

periodic table of the elements

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
1 1 H 1.0079 -252.76 2.20 -1, 1 1s ¹	2 4 He 4.0026 -272.2 -268.93 1s ²	3 11 Li 6.941 180.5 1342 0.97 [He] 2s ¹	4 12 Be 9.0122 1287 2474 1.47 [He] 2s ²	5 19 Na 22.990 97.80 883 1.01 [Ne] 3s ¹	6 20 Mg 24.305 650 1090 1.23 [Ne] 3s ²	7 39 K 39.098 842 1484 0.91 [Ar] 4s ¹	8 40 Ca 40.078 777 1484 1.04 [Ar] 4s ²	9 37 Rb 85.468 88.3 1377 0.99 [Kr] 5s ¹	10 38 Sr 87.62 777 1377 0.99 [Kr] 5s ²	11 55 Cs 132.91 28.44 671 0.86 [Xe] 6s ¹	12 56 Ba 137.33 727 1697 0.97 [Xe] 6s ²	13 53 I 126.90 113.7 181.4 2.21 [Kr] 4d ⁵ 5s ²	14 54 Xe 131.29 -111.74 -108.09 2 [Kr] 4d ⁵ 5s ²	15 81 Tl 204.38 304 1473 1.44 [Xe] 4f ¹⁴ 5d ¹⁰ 6s ²	16 82 Pb 207.2 327.46 1749 1.55 [Xe] 4f ¹⁴ 5d ¹⁰ 6s ²	17 83 Bi 208.98 271.4 1564 1.67 [Xe] 4f ¹⁴ 5d ¹⁰ 6s ²	18 84 Po 209 254 962 1.76 [Xe] 4f ¹⁴ 5d ¹⁰ 6s ²	19 85 At 208.98 302 962 1.96 [Xe] 4f ¹⁴ 5d ¹⁰ 6s ²	20 86 Rn 222.02 -71 -61.7 2 [Xe] 4f ¹⁴ 5d ¹⁰ 6s ²

21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
21 Sc 44.956 1541 2836 1.20 [Ar] 3d ¹ 4s ²	22 Ti 47.867 1668 3267 1.32 [Ar] 3d ² 4s ²	23 V 50.942 1910 3407 1.45 [Ar] 3d ³ 4s ²	24 Cr 51.996 1907 2671 1.56 [Ar] 3d ⁵ 4s ¹	25 Mn 54.938 1246 2061 1.60 [Ar] 3d ⁵ 4s ²	26 Fe 55.845 1538 2861 1.64 [Ar] 3d ⁶ 4s ²	27 Co 58.933 1495 2913 1.70 [Ar] 3d ⁷ 4s ²	28 Ni 58.693 1455 2913 1.75 [Ar] 3d ⁸ 4s ²	29 Cu 63.546 1084.62 2562 1.75 [Ar] 3d ¹⁰ 4s ¹	30 Zn 65.409 419.53 907 1.66 [Ar] 3d ¹⁰ 4s ²	31 Ga 69.723 29.76 2833 1.82 [Ar] 3d ¹⁰ 4s ² 4p ¹	32 Ge 72.64 938.25 2833 2.02 [Ar] 3d ¹⁰ 4s ² 4p ²	33 As 74.922 subl. 616 subl. 616 2.20 [Ar] 3d ¹⁰ 4s ² 4p ³	34 Se 78.96 685 221 2.48 [Ar] 3d ¹⁰ 4s ² 4p ⁴	35 Br 79.904 -7.2 58.8 2.74 [Ar] 3d ¹⁰ 4s ² 4p ⁵	36 Kr 83.798 -157.36 -153.34 2, 4 [Ar] 3d ¹⁰ 4s ² 4p ⁶

