-1} \cdot K^{-1}$	$-[G^\circ - H^\circ(T_r)]/T$
298.15	25.084	0	0.000	27.085	25.673	0	0.000	180.376
300	25.131	48	0.155	27.085	25.681	48	0.159	180.376
350	26.321	1334	4.122	27.397	25.703	1334	4.123	180.689
400	27.427	2677	7.710	28.102	25.531	2615	7.545	181.385
450	28.532	4076	11.004	29.031	25.254	3885	10.538	182.280
500	29.639	5531	14.066	30.090	24.891	5139	13.180	183.279
550	30.810	7042	16.947	31.229	24.537	6374	15.535	184.322
600	32.008	8612	19.678	32.410	24.200	7593	17.656	185.378
650	33.260	10243	22.289	33.615	23.892	8795	19.580	186.426
700	34.618	11940	24.805	34.833	23.610	9982	21.341	187.457
750	36.153	13709	27.246	36.053	23.354	11156	22.960	188.462
800	37.924	15559	29.633	37.270	23.133	12318	24.461	189.439
850	40.170	17508	31.995	38.483	22.936	13470	25.857	190.386
900	43.157	19587	34.370	39.692	22.765	14612	27.163	191.304
925	45.152	20690	35.579	40.297	22.688	15180	27.786	191.751
950	47.642	21848	36.815	40.902	22.617	15747	28.390	192.190
975	50.691	23076	38.090	41.507	22.551	16312	28.977	192.623
1000	54.458	24389	39.419	42.115	22.489	16874	29.547	193.049
1010	56.815	24944	39.972	42.360	22.465	17099	29.771	193.217
1020	60.140	25528	40.548	42.605	22.442	17323	29.992	193.385
1030	65.490	26154	41.159	42.852	22.421	17548	30.211	193.550
1035	69.420	26491	41.486	42.976	22.411	17660	30.319	193.632
1040	74.900	26851	41.833	43.100	22.401	17772	30.427	193.748
1042	78.690	27004	41.980	43.149	22.397	17816	30.470	193.748
1043	83.770	27085	42.058	43.175	22.395	17839	30.492	193.764
1044	74.540	27163	42.133	43.199	22.393	17861	30.513	193.781
1046	68.270	27306	42.269	43.249	22.389	17906	30.556	193.813
1048	63.980	27438	42.395	43.298	22.384	17951	30.599	193.846
1050	60.900	27563	42.514	43.349	22.381	17996	30.641	193.878
1055	56.348	27854	42.791	43.474	22.372	18108	30.747	193.959
1060	53.850	28129	43.051	43.599	22.362	18220	30.853	194.040
1070	50.138	28642	43.533	43.849	22.344	18443	31.063	194.202
1080	47.462	29129	43.986	44.099	22.328	18667	31.271	194.362
1090	45.675	29595	44.414	44.348	22.311	18890	31.477	194.523
1100	44.350	30044	44.825	44.597	22.297	19113	31.681	194.681
1125	42.223	31124	45.795	45.214	22.260	19670	32.181	195.072
1150	41.063	32164	46.709	45.826	22.229	20226	32.670	195.458
1175	40.262	33178	47.583	46.431	22.203	20779	33.148	195.840
1185(α)	40.000	33581	47.923	46.669	22.195	21001	33.336	195.990
1185(γ)	33.775	34481	48.682	46.669	22.195	21001	33.336	195.990
1200	33.905	34989	49.108	47.036	22.184	21336	33.615	196.211
1250	34.353	36695	50.501	48.230	22.151	22445	34.520	196.940
1300	34.809	38424	51.857	49.385	22.138	23551	35.388	197.648
1350	35.280	40176	53.179	50.504	22.139	24659	36.224	198.334
1400	35.750	41952	54.471	51.590	22.154	25766	37.029	199.001
1450	36.220	43751	55.734	52.645	22.183	26874	37.807	199.649
1500	36.690	45574	56.970	53.672	22.230	27984	38.560	200.280
1550	37.161	47420	58.180	54.672	22.287	29097	39.290	200.893
1600	37.630	49290	59.368	55.646	22.355	30213	39.998	201.491
1650	38.100	51183	60.533	56.597	22.434	31333	40.687	202.073
1667(γ)	38.260	51832	60.924	56.916	22.463	31715	40.917	202.268
1667(δ)	40.400	52682	61.434	56.916	22.463	31715	40.917	202.268
1700	41.454	54033	62.236	57.537	22.522	32457	41.358	202.642
1750	43.051	56145	63.461	58.463	22.619	33585	42.012	203.197
1800	44.649	58338	64.696	59.371	22.727	34719	42.651	203.739
1811(δ)	45.000	58831	64.969	59.569	22.748	34969	42.790	203.857
1811(ℓ)	46.632	72641	72.595	59.569	22.748	34969	42.790	203.857
1900	46.632	76791	74.832	61.501	22.958	37003	43.986	204.787
2000	46.632	81388	77.190	63.581	23.213	39311	45.070	205.791
2200	46.632	90714	81.634	67.486	23.769	44008	47.308	207.680
2400	46.632	100041	85.692	71.093	24.363	48820	49.401	209.436
2600	46.632	109367	89.424	74.445	24.974	53754	51.375	211.077
2800	46.632	118693	92.880	77.575	25.589	58810	53.249	212.621
3000	46.632	128020	96.098	80.509	26.209	63989	55.035	214.081
3110	46.632	133149	97.627	81.899	26.554	66892	55.986	214.853
3200	46.632	137380	99.124	83.278	26.840	69295	56.747	215.468

$T_{\alpha-\gamma} = 1185$ K $\Delta H_{\alpha-\gamma} = 900 \pm 40$ $J \cdot mol^{-1}$ $\Delta S_{\alpha-\gamma} = 0.759 \pm 0.034$ $J \cdot mol^{-1} \cdot K^{-1}$

$T_{\gamma-\delta} = 1667$ K $\Delta H_{\gamma-\delta} = 850 \pm 80$ $J \cdot mol^{-1}$ $\Delta S_{\gamma-\delta} = 0.510 \pm 0.048$ $J \cdot mol^{-1} \cdot K^{-1}$

$T_{fus} = 1811$ K $\Delta_{fus} H^\circ = 13810 \pm 300$ $J \cdot mol^{-1}$ $\Delta_{fus} S^\circ = 7.626 \pm 0.160$ $J \cdot mol^{-1} \cdot K^{-1}$

[a] Enthalpy reference temperature = T_r = 298.15 K.