	87 Francium 223.020	Cesium 132.905	Rb Rubidium 85.468	Potassium 39.098	11 Na Sodium 22.990	IA 1A 1A 1A 1A 1A 1A 1A 1A 1A
Lanthanide Series Actinide Series	Radium 226.025	Ba Barium 137.328	Sr Frontium 87.62	20 Ca Calcium 40.078	Magnesium 24.305	2 IIA 2A Be Begyllium
6 50	89-103	57-71	39 Y Yttrium 88.906	Sc Scandium 44.956	3 IIIB 3B	
58 La Lanthanum 138.905 19 90 AC Actrium	Rutherfordium [261]	72 Hafnium 178.49	40 Zr Zirconium 91.224	22 Titanium 47.867	4 IVB 4B	
Cerium Pra: 140.116 Pra: 232.038 Pra	105 Dubnium [262]	73 Tantalum 180.948	41 Niobium 92.906	23 Vanadium 50.942	5 VB	
Pr seodymium 140.908 Pa otactinium 231.036	Seaborgium [266]	74 W Tungsten 183.84	Mo Molybdenum 95.95	24 Cr Chromium 51.996	6 VIB	
mium 243	107 Bh Bohrium [264]	75 Re Rhenium 186.207		Mn Manganese 54.938	7 VIIB 7B	Pe
Promethium Promethium 144,913 93 Np Neptunium 237,048	108 HS Jm Hassium [269]	76	Ruthenium 101.07	26	* 8	Periodic Table of the Elements
Sm Samarium 150.36 94 Pu Plutonium 244.064		7	4.	27		с Таb
63 Europium 151.964 95 Am Americium 243.061	Meitnerium Darms	Ir Iridium 192.217 P	Rhodium Pa 102,906 Pa	Co Cobalt 58.933	9 VIII —	le of
64 Gadolinium 157.25 96 Cm Curium 247.070	Stadtium	Platinum 195.085 79	Palladium 106.42	Nickel 58.693	7 6	the F
65 Tb Terbium 158.925 97 Berkelium 247.070	Rg Roentgenium [280]	Gold 196.967	Silver 107.868	Cu Copper 63.546	1B 11	:leme
98 Calfornium 251.080	Cn Copernicium [285]	H 9 Mercury 200.592	Cadmium 112.414	30 Zn Zinc 65.38	12 IIB 2B	
9 6	Nihonium [286]	7 Thallium 204.383	In Indium 114.818	31 Ga Gallium 69.723	Aluminum 26.982	13 3A Boron 10.811
7 68 February 100	114 Flerovium [289]	Pb	Sn Tin 118,711	32 Ge Germanium 72.631	14 Silicon 28.086	14 IVA 4A Carbon 12.011
7.259	Moscovium [289]	83 Bismuth 208.980	51 Sb Antimony 121.760	33 AS Arsenic 74,922	Phosphorus	15 VA 5A 5A Nitrogen 14,007
mulium 88.934	116 LV Livermorium [293]	84 Po Polonium [208.982]	Tellurium	34 Se Selenium 78.971	16 Sulfur 32.066	16 VIA 6A 6A Coygen
Yb tterbium 173.055 No lobelium 259.101	ITS Tennessine [294]	85 At n Astatine 209.987		35 Br n Bromine 79.904	17 Cl Chlorine 35.453	17 VIIA 7A Fluorine 18.998
71 Lu Lutetium 174.967 103 Ly Lawrencium [262]	118 Oganesson [294]	2 - 86 2 - 86	54	36	18	

constant	symbol	value
Avogadro's number	N_{A}	6.02214×10 ²³
gas constant	R	0.0820574 L·atm·mol ⁻¹ ·K ⁻¹ 8.31446 J·mol ⁻¹ ·K ⁻¹
speed of light in a vacuum	С	299792458 m·s ⁻¹ (exact)
Planck constant	h	6.62607×10 ⁻³⁴ J·s
Rydberg energy	R_{y}	2.17987×10 ⁻¹⁸ J
Boltzmann constant	k_{B}	1.38065×10 ⁻²³ J·K ⁻¹
elementary charge	е	1.60218×10 ⁻¹⁹ C
mass of electron	m_{e}	$9.10938 \times 10^{-31} \text{ kg}$
atomic mass unit	u	1.66054×10 ⁻²⁷ kg
standard acceleration due to Earth's gravity	g	9.80665 m·s ⁻² (exact)
ion product of water	K_{W}	$1.01158 \times 10^{-14} M^2$
Faraday constant	F	96485.3 C·mol ⁻¹
Coulomb constant	k	8.98755×10 ⁹ N·m ² ·C ⁻²
permittivity of free space	ε ₀	8.85419×10 ⁻¹² N ⁻¹ ·m ⁻² ·C ²

