

hydrogen 1 <b>H</b> 1.00794	beryllium 4 <b>Be</b> 9.012182	lithium 3 <b>Li</b> 6.941	magnesium 12 <b>Mg</b> 24.3050	potassium 19 <b>K</b> 39.0983	calcium 20 <b>Ca</b> 40.078	scandium 21 <b>Sc</b> 44.95591	titanium 22 <b>Ti</b> 47.867	vanadium 23 <b>V</b> 50.9415	chromium 24 <b>Cr</b> 51.9961	manganese 25 <b>Mn</b> 54.93805	iron 26 <b>Fe</b> 55.845	cobalt 27 <b>Co</b> 58.9332	nickel 28 <b>Ni</b> 58.6934	copper 29 <b>Cu</b> 63.546	zinc 30 <b>Zn</b> 65.409	boron 5 <b>B</b> 10.811	carbon 6 <b>C</b> 12.0107	nitrogen 7 <b>N</b> 14.00674	oxygen 8 <b>O</b> 15.9994	fluorine 9 <b>F</b> 18.9984	helium 2 <b>He</b> 4.002602
lithium 3 <b>Li</b> 6.941	magnesium 12 <b>Mg</b> 24.3050	sodium 11 <b>Na</b> 22.98977	aluminum 13 <b>Al</b> 26.981538	silicon 14 <b>Si</b> 28.0855	phosphorus 15 <b>P</b> 30.97376	sulphur 16 <b>S</b> 32.065	chlorine 17 <b>Cl</b> 35.453	neon 10 <b>Ne</b> 20.1797													
potassium 19 <b>K</b> 39.0983	calcium 20 <b>Ca</b> 40.078	strontium 38 <b>Rb</b> 85.4678	yttrium 39 <b>Y</b> 88.90585	zirconium 40 <b>Zr</b> 91.225	niobium 41 <b>Nb</b> 92.90638	niobium 42 <b>Mo</b> 95.94	technetium 43 <b>Tc</b> [98]	ruthenium 44 <b>Ru</b> 101.07	ruthenium 45 <b>Rh</b> 102.9055	rhodium 46 <b>Pd</b> 106.42	palladium 47 <b>Ag</b> 107.8682	silver 48 <b>Cd</b> 112.411	cadmium 49 <b>In</b> 114.818	indium 50 <b>Sn</b> 118.710	tin 51 <b>Sb</b> 121.760	antimony 52 <b>Te</b> 127.60	tellurium 53 <b>I</b> 131.293	bromine 35 <b>Xe</b> 83.798			
rubidium 37 <b>Rb</b> 85.4678	strontium 38 <b>Sr</b> 87.62	caesium 55 <b>Cs</b> 132.90545	barium 56 <b>Ba</b> 137.327	lutetium 71 <b>Lu</b> 174.967	hafnium 72 <b>Hf</b> 178.49	tantalum 73 <b>Ta</b> 180.9479	tungsten 74 <b>W</b> 183.84	rhenium 75 <b>Re</b> 186.207	osmium 76 <b>Os</b> 190.23	iridium 77 <b>Ir</b> 192.217	platinum 78 <b>Pt</b> 195.078	gold 79 <b>Au</b> 196.96655	mercury 80 <b>Hg</b> 200.59	thallium 81 <b>Tl</b> 204.3833	lead 82 <b>Pb</b> 207.2	bismuth 83 <b>Bi</b> 208.980	polonium 84 <b>Po</b> [209]	astatine 85 <b>At</b> [210]	radon 86 <b>Rn</b> [222]		
francium 87 <b>Fr</b> [223]	radium 88 <b>Ra</b> [226]	lawrencium 103 <b>Lr</b> [261]	rutherfordium 104 <b>Rf</b> [262]	dubnium 105 <b>Db</b> [262]	seaborgium 106 <b>Sg</b> [266]	bohrium 107 <b>Bh</b> [264]	hassium 108 <b>Hs</b> [269]	meitnerium 109 <b>Mt</b> [268]	darmstadtium 110 <b>Ds</b> [271]	roentgenium 111 <b>Rg</b> [272]	copernicium 112 <b>Cn</b> [285]	ununtrium 113 <b>Uut</b> unknown	flerovium 114 <b>Fl</b> [289]	ununpentium 115 <b>Uup</b> unknown	livermorium 116 <b>Lv</b> [298]	ununseptium 117 <b>Uus</b> unknown	ununoctium 118 <b>Uuo</b> unknown				

lanthanum 57 <b>La</b> 138.9055	cerium 58 <b>Ce</b> 140.116	praseodymium 59 <b>Pr</b> 140.90765	neodymium 60 <b>Nd</b> 144.24	promethium 61 <b>Pm</b> [145]	samarium 62 <b>Sm</b> 150.36	euroium 63 <b>Eu</b> 151.964	gadolinium 64 <b>Gd</b> 157.25	terbium 65 <b>Tb</b> 158.9253	dysprosium 66 <b>Dy</b> 162.50	holmium 67 <b>Ho</b> 164.930	erbium 68 <b>Er</b> 167.259	thulium 69 <b>Tm</b> 168.934	yterbium 70 <b>Yb</b> 173.04
actinium 89 <b>Ac</b> [227]	thorium 90 <b>Th</b> 232.038	protactinium 91 <b>Pa</b> 231.0359	uranium 92 <b>U</b> 238.0289	neptunium 93 <b>Np</b> [237]	plutonium 94 <b>Pu</b> [244]	americium 95 <b>Am</b> [243]	curium 96 <b>Cm</b> [247]	berkelium 97 <b>Bk</b> [247]	californium 98 <b>Cf</b> [251]	einsteinium 99 <b>Es</b> [252]	fermium 100 <b>Fm</b> [257]	mendelevium 101 <b>Md</b> [258]	nobelium 102 <b>No</b> [259]

