

ELECTRON AFFINITY

Electron affinity (EA) is another measure of the tendency of an atom to attract an electron from another atom, but it has a more precise definition than electronegativity.

EA is the the energy change that occurs when an electron e^- is added to a neutral atom A in the gaseous state (i.e. not bonded to anything else):



EA is defined as the energy of A^- minus the energy of $A + e^-$, so if EA is negative, the atom A has a greater affinity for absorbing another electron than an element with a more positive EA.

When we look at the periodic table, the EA trend is very similar to the electronegativity trend. Here I've made the noble gas elements gray to indicate that, because of the full valence shell, they have little affinity for taking on another electron.

Electron Affinity (EA) Trend

Directions of increasing electron affinity

1A		2A																	0					
1 H 1.00797																							2 He 4.0026	
3 Li 6.941	4 Be 9.0122																		5 B 10.811	6 C 12.01115	7 N 14.0067	8 O 15.9894	9 F 18.9984	10 Ne 20.179
11 Na 22.9898	12 Mg 24.305																		13 Al 26.9815	14 Si 28.086	15 P 30.9738	16 S 32.064	17 Cl 35.453	18 Ar 39.948
19 K 39.098	20 Ca 40.08	21 Sc 44.956	22 Ti 47.90	23 V 50.942	24 Cr 51.996	25 Mn 54.9380	26 Fe 55.847	27 Co 58.9332	28 Ni 58.70	29 Cu 63.54	30 Zn 65.38	31 Ga 69.72	32 Ge 72.59	33 As 74.9216	34 Se 78.96	35 Br 79.904	36 Kr 83.80							
37 Rb 85.47	38 Sr 87.62	39 Y 88.905	40 Zr 91.22	41 Nb 92.906	42 Mo 95.94	43 Tc (99)	44 Ru 101.07	45 Rh 102.905	46 Pd 106.4	47 Ag 107.868	48 Cd 112.41	49 In 114.82	50 Sn 118.69	51 Sb 121.75	52 Te 127.60	53 I 126.9045	54 Xe 131.30							
55 Cs 132.905	56 Ba 137.53	57 La 138.91	72 Hf 178.49	73 Ta 180.948	74 W 183.85	75 Re 186.2	76 Os 190.2	77 Ir 192.2	78 Pt 195.09	79 Au 196.967	80 Hg 200.59	81 Tl 204.37	82 Pb 207.19	83 Bi 208.980	84 Po (210)	85 At (210)	86 Ra (222)							
87 Fr (223)	88 Ra 226.0254	89 Ac (227)	104 Rf (257)	105 Ha (260)																				

Not much electron affinity

Source: <http://www.dracruz.com/PeriodicTrends.html>