

The Periodic Table of Elements

1A	2A											3A	4A	5A	6A	7A	8A	
1 H Hydrogen 1.008																		2 He Helium 4.003
3 Li Lithium 6.941	4 Be Beryllium 9.012											5 B Boron 10.81	6 C Carbon 12.01	7 N Nitrogen 14.01	8 O Oxygen 16.00	9 F Fluorine 19.00	10 Ne Neon 20.18	
11 Na Sodium 22.99	12 Mg Magnesium 24.31											13 Al Aluminum 26.98	14 Si Silicon 28.09	15 P Phosphorus 30.97	16 S Sulfur 32.06	17 Cl Chlorine 35.45	18 Ar Argon 39.95	
19 K Potassium 39.10	20 Ca Calcium 40.08	21 Sc Scandium 44.96	22 Ti Titanium 47.90	23 V Vanadium 50.94	24 Cr Chromium 52.00	25 Mn Manganese 54.94	26 Fe Iron 55.85	27 Co Cobalt 58.93	28 Ni Nickel 58.70	29 Cu Copper 63.55	30 Zn Zinc 65.38	31 Ga Gallium 69.72	32 Ge Germanium 72.59	33 As Arsenic 74.92	34 Se Selenium 78.96	35 Br Bromine 79.90	36 Kr Krypton 83.80	
37 Rb Rubidium 85.47	38 Sr Strontium 87.62	39 Y Yttrium 88.91	40 Zr Zirconium 91.22	41 Nb Niobium 92.91	42 Mo Molybdenum 95.94	43 Tc Technetium 98	44 Ru Ruthenium 101.1	45 Rh Rhodium 102.9	46 Pd Palladium 106.4	47 Ag Silver 107.9	48 Cd Cadmium 112.4	49 In Indium 114.8	50 Sn Tin 118.7	51 Sb Antimony 121.8	52 Te Tellurium 127.6	53 I Iodine 126.9	54 Xe Xenon 131.3	
55 Cs Cesium 132.9	56 Ba Barium 137.3	57 La* Lanthanum 138.9	72 Hf Hafnium 178.5	73 Ta Tantalum 180.9	74 W Tungsten 183.9	75 Re Rhenium 186.2	76 Os Osmium 190.2	77 Ir Iridium 192.2	78 Pt Platinum 195.1	79 Au Gold 197.0	80 Hg Mercury 200.6	81 Tl Thallium 204.4	82 Pb Lead 207.2	83 Bi Bismuth 209.0	84 Po Polonium 209	85 At Astatine 210	86 Rn Radon 222	
87 Fr Francium 223	88 Ra Radium 226.0	89 Ac† Actinium 227	104 Db [^] Dubnium (261)	105 Jl [^] Joliotium (262)	106 Rf [^] Rutherfordium (263)	107 Bh [^] Bohrium (262)	108 Hs [^] Hassium (265)	109 Mt [^] Meitnerium (266)	110 (269)	111 (272)								

*	58 Ce Cerium 140.1	59 Pr Praseodymium 140.9	60 Nd Neodymium 144.2	61 Pm Promethium 145	62 Sm Samarium 150.4	63 Eu Europium 152.0	64 Gd Gadolinium 157.3	65 Tb Terbium 158.9	66 Dy Dysprosium 162.5	67 Ho Holmium 164.9	68 Er Erbium 167.3	69 Tm Thulium 168.9	70 Yb Ytterbium 173.0	71 Lu Lutetium 175.0
†	90 Th Thorium 232.0	91 Pa Protactinium 231	92 U Uranium 238.0	93 Np Neptunium 237	94 Pu Plutonium 244	95 Am Americium 243	96 Cm Curium 247	97 Bk Berkelium 247	98 Cf Californium 251	99 Es Einsteinium 252	100 Fm Fermium 257	101 Md Mendelevium 258	102 No Nobelium 259	103 Lr Lawrencium 260

[^]Recommended names by the International Union of Pure & Applied Commission on Nomenclature of Inorganic Chemistry
 Element 110 was first produced 9 Nov. 1994 and Element 111 was first produced 8 Dec. 1994 both in Darmstadt, Germany.