## Common Ions

Cations	Anions
Ammonium, $\text{NH}_4^+$	Mercury (I), $\text{Hg}_2^{2+}$
Cadmium, $\text{Cd}^{2+}$	Mercury (II), $\text{Hg}^{2+}$
Chromium (II), $\text{Cr}^{2+}$	Neptunyl(V), $\text{NpO}_2^+$
Chromium (III), $\text{Cr}^{3+}$	Neptunyl(VI), $\text{NpO}_2^{2+}$
Cobalt (II), $\text{Co}^{2+}$	Nickel (II), $\text{Ni}^{2+}$
Cobalt (III), $\text{Co}^{3+}$	Nickel (III), $\text{Ni}^{3+}$
Copper (I), $\text{Cu}^+$	Plutonyl(V), $\text{PuO}_2^+$
Copper (II), $\text{Cu}^{2+}$	Plutonyl(VI), $\text{PuO}_2^{2+}$
Hydrogen, $\text{H}^+$	Scandium, $\text{Sc}^{3+}$
Hydronium, $\text{H}_3\text{O}^+$	Silver, $\text{Ag}^+$
Iron (II), $\text{Fe}^{2+}$	Tin(II), $\text{Sn}^{2+}$
Iron (III), $\text{Fe}^{3+}$	Tin(IV), $\text{Sn}^{4+}$
Lead (II), $\text{Pb}^{2+}$	Uranyl(V), $\text{UO}_2^+$
Lead (IV), $\text{Pb}^{4+}$	Uranyl(VI), $\text{UO}_2^{2+}$
Manganese (II), $\text{Mn}^{2+}$	Vanadyl(IV), $\text{VO}^{2+}$
Manganese (III), $\text{Mn}^{3+}$	Vanadyl(V), $\text{VO}^{2+}$
Zinc, $\text{Zn}^{2+}$	
	Acetate, $\text{CH}_3\text{COO}^-$
	Amide, $\text{NH}_2^-$
	Arsenate, $\text{AsO}_4^{3-}$
	Arsenite, $\text{AsO}_3^{3-}$
	Astatate, $\text{AtO}_3^-$
	Azide, $\text{N}_3^-$
	Benzoate, $\text{C}_6\text{H}_5\text{COO}^-$
	Bismuthate, $\text{BiO}_3^-$
	Borate, $\text{BO}_3^{3-}$
	Bromate, $\text{BrO}_3^-$
	Carbonate, $\text{CO}_3^{2-}$
	Bicarbonate, $\text{HCO}_3^-$
	Citrate, $\text{C}_6\text{H}_5\text{O}_7^{3-}$
	Chlorate, $\text{ClO}_3^-$
	Chlorite, $\text{ClO}_2^-$
	Chromate, $\text{CrO}_4^{2-}$
	Dichromate, $\text{Cr}_2\text{O}_7^{2-}$
	Formate, $\text{HCOO}^-$
	Hexachloroplatinate, $\text{PtCl}_6^{2-}$
	Hexacyanoferrate(III), $\text{Fe}(\text{CN})_6^{3-}$
	Hexacyanoferrate(II), $\text{Fe}(\text{CN})_6^{4-}$
	Acetate, $\text{CH}_3\text{COO}^-$
	Hydroxide, $\text{OH}^-$
	Hypobromite, $\text{BrO}^-$
	Hypochlorite, $\text{ClO}^-$
	Hypophosphite, $\text{H}_2\text{PO}_2^-$
	Hydrogen Oxalate, $\text{HC}_2\text{O}_4^-$
	Iodate, $\text{IO}_3^-$
	Molybdate, $\text{MoO}_4^{2-}$
	Nitrate, $\text{NO}_3^-$
	Nitrite, $\text{NO}_2^-$
	Oxalate, $\text{C}_2\text{O}_4^{2-}$
	Orthosilicate, $\text{SiO}_4^{4-}$
	Perbromate, $\text{BrO}_4^-$
	Periodate, $\text{IO}_4^-$
	Perchlorate, $\text{ClO}_4^-$
	Permanganate, $\text{MnO}_4^-$
	Peroxide, $\text{O}_2^{2-}$
	Peroxydisulfate, $\text{S}_2\text{O}_8^{2-}$
	Perrhenate, $\text{ReO}_4^-$
	Phosphate, $\text{PO}_4^{3-}$
	Diphosphate, $\text{P}_2\text{O}_7^{4-}$
	Monohydrogen Phosphate, $\text{HPO}_4^{2-}$
	Phosphite, $\text{HPO}_3^{2-}$
	Dihydrogen Phosphate, $\text{H}_2\text{PO}_4^{1-}$
	Ruthenate, $\text{RuO}_4^{2-}$
	Selenate, $\text{SeO}_4^{2-}$
	Selenite, $\text{SeO}_3^{2-}$
	Silicate, $\text{SiO}_3^{2-}$
	Sulfate, $\text{SO}_4^{2-}$
	Bisulfate, $\text{HSO}_4^-$
	Bisulfide, $\text{HS}^-$
	Sulfite, $\text{SO}_3^{2-}$
	Bisulfite, $\text{HSO}_3^-$
	Tartrate, $\text{C}_4\text{H}_4\text{O}_6^{2-}$
	Tellurate, $\text{TeO}_4^{2-}$
	Tellurite, $\text{TeO}_3^{2-}$
	Tetraborate, $\text{B}_4\text{O}_7^{2-}$
	Thiocyanate, $\text{SCN}^-$
	Thiosulfate, $\text{S}_2\text{O}_3^{2-}$
	Tungstate, $\text{WO}_4^{2-}$
	Vanadate, $\text{VO}_3^-$