name	formula	Ka
acetic acid	CH ₃ CO ₂ H	1.75×10 ⁻⁵
acetylsalicylic acid	$C_9H_8O_4$	3.02×10 ⁻⁴
ascorbic acid	$C_6H_8O_6$	9.12×10 ⁻⁵
benzoic acid	$C_6H_5CO_2H$	6.25×10 ⁻⁵
butanoic acid	$C_3H_7CO_2H$	1.48×10 ⁻⁵
4-chlorobutanoic acid	$C_3H_6CICO_2H$	3.02×10 ⁻⁵
chlorous acid	HCIO ₂	1.15×10 ⁻²
crotonic acid	$C_3H_5CO_2H$	2.04×10 ⁻⁵
formic acid	HCO ₂ H	1.78×10 ⁻⁴
hypochlorous acid	HCIO	3.98×10 ⁻⁸
hydrocyanic acid	HCN	6.17×10 ⁻¹⁰
hydrofluoric acid	HF	6.31×10 ⁻⁴
nitrous acid	HNO ₂	5.62×10 ⁻⁴
propionic acid	$C_2H_5CO_2H$	1.35×10 ⁻⁵
phenol	C ₆ H ₅ OH	1.02×10 ⁻¹⁰
trimethylacetic acid	$C_4H_9CO_2H$	9.33×10 ⁻⁶

name	formula	K _{b1}	K _{b2}
acetate	CH ₃ CO ₂ -	5.70×10 ⁻¹⁰	
acetylsalicylate	C ₉ H ₇ O ₄ ⁻	3.02×10 ⁻¹¹	
ammonia	NH ₃	1.78×10 ⁻⁵	
aniline	$C_6H_5NH_2$	7.41×10 ⁻¹⁰	
benzoate	C ₆ H ₅ CO ₂ -	1.60×10 ⁻¹⁰	
tert-butylamine	$(CH_3)_3CNH_2$	4.79×10 ⁻⁴	
cyanide	CN-	1.62×10 ⁻⁵	
diethylamine	(CH3CH2)2NH	6.92×10 ⁻⁴	
dimethylamine	(CH ₃) ₂ NH	5.37×10 ⁻⁴	
ethanolamine	HOCH ₂ CH ₂ NH ₂	3.16×10 ⁻⁵	
ethylamine	$CH_3CH_2NH_2$	4.47×10 ⁻⁴	
ethylenediamine	$H_2NCH_2CH_2NH_2$	8.32×10 ⁻⁵	7.59×10 ⁻⁸
fluoride	F ⁻	1.58×10 ⁻¹¹	
formate	HCO ₂ -	5.62×10 ⁻¹¹	
hydrazine	N_2H_4	1.26×10 ⁻⁶	
isopropylamine	(CH3)2CHNH2	4.27×10 ⁻⁴	
methylamine	CH ₃ NH ₂	4.57×10 ⁻⁴	
nitrite	NO ₂ -	1.78×10 ⁻¹¹	
phenolate	C ₆ H ₅ O⁻	9.77×10 ⁻⁵	
piperidine	$C_5H_{10}NH$	1.33×10 ⁻³	
n-propylamine	$CH_3CH_2CH_2NH_2$	3.47×10 ⁻⁴	
1,3-propylenediamine	H ₂ NCH ₂ CH ₂ CH ₂ NH ₂	3.55×10 ⁻⁴	7.59×10 ⁻⁶
pyridine	C_5H_5N	1.70×10 ⁻⁹	
triethylamine	(CH3CH2)3N	5.62×10 ⁻⁴	
trimethylamine	$(CH_3)_3N$	6.31×10 ⁻⁵	
urea	H ₂ NCONH ₂	1.26×10 ⁻¹⁴	