Common Ions & Their Charges			
Name	Symbol	Name	Symbol
aluminum	Al ⁺³	lead (II)	Pb ⁺²
ammonium	NH ₄ ⁺¹	magnesium	Mg ⁺²
barium	Ba ⁺²	mercury (I)	Hg ₂ ⁺²
calcium	Ca ⁺²	mercury (II)	Hg ⁺²
chromium (III)	Cr ⁺³	nickel (II)	Ni ⁺²
cobalt (II)	Co ⁺²	potassium	K ⁺¹
copper (I)	Cu ⁺¹	silver	Ag ⁺¹
copper (II)	Cu ⁺²	sodium	Na ⁺¹
hydronium	H ₃ O ⁺¹	tin (II)	Sn ⁺²
iron (II)	Fe ⁺²	tin (IV)	Sn ⁺⁴
iron (III)	Fe ⁺³	zinc	Zn ⁺²
acetate	C ₂ H ₃ O ₂ ⁻¹	hydrogen sulfate	HSO ₄ ⁻¹
bromide	Br ⁻¹	hydroxide	OH ⁻¹
carbonate	CO ₃ ⁻²	hypochlorite	ClO ⁻¹
chlorate	ClO ₃ ⁻¹	iodide	I ⁻¹
chloride	Cl ⁻¹	nitrate	NO ₃ ⁻¹
chlorite	ClO ₂ ⁻¹	nitrite	NO ₂ ⁻¹
chromate	CrO ₄ ⁻²	oxide	O ⁻²
cyanide	CN ⁻¹	perchlorate	ClO ₄ ⁻¹
dichromate	Cr ₂ O ₇ ⁻²	permanganate	MnO ₄ ⁻¹
fluoride	F ⁻¹	peroxide	O ₂ ⁻²
hexacyanoferrate (II)	Fe(CN) ₆ ⁻⁴	phosphate	PO ₄ ⁻³
hexacyanoferrate (III)	Fe(CN) ₆ ⁻³	sulfate	SO ₄ ⁻²
hydride	H ⁻¹	sulfide	S ⁻²
hydrogen carbonate	HCO ₃ ⁻¹	sulfite	SO ₃ ⁻²

Physical Constants		
Constant	Symbol	Value
Atomic mass unit	amu	1.66056 × 10 ⁻²⁷ kg
Avagadro's number	<i>N</i>	6.02205 × 10 ²³ 1/mol
Standard Pressure		1 atm=760 torr =760 mm Hg = 101.3 kPa
Charge of a proton	<i>e</i>	1.60219 × 10 ⁻¹⁹ C
Faraday Constant	<i>F</i>	96,485 C/mol
Gas Constant	<i>R</i>	0.08206 L atm/mol K 8.314 J/Kmol
Mass of an electron	<i>m_e</i>	9.10953 × 10 ⁻³¹ kg
Mass of a neutron	<i>m_n</i>	1.67495 × 10 ⁻²⁷ kg 1.00866 amu
Mass of a proton	<i>m_p</i>	1.67265 × 10 ⁻²⁷ kg 1.00728 amu
Planck's constant	<i>h</i>	6.62618 × 10 ⁻³⁴ Js
Speed of light	<i>c</i>	2.997925 × 10 ⁸ m/s

