MELTING, BOILING, AND CRITICAL TEMPERATURES OF THE ELEMENTS

This table summarizes the melting point t_m, normal boiling point t_b, and critical temperature t_c (on the ITS-90 scale) for the elements for which data are available. A "tp" after a value indicates a solid-liquid-gas triple point, and "sp" indicates a sublimation point, where the vapor pressure of the solid phase reaches 101.325 kPa (1 atm). Transition temperatures between allotropic forms are included for several elements. References may be found in the tables *Physical Constants of Inorganic Compounds* and *Critical Constants.*

Name	t_m/°C	t_b/°C	t_c/°C
Actinium	1051	3198	
Aluminum	660.32	2519	
Americium	1176	2011	
Antimony	630.63	1587	
Argon	-189.35	-185.85	-122.28
Arsenic (gray)	817 tp (3.7 MPa)	603 sp	1400
Astatine	302		
Barium	727	1897	
Berkelium (α form)	1050		
Berkelium (β form)	986		
Beryllium	1287	2471	
Bismuth	271.40	1564	
Boron	2075	4000	
Bromine	-7.2	58.8	315
Cadmium	321.07	767	
Calcium	842	1484	
Californium	900		
Carbon (graphite)	4492 tp (10.3 MPa)	3825 sp	
Carbon (diamond)	4440 (12.4 GPa)		
Cerium	798	3443	
Cesium	28.5	671	1665
Chlorine	-101.5	-34.04	143.8
Chromium	1907	2671	
Cobalt	1495	2927	
Copper	1084.62	2562	
Curium	1345	3100	
Dysprosium	1412	2567	
Einsteinium	860		
Erbium	1529	2868	
Europium	822	1529	
Fermium	1527		
Fluorine	-219.67 tp	-188.12	-129.02
Francium	27		
Gadolinium	1313	3273	
Gallium	29.76	2204	
Germanium	938.25	2833	
Gold	1064.18	2856	
Hafnium	2233	4603	
Helium		-268.93	-267.96
Holmium	1474	2700	
Hydrogen	-259.34	-252.87	-240.18
Indium	156.60	2072	
Iodine	113.7	184.4	546
Iridium	2446	4428	
Iron	1538	2861	
Krypton	-157.38 tp (73.2 kPa)	-153.22	-63.74
Lanthanum	918	3464	
Lawrencium	1627		
Lead	327.46	1749	
Lithium	180.50	1342	2950
Lutetium	1663	3402	
Magnesium	650	1090	
Manganese	1246	2061	
Mendelevium	827		
Mercury	-38.83	356.73	1477
Molybdenum	2623	4639	
Neodymium	1021	3074	
Neon	-248.59	-246.08	-228.7
Neptunium	644		
Nickel	1455	2913	
Niobium	2477	4744	
Nitrogen	-210.00	-195.79	-146.94
Nobelium	827		
Osmium	3033	5012	
Oxygen	-218.79	-182.95	-118.56
Palladium	1554.9	2963	
Phosphorus (white)	44.15	280.5	721
Phosphorus (red)	590 tp	431 sp	721
Phosphorus (black)	610		
Platinum	1768.4	3825	
Plutonium	640	3228	
Polonium	254	962	
Potassium	63.5	759	1950
Praseodymium	931	3520	
Promethium	1042	3000	
Protactinium	1572		
Radium	700		
Radon	-71	-61.7	104
Rhenium	3186	5596	
Rhodium	1964	3695	
Rubidium	39.30	688	1820
Ruthenium	2334	4150	
Samarium	1074	1794	
Scandium	1541	2836	
Selenium(vitreous)	180 (trans to gray)	685	
Selenium (gray)	220.5	685	1493
Silicon	1414	3265	
Silver	961.78	2162	
Sodium	97.80	883	2300
Strontium	777	1382	
Sulfur (rhombic)	95.3 (trans to mono)	444.60	1041
Sulfur (monoclinic)	119.6	444.60	1041
Tantalum	3017	5458	
Technetium	2157	4265	
Tellurium	449.51	988	
Terbium	1356	3230	
Thallium	304	1473	
Thorium	1750	4788	
Thulium	1545	1950	
Tin (gray)	13.2 (trans to white)	2602	
Tin (white)	231.93	2602	
Titanium	1668	3287	
Tungsten	3422	5555	
Uranium	1135	4131	
Vanadium	1910	3407	
Xenon	-111.79 tp (81.6 kPa)	-108.12	16.62
Ytterbium	819	1196	
Yttrium	1522	3345	
Zinc	419.53	907	
Zirconium	1855	4409	

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