formula	K _{sp}
Al(OH) ₃	1.80×10 ⁻³³
BaCO ₃	2.58×10 ⁻⁹
BaC ₂ O ₄	1.10×10 ⁻⁷
BaCrO ₄	1.17×10 ⁻¹⁰
BaF ₂	1.84×10 ⁻⁷
$Ba(IO_3)_2$	4.01×10 ⁻⁹
BaSO ₄	1.08×10 ⁻¹⁰
Bi_2S_3	1.60×10 ⁻⁷²
CaCO ₃	3.36×10 ⁻⁹
CaC ₂ O ₄	2.32×10 ⁻⁹
CaCrO ₄	1.00×10 ⁻⁸
CaF ₂	3.45×10 ⁻¹¹
$Ca(IO_3)_2$	6.47×10 ⁻⁶
Ca(OH) ₂	5.02×10 ⁻⁶
$Ca_3(PO_4)_2$	2.07×10 ⁻³³
CaSO ₄	4.93×10 ⁻⁵
CdCO ₃	1.0×10 ⁻¹²
Cd(OH) ₂	7.2×10 ⁻¹⁵

CdS	8.00×10 ⁻²⁸
CoCO ₃	1.00×10 ⁻²⁴
Co(OH) ₂	5.92×10 ⁻¹⁵
CoS	4.00×10 ⁻²¹
Cr(OH) ₃	3.00×10 ⁻²⁹
CuBr	6.27×10 ⁻⁹
CuCl	1.72×10 ⁻⁷
CuCO ₃	3.00×10 ⁻¹²
CuI	1.27×10 ⁻¹²
Cu(OH) ₂	2.20×10 ⁻²⁰
CuS	6.00×10 ⁻³⁷
Fe(OH) ₂	4.87×10 ⁻¹⁷
Fe(OH) ₃	2.79×10 ⁻³⁹
FePO ₄	1.30×10 ⁻²²
FeS	6.00×10 ⁻¹⁹
Hg_2Br_2	6.40×10^{-23}
Hg ₂ Cl ₂	1.43×10 ⁻¹⁸
Hg ₂ CO ₃	3.6×10 ⁻¹⁷

$Hg_2(CN)_2$	5.00×10 ⁻⁴⁰
Hg_2I_2	5.2×10 ⁻²⁹
HgS	4.00×10 ⁻⁵⁴
Hg ₂ SO ₄	6.5×10 ⁻⁷
PbBr ₂	6.60×10 ⁻⁶
PbCl ₂	1.70×10 ⁻⁵
PbCO ₃	7.40×10 ⁻¹⁴
PbCrO ₄	2.00×10 ⁻¹⁴
PbF ₂	3.3×10 ⁻⁸
PbI ₂	9.8×10 ⁻⁹
$Pb(IO_3)_2$	3.69×10 ⁻¹³
PbS	3.40×10 ⁻²⁸
PbSO ₄	2.53×10 ⁻⁸
MgCO ₃	6.82×10 ⁻⁶
MgF ₂	5.16×10 ⁻¹¹
$Mg(OH)_2$	5.61×10 ⁻¹²
$Mg_3(PO_4)_2$	1.04×10 ⁻²⁴
Mn(OH) ₂	1.60×10 ⁻¹³
MnS	3.00×10 ⁻¹⁴

NiCO ₃	1.42×10 ⁻⁷		
Ni(OH) ₂	5.48×10 ⁻¹⁶		
NiS	1.40×10 ⁻²⁴		
RaSO ₄	2.00×10 ⁻¹¹		
AgBrO ₃	5.38×10 ⁻⁵		
Ag ₂ CO ₃	8.46×10 ⁻¹²		
AgBr	5.35×10 ⁻¹³		
AgCl	1.77×10 ⁻¹⁰		
Ag ₂ CrO ₄	1.12×10 ⁻¹²		
AgCN	5.97×10 ⁻¹⁷		
AgI	8.52×10 ⁻¹⁷		
AgIO ₃	3.17×10 ⁻⁸		
Ag ₃ PO ₄	8.89×10^{-17}		
Ag ₂ S	6.00×10 ⁻⁵¹		
Ag ₂ SO ₄	1.20×10 ⁻⁵		
SnS	1.00×10^{-26}		
SrCO ₃	5.60×10 ⁻¹⁰		
SrF ₂	4.33×10 ⁻⁹		
$Sr(IO_3)_2$	1.14×10 ⁻⁷		
Sr(OH) ₂	3.20×10 ⁻⁴		
SrSO ₄	3.44×10 ⁻⁷		
ZnCO ₃	1.46×10 ⁻¹⁰		
$Zn(IO_3)_2$	3.90×10 ⁻⁶		
Zn(OH) ₂	3.00×10 ⁻¹⁷		
ZnS	3.00×10 ⁻²³		