37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
37 Rb 85.468 88.3 1377 0.99 [Kr] 5s ¹	38 Sr 87.62 777 1377 0.99 [Kr] 5s ²	39 Y 88.906 1522 3345 1.11 [Kr] 4d ¹ 5s ²	40 Zr 91.224 1855 4409 1.23 [Kr] 4d ² 5s ²	41 Nb 92.906 2477 4744 1.23 [Kr] 4d ⁴ 5s ¹	42 Mo 95.94 2622 4639 1.30 [Kr] 4d ⁵ 5s ¹	43 Tc 97.907 2522 4622 1.36 [Kr] 4d ⁵ 5s ²	44 Ru 101.07 1964 4150 1.42 [Kr] 4d ⁷ 5s ¹	45 Rh 102.91 1964 3695 1.45 [Kr] 4d ⁸ 5s ¹	46 Pd 106.42 1964 2963 1.30 [Kr] 4d ¹⁰	47 Ag 107.87 961.78 2162 1.42 [Kr] 4d ¹⁰ 5s ¹	48 Cd 112.41 321.07 767 1.46 [Kr] 4d ¹⁰ 5s ²	49 In 114.82 156.6 2072 1.49 [Kr] 4d ¹⁰ 5s ² 5p ¹	50 Sn 118.71 231.93 2602 1.72 [Kr] 4d ¹⁰ 5s ² 5p ²	51 Sb 121.76 630.63 1587 1.82 [Kr] 4d ¹⁰ 5s ² 5p ³	52 Te 127.60 449.51 988 2.01 [Kr] 4d ¹⁰ 5s ² 5p ⁴	53 I 126.90 113.7 181.4 2.21 [Kr] 4d ⁵ 5s ²	54 Xe 131.29 -111.74 -108.09 2 [Kr] 4d ⁵ 5s ²

55	56	57-71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86
55 Cs 132.91 28.44 671 0.86 [Xe] 6s ¹	56 Ba 137.33 727 1697 0.97 [Xe] 6s ²	57-71 Lanthanides Lanthanide	72 Hf 178.49 2233 4603 1.23 [Xe] 4f ¹⁴ 5d ² 6s ²	73 Ta 180.95 3017 5555 1.33 [Xe] 4f ¹⁴ 5d ³ 6s ²	74 W 183.84 3422 5555 1.40 [Xe] 4f ¹⁴ 5d ⁴ 6s ²	75 Re 186.21 3185 5556 1.46 [Xe] 4f ¹⁴ 5d ⁵ 6s ²	76 Os 190.23 3033 5012 1.55 [Xe] 4f ¹⁴ 5d ⁶ 6s ²	77 Ir 192.22 2446 4428 1.55 [Xe] 4f ¹⁴ 5d ⁷ 6s ²	78 Pt 195.08 1768.2 3025 1.42 [Xe] 4f ¹⁴ 5d ⁹ 6s ¹	79 Au 196.97 1064.18 2855 1.42 [Xe] 4f ¹⁴ 5d ¹⁰ 6s ¹	80 Hg 200.59 -38.83 356.62 1.44 [Xe] 4f ¹⁴ 5d ¹⁰ 6s ²	81 Tl 204.38 304 1473 1.44 [Xe] 4f ¹⁴ 5d ¹⁰ 6s ² 6p ¹	82 Pb 207.2 327.46 1749 1.55 [Xe] 4f ¹⁴ 5d ¹⁰ 6s ² 6p ²	83 Bi 208.98 271.4 1564 1.67 [Xe] 4f ¹⁴ 5d ¹⁰ 6s ² 6p ³	84 Po 209 254 962 1.76 [Xe] 4f ¹⁴ 5d ¹⁰ 6s ² 6p ⁴	85 At 208.98 302 962 1.96 [Xe] 4f ¹⁴ 5d ¹⁰ 6s ² 6p ⁵	86 Rn 222.02 -71 -61.7 2 [Xe] 4f ¹⁴ 5d ¹⁰ 6s ² 6p ⁶

87	88	89-103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118
87 Fr *223.02 27 677 0.86 [Rn] 7s ¹	88 Ra *226.03 696 1140 0.97 [Rn] 7s ²	89-103 Actinides Actinide	104 Rf *261.11 [Rn] 5f ¹⁴ 6d ² 7s ²	105 Db *262.11 [Rn] 5f ¹⁴ 6d ³ 7s ²	106 Sg *266.12 [Rn] 5f ¹⁴ 6d ⁴ 7s ²	107 Bh *264.12 [Rn] 5f ¹⁴ 6d ⁵ 7s ²	108 Hs *277 [Rn] 5f ¹⁴ 6d ⁶ 7s ²	109 Mt *268.14 [Rn] 5f ¹⁴ 6d ⁷ 7s ²	110 Ds *281 [Rn] 5f ¹⁴ 6d ⁸ 7s ²	111 Rg *280 [Rn] 5f ¹⁴ 6d ⁹ 7s ²	112 Cn *285 [Rn] 5f ¹⁴ 6d ¹⁰ 7s ²	113 Uut *284 [Rn] 5f ¹⁴ 6d ¹⁰ 7s ² 7p ¹	114 Fl *287 [Rn] 5f ¹⁴ 6d ¹⁰ 7s ² 7p ²	115 Uup *288 [Rn] 5f ¹⁴ 6d ¹⁰ 7s ² 7p ³	116 Lv *291 [Rn] 5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁴	117 Uus *294 [Rn] 5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁵	118 Uuo *294 [Rn] 5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁶

