

bonding capacity

Data Sheet – CHEM 203
Periodic Table

The shell closest to the nucleus, 1n, can hold two electrons, while the next shell, 2n, can hold eight, and the third shell, 3n, can hold up to eighteen. The number of electrons in the outermost shell of a particular atom determines its reactivity, or tendency to form chemical bonds with other atoms. (Khan Academy)

1 1A H 1.008	2 2A Li 6.941	3 3A B 10.81	4 4A C 12.01	5 5A N 14.01	6 6A O 16.00	7 7A F 19.00	8 8A Ne 20.18
11 1A Na 22.99	12 2A Mg 24.31	13 3A Al 26.98	14 4A Si 28.09	15 5A P 30.97	16 6A S 32.07	17 7A Cl 35.45	18 8A Ar 39.95
19 1A K 39.10	20 2A Ca 40.08	21 3A Sc 44.96	22 4A Ti 47.88	23 5A V 50.94	24 6A Cr 52.00	25 7A Mn 54.94	26 8A Fe 55.85
37 1A Rb 85.47	38 2A Sr 87.62	39 3A Y 88.91	40 4A Zr 91.22	41 5A Nb 92.91	42 6A Mo 95.94	43 7A Tc (98)	44 8A Ru 101.1
55 1A Cs 132.9	56 2A Ba 137.3	57 3A La 138.9	58 4A Hf 178.5	59 5A Ta 180.9	60 6A W 183.9	61 7A Re 186.2	62 8A Os 190.2
87 1A Fr (223)	88 2A Ra (226)	89** 3A Ac (227)	90 4A Th (232)	91 5A Pa (231)	92 6A U (238)	93 7A Np (237)	94 8A Pu (244)
			95 9A Am (243)	96 10A Cm (247)	97 11A Bk (247)	98 12A Cf (251)	99 13A Es (252)
			100 14A Fm (257)	101 15A Md (258)	102 16A No (259)	103 17A Lr (260)	

Lanthanides *

58 Ce 140.1	59 Pr 140.9	60 Nd 144.2	61 Pm (145)	62 Sm 150.4	63 Eu 152.0	64 Gd 157.3	65 Tb 158.9	66 Dy 162.5	67 Ho 164.9	68 Er 167.3	69 Tm 168.9	70 Yb 173.0	71 Lu 175.0
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Actinides **

90 Th 232.0	91 Pa 231.0	92 U 238.0	93 Np 237.0	94 Pu (244)	95 Am (243)	96 Cm (247)	97 Bk (247)	98 Cf (251)	99 Es (252)	100 Fm (257)	101 Md (258)	102 No (259)	103 Lr (260)
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Table 1 Bonding Capacities of Some Common Atoms

Atom	Number of valence electrons	Number of bonding electrons	Bonding capacity
carbon	4	4	4
nitrogen	5	3	3
oxygen	6	2	2
halogens	7	1	1
hydrogen	1	1	1