The Elements

Element	Symbol	Atomic number	Ionization energy (kJ/mol)	Electro-negativity	Electron affinity (kJ/mol)	Ionic radius (pm)	Common ion charge
actinium	Ac	89	509	1.1		111	3+
aluminum	Al	13	578	1.5	42.5	50	3+
americium	Am	95	578	1.3		97.5	3+
antimony	Sb	51	834	1.9	100.9	76	3+
argon	Ar	18	1521				
arsenic	As	33	947	2.0	78	222	
astatine	At	85		2.2	[270]	227	1–
barium	Ba	56	503	0.89	[14]	135	2+
berkelium	Bk	97	601	1.3		98	3+
beryllium	Be	4	899	1.5		31	2+
bismuth	Bi	83	703	1.9	91.3	96	3+
boron	B	5	801	2.04	26.7		
bromine	Br	35	1140	2.8	324.54	196	1–
cadmium	Cd	48	868	1.69		97	2+
calcium	Ca	20	590	1.00	1.78	99	2+
californium	Cf	98	608	1.3		95	3+
carbon	C	6	1086	2.55	121.85		
cerium	Ce	58	528	1.12		102	3+
cesium	Cs	55	376	0.7	45.50	169	1+
chlorine	Cl	17	1251	3.0	348.57	181	1–
chromium	Cr	24	653	1.6	64.3	64	3+
cobalt	Co	27	758	1.8	63.9	74.5	2+
copper	Cu	29	745	1.90	119.2	72	2+
curium	Cm	96	581	1.3		97	3+
dysprosium	Dy	66	572	1.22		91.2	3+
einsteinium	Es	99	619	1.3		98	3+
erbium	Er	68	589	1.24		89.0	3+
europium	Eu	63	547	1.2		94.7	3+
fermium	Fm	100	627	1.3		97	3+
fluorine	F	9	1681	4.0	328.16	136	1–
francium	Fr	87		0.7	[44]	180	1+
gadolinium	Gd	64	592	1.1		93.8	3+
gallium	Ga	31	579	1.6	29	62.0	3+
germanium	Ge	32	762	1.8	119.0	53.0	4+
gold	Au	79	890	2.4	222.75	91	3+
hafnium	Hf	72	680	1.3	[≈0]	78	4+
helium	He	2	2372				
holmium	Ho	67	581	1.23		90.1	3+
hydrogen	H	1	1312	2.1	72.55	10^{-3}/154	1+/1–
indium	In	49	558	1.7	29	81	3+
iodine	I	53	1008	2.5	295.15	216	1–
iridium	Ir	77	880	2.2	151.0	64	4+
iron	Fe	26	759	1.8	14.6	64.5	3+
krypton	Kr	36	1351				
lanthanum	La	57	538	1.10	[48]	106	3+
lawrencium	Lr	103				94	3+
lead	Pb	82	716	1.8	35.1	120	2+
lithium	Li	3	520	0.98	59.63	68	1+
lutetium	Lu	71	524	1.2		86.1	3+
magnesium	Mg	12	738	1.2		65	2+

Element	Symbol	Atomic number	Ionization energy (kJ/mol)	Electro-negativity	Electron affinity (kJ/mol)	Ionic radius (pm)	Common ion charge
manganese	Mn	25	717	1.5		80	2+
mendelevium	Md	101	635	1.3		114	2+
mercury	Hg	80	1007	1.9		110	2+
molybdenum	Mo	42	685	1.8	72.2	62	6+
neodymium	Nd	60	530	1.2		98.3	3+
neon	Ne	10	2081				
neptunium	Np	93	605	1.3		75	5+
nickel	Ni	28	737	1.8	111.5	72	2+
niobium	Nb	41	664	1.6	86.2	72	5+
nitrogen	N	7	1402	3.0			
nobelium	No	102	642	1.3		110	2+
osmium	Os	76	840	2.2	[19]	65	4+
oxygen	O	8	1314	3.50	140.98	140	
palladium	Pd	46	805	2.2	54.2	86	2+
phosphorus	P	15	1012	2.1	72.03	212	
platinum	Pt	78	870	2.2	205.3	70	4+
plutonium	Pu	94	585	1.3		86	4+
polonium	Po	84	812	2.0	[183]	65	4+
potassium	K	19	419	0.8	48.38	138	1+
praseodymium	Pr	59	523	1.13		99	3+
promethium	Pm	61	535	1.2		97	3+
protactinium	Pa	91	568	1.5		78	5+
radium	Ra	88	509	0.9		148	2+
radon	Rn	86	1037				
rhenium	Re	75	760	1.9	[14]	60	7+
rhodium	Rh	45	720	2.2		75	3+
rubidium	Rb	37	403	0.82	46.88	148	1+
ruthenium	Ru	44	711	2.2	[101]	77	3+
samarium	Sm	62	543	1.17		95.8	3+
scandium	Sc	21	631	1.3	18.1	81	3+
selenium	Se	34	941	2.4	194.96	198	
silicon	Si	14	786	1.8			
silver	Ag	47	731	1.93	125.6	126	1+
sodium	Na	11	496	0.93	52.87	95	1+
strontium	Sr	38	549	0.95	4.6	113	2+
sulfur	S	16	1000	2.5	200.41	184	
tantalum	Ta	73	761	1.5	31.1	68	5+
technetium	Tc	43	702	1.9	[53]	58	
tellurium	Te	52	869	2.1	190.15	221	2–
terbium	Tb	65	564	1.2	(–48)	92.3	3+
thallium	Tl	81	589	1.8	–9	144	1+
thorium	Th	90	587	1.3		94	4+
thulium	Tm	69	596	1.25		88.0	3+
tin	Sn	50	709	1.8	107.3	71	4+
titanium	Ti	22	658	1.54	7.6	68	4+
tungsten	W	74	770	1.7	78.6	65	6+
uranium	U	92	598	1.7		73	6+
vanadium	V	23	650	1.63	50.7	59	5+
xenon	Xe	54	1170				
ytterbium	Yb	70	603	1.1		86.8	3+
yttrium	Y	39	616	1.3	29.6	93	3+
zinc	Zn	30	906	1.65		74.0	2+
zirconium	Zr	40	660	1.4	41.1	79	4+

Bracketed values are calculated.
Values in parentheses are estimated.
Values in this table are taken from Lange's *Handbook of Chemistry*.