Water Vapor Pressure	Temp °C	Temp °C	Temp °C	Temp °C	Temp °C	Temp °C	Temp °C	Temp °C	Temp °C	Temp °C	Temp °C	Temp °C	Temp °C	Temp °C	Temp °C	Temp °C	Temp °C	Temp °C	Temp °C
	Press. mm Hg	Press. mm Hg	Press. mm Hg	Press. mm Hg	Press. mm Hg	Press. mm Hg	Press. mm Hg	Press. mm Hg	Press. mm Hg	Press. mm Hg	Press. mm Hg	Press. mm Hg	Press. mm Hg	Press. mm Hg	Press. mm Hg	Press. mm Hg	Press. mm Hg	Press. mm Hg	Press. mm Hg
0.0	4.6	19.5	17.0	27.0	26.7	37.0	35.5	47.0	45.5	59.0	57.5	73.0	71.5	89.0	87.5	107.0	105.5	128.0	126.5
5.0	6.5	20.0	17.5	28.0	28.3	38.0	36.5	49.0	47.5	61.0	59.5	75.0	73.5	91.0	89.5	109.0	107.5	129.0	127.5
10.0	9.2	20.5	18.1	29.0	30.0	39.0	37.5	50.0	48.5	62.0	60.5	76.0	74.5	92.0	90.5	110.0	108.5	130.0	128.5
15.0	12.8	21.0	18.6	30.0	31.8	40.0	38.5	51.0	49.5	63.0	61.5	77.0	75.5	93.0	91.5	111.0	109.5	131.0	129.5
15.5	13.2	21.5	19.2	35.0	42.2	45.0	41.5	55.0	53.5	65.0	63.5	78.0	76.5	94.0	92.5	112.0	110.5	132.0	130.5
16.0	13.6	22.0	19.8	40.0	55.3	50.0	45.5	60.0	58.5	70.0	68.5	80.0	78.5	95.0	93.5	113.0	111.5	133.0	131.5
16.5	14.1	22.5	20.4	50.0	92.5	55.0	48.5	65.0	63.5	75.0	73.5	85.0	83.5	96.0	94.5	114.0	112.5	134.0	132.5
17.0	14.5	23.0	21.1	60.0	149.4	60.0	51.5	70.0	68.5	80.0	78.5	90.0	88.5	97.0	95.5	115.0	113.5	135.0	133.5
17.5	15.0	23.5	21.7	70.0	233.7	65.0	53.5	75.0	73.5	85.0	83.5	95.0	93.5	98.0	96.5	116.0	114.5	136.0	134.5
18.0	15.5	24.0	22.4	80.0	355.1	70.0	55.5	80.0	78.5	90.0	88.5	100.0	98.5	99.0	97.5	117.0	115.5	137.0	135.5
18.5	16.0	24.5	23.1	90.0	525.8	75.0	57.5	85.0	83.5	95.0	93.5	105.0	103.5	100.0	98.5	118.0	116.5	138.0	136.5
19.0	16.5	25.0	23.8	95.0	633.9	80.0	59.5	90.0	88.5	100.0	98.5	110.0	108.5	101.0	99.5	119.0	117.5	139.0	137.5

S O L U B I L I T Y T A B L E		C ₂ H ₃ O ₂ ⁻¹	Br ⁻¹	CO ₃ ⁻²	ClO ₃ ⁻¹	Cl ⁻¹	CrO ₄ ⁻²	OH ⁻¹	I ⁻¹	NO ₃ ⁻¹	O ⁻²	PO ₄ ⁻³	SO ₄ ⁻²	S ⁻²	d=decomposes in water.
	Al ⁺³	S	S	--	S	S	--	A	S	S	a	A	S	d	
	NH ₄ ⁺¹	S	S	S	S	S	S	--	S	S	--	S	S	S	
	Ba ⁺²	S	S	P	S	S	A	S	S	S	S	A	a	d	
	Ca ⁺²	S	S	P	S	S	S	P	S	S	P	P	P	P	
	Cu ⁺²	S	S	--	S	S	--	A	--	S	A	A	S	A	
	H ⁺¹	S	S	--	S	S	--	--	S	S	--	S	S	S	
	Fe ⁺²	S	S	P	S	S	--	A	S	S	A	A	S	A	
	Fe ⁺³	S	S	--	S	S	A	A	S	S	A	P	P	d	
	Pb ⁺²	S	S	A	S	S	A	P	P	S	P	A	P	A	
	Mg ⁺²	S	S	P	S	S	S	A	S	S	A	P	S	d	
	Mn ⁺²	S	S	P	S	S	--	A	S	S	A	P	S	A	
	K ⁺¹	S	S	S	S	S	S	S	S	S	S	S	S	S	
	Ag ⁺¹	P	a	A	S	a	P	--	I	S	P	A	P	A	
	Na ⁺¹	S	S	S	S	S	S	S	S	S	S	S	S	S	
	Sr ⁺²	S	S	P	S	S	P	S	A	S	S	A	P	S	
	Sn ⁺²	d	S	--	S	S	A	A	S	d	A	A	S	A	
	Sn ⁺⁴	S	S	--	--	S	S	P	d	--	A	--	S	A	
	Zn ⁺²	S	S	P	S	S	P	A	S	S	P	A	S	A	

S=soluble in water; A=soluble in acids; insoluble in water.
P=partially soluble in dilute acids; I=insoluble in dilute acids
and in water; a=slight soluble in acids; insoluble in water.
d=decomposes in water.