

## Melting and Boiling Points of the Elements at Atmospheric Pressure

Elemental Phase	----- Melting point -----			----- Boiling point -----	
	°C	K	Error limits	°C	K
(Ac)	1051	1324	±50	3200	3473(a)
(Ag)	961.93	1235.08	...	2163	2436
(Al)	660.452	933.602	...	2520	2793
(Am) ht2	1176	1449	...	...	...
(Ar)	-189.352(t.p.)	83.798(t.p.)	...	-185.9	87.3
(As)	614(s.p.)	887(s.p.)	...	...	...
(At)	(302)	(575)	...	...	...
(Au)	1064.43	1337.58	...	2857	3130
(B) rhom1	2092	2365	...	4002	4275
(Ba)	727	1000	±2	1898	2171
(Be) ht	1289	1562	±5	2472	2745
(Bi)	271.442	544.592	...	1564	1837
(Bk) ht	1050	1323	...	...	...
([Br <sub>2</sub> ])	-7.25(t.p.)	265.90(t.p.)	...	59.10	332.25
(C) gra	3827(s.p.)	4100(s.p.)	±50	...	...
(Ca) ht	842	1115	±2	1484	1757
(Cd)	321.108	594.258	...	767	1040
(Ce) ht2	798	1071	±3	3426	3699
(Cf) ht	900	1173	...	...	...
([Cl <sub>2</sub> ])	-100.97(t.p.)	172.18(t.p.)	...	-34.05	239.10
(Cm) ht	1345	1618	...	...	...
(Co) ht	1495	1768	...	2928	3201
(Cr)	1863	2136	±20	2672	2945

Elemental Phase	----- Melting point -----			----- Boiling point -----	
	°C	K	Error limits	°C	K
(Cs)	28.39	301.54	±0.05	671	944
(Cu)	1084.87	1358.02	±0.04	2563	2836
(Dy) ht	1412	1685	...	2562	2835
(Er)	1529	1802	...	2863	3136
(Es)	860	1133	...	...	...
(Eu)	822	1095	...	1597	1870
([F <sub>2</sub> ] lt1	-219.67(t.p.)	53.48(t.p.)	...	-188.20	84.95
(Fe) ht2	1538	1811	...	2862	3135
(Fm)	(1527)	(1800)	...	...	...
(Fr)	(27)	(300)	...	...	...
(Ga)	29.7741(t.p.)	302.9241(t.p.)	±0.001	2205	2478
(Gd) ht	1313	1586	...	3266	3539
(Ge)	938.3	1211.5	...	2834	3107
([H <sub>2</sub> ])	-259.34(t.p.)	13.81(t.p.)	...	-252.882	20.268
(He)	-271.69(t.p.)	1.46(t.p.)	(b)	-268.935	4.215
(Hf) ht	2231	2504	±20	4603	4876
(Hg) lt	-38.8290	234.314	...	356.623	630
(Ho)	1474	1747	...	2695	2968
([I <sub>2</sub> ])	113.6	386.8	...	185.25	458.40
(In)	156.634	429.784	...	2073	2346
(Ir)	2447	2720	...	4428	4701
(K)	63.71	336.86	±0.5	759	1032
(Kr)	-157.385	115.765	±0.001	-153.35	119.80
(La) ht2	918	1191	...	3457	3730
(Li) rt	180.6	453.8	±0.5	1342	1615
(Lr)	(1627)	(1900)	...	...	...
(Lu)	1663	1936	...	3395	3668
(Md)	(827)	(1100)	...	...	...
(Mg)	650	923	±0.5	1090	1363

Elemental Phase	Melting point			Boiling point	
	°C	K	Error limits	°C	K
(Mn) ht4	1246	1519	±5	2062	2335
(Mo)	2623	2896	...	4639	4912
([N <sub>2</sub> ] lt1	-210.0042(t.p.)	63.1458(t.p.)	±0.0002	-195.80	77.35
(Na) rt	97.8	371.0	±0.1	883	1156
(Nb)	2469	2742	...	4744	5017
(Nd) ht	1021	1294	...	3068	3341
(Ne)	-248.587(t.p.)	24.563(t.p.)	±0.002	-246.054	27.096
(Ni)	1455	1728	...	2914	3187
(No)	(827)	(1100)	...	...	...
(Np) ht2	639	912	±2	...	...
([O <sub>2</sub> ] lt1	-218.789(t.p.)	54.361(t.p.)	...	-182.97	90.18
(Os)	3033	3306	±20	5012	5285
(P) whi rt	44.14	317.29	±0.1	277	550
(P) red	589.6(t.p.)	862.8(t.p.)	(c)	431	704
(Pa) ht	1572	1845	...	...	...
(Pb)	327.502	600.652	...	1750	2023
(Pd)	1555	1828	±0.4	2964	3237
(Pm) ht	1042	1315	...	...	...
(Po) ht	254	527	...	...	...
(Pr) ht	931	1204	...	3512	3785
(Pt)	1769.0	2042.2	...	3827	4100
(Pu) ht5	640	913	±1	3230	3503
(Ra)	700	973	...	...	...
(Rb)	39.48	312.63	±0.5	688	961
(Re)	3186	3459	±20	5596	5869
(Rh)	1963	2236	...	3697	3970
(Rn)	-71	202	...	-62	211
(Ru)	2334	2607	±10	4150	4423
(S) 8 β ht	115	388	...	444.60	717.75

Elemental Phase	Melting point			Boiling point	
	°C	K	Error limits	°C	K
(Sb)	630.755	903.905	...	1587	1860
(Sc) ht	1541	1814	...	2831	3104
(Se)	221	494	...	685	958
(Si)	1414	1687	±2	3267	3540
(Sm) ht2	1074	1347	...	1791	2064
(Sn) rt	231.9681	505.1181	...	2603	2876
(Sr) ht	769	1042	...	1382	1655
(Ta)	3020	3293	...	5458	5731
(Tb) ht	1356	1629	...	3223	3496
(Tc)	2155	2428	±50	4265	4538
(Te)	449.57	722.72	±0.3	988	1261
(Th) ht	1755	2028	±10	4788	5061
(Ti) ht	1670	1943	±6	3289	3562
(Tl) ht	304	577	±2	1473	1746
(Tm)	1545	1818	...	1947	2220
(U) ht2	1135	1408	...	4134	4407
(V)	1910	2183	±6	3409	3682
(W)	3422	3695	...	5555	5828
(Xe)	-111.7582(t.p.)	161.3918(t.p.)	±0.0002	-108.12	165.03
(Y) ht	1522	1795	...	3338	3611
(Yb) ht	819	1092	...	1194	1467
(Zn)	419.58	692.73	...	907	1180
(Zr) ht	1855	2128	±5	4409	4682

**Note:** t.p. = triple point; s.p. = sublimation point at atmospheric pressure. Measurements in parentheses are approximate. **(a)** ±300. **(b)** There are various triple points. **(c)** Red P sublimes without melting at atmospheric pressure.