Lanthanides	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71
Lanthanides	57 La 138.91 920 3464 1.08 [Xe] 5d ¹ 6s ²	58 Ce 140.12 999 3464 1.08 [Xe] 4f ¹ 5d ¹ 6s ²	59 Pr 140.91 931 3520 1.07 [Xe] 4f ³ 6s ²	60 Nd 144.24 1016 3074 1.07 [Xe] 4f ⁴ 6s ²	61 Pm *144.91 1042 3000 1.07 [Xe] 4f ⁵ 6s ²	62 Sm 150.36 1072 1794 1.07 [Xe] 4f ⁶ 6s ²	63 Eu 151.96 822 1596 1.01 [Xe] 4f ⁷ 6s ²	64 Gd 157.25 1313 3273 1.11 [Xe] 4f ⁷ 5d ¹ 6s ²	65 Tb 158.93 1359 3236 1.10 [Xe] 4f ⁹ 6s ²	66 Dy 162.50 1412 2567 1.10 [Xe] 4f ¹⁰ 6s ²	67 Ho 164.93 1472 2700 1.10 [Xe] 4f ¹¹ 6s ²	68 Er 167.26 1529 2868 1.11 [Xe] 4f ¹² 6s ²	69 Tm 168.93 1545 2962 1.11 [Xe] 4f ¹³ 6s ²	70 Yb 173.04 824 3402 1.06 [Xe] 4f ¹⁴ 6s ²	71 Lu 174.97 1663 3402 1.14 [Xe] 4f ¹⁴ 5d ¹ 6s ²

Actinides	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103
Actinides	89 Ac *227.03 1050 3198 1.00 [Rn] 6d ¹ 7s ²	90 Th *232.04 1750 4788 1.11 [Rn] 6d ² 7s ²	91 Pa *231.04 1572 4131 1.22 [Rn] 5f ² 6d ¹ 7s ²	92 U *238.03 1135 4131 1.22 [Rn] 5f ³ 6d ¹ 7s ²	93 Np *237.05 644 3902 1.22 [Rn] 5f ⁴ 6d ¹ 7s ²	94 Pu *244.06 640 3228 1.22 [Rn] 5f ⁶ 7s ²	95 Am *243.06 1176 2011 1.20 [Rn] 5f ⁷ 7s ²	96 Cm *247.07 1345 2011 1.20 [Rn] 5f ⁷ 6d ¹ 7s ²	97 Bk *247.07 996 2011 1.20 [Rn] 5f ⁷ 7s ²	98 Cf *251.08 900 2011 1.20 [Rn] 5f ⁹ 7s ²	99 Es *252.08 860 2011 1.20 [Rn] 5f ⁹ 7s ²	100 Fm *257.095 1527 2011 1.20 [Rn] 5f ¹⁰ 7s ²	101 Md *258.10 827 2011 1.20 [Rn] 5f ¹⁰ 7s ²	102 No *259.10 827 2011 1.20 [Rn] 5f ¹⁰ 7s ²	103 Lr *262.11 827 2011 1.20 [Rn] 5f ¹⁴ 7s ² 7p ¹



CREDIBILITY needs a TRUSTFUL BASIS

Essential lab products from Merck

Discover how our world-class Inorganics and Solvents can empower your lab work. At Merck, our vision is to unleash the potential of science for life. As your reliable partner and one-stop supplier, we offer a portfolio of more than 40,000 products, and serve you around the world.



Withdrawal systems and Safety products

For liquids



Classical Inorganics and Solvents + Safety and Essential lab products



Salts

With improved flowability



Caustic alkalis and Bases

In unique quality



Acids

With worldwide best specifications



Solvents

In tailor-made packaging



Essential lab products

- Cleaning (Extran®)
- Drying (e.g. desiccants, molecular sieves, silica gel)
- Absorbents for spilled liquids (Chemizorb®)
- Indicators
- Absorption and Filtration (e.g. filter and clarification materials)
- Purification and Sample preparation

