

## Answer on Question #61893, Chemistry / Inorganic Chemistry

**Condition:** Explain why the electron affinities of the elements of Period 3 are higher than those of the corresponding elements of Period 2 of the periodic table

### Solution:

In the field of chemistry and atomic physics, the electron affinity of the atom or molecule is defined as the amount of energy released or waste, when an electron is added to a neutral atom or molecule in the gaseous state, forming a negative ion.

Although Eea varies greatly according to the periodic table, some patterns. Typically, non-metals have a positive EEA, than metals. Atoms whose anions are more stable than neutral atoms have a greater EEA. Chlorine is most strongly attracts extra electrons; mercury most weakly attracts an extra electron. Electron affinity noble gases finally measured so that they may or may not have a slightly negative value.

Eea generally increases over time (line) in the periodic table. This is caused by the filling of the valence shell of an atom; Group 17 atoms releases more energy than a Group 1 to the electron as it gets filled valence shell and is therefore more stable.

The tendency to decrease down EEA group in the periodic table could be expected. Additional electron will enter orbit farther from the nucleus. Since the electron is further from the core is less attracted to the core and will produce less energy when added. Nevertheless, it is obvious counterexample to this trend can be found in Group 2, and observed the entire periodic table, it turns out that the proposed trend applies only to the atoms of the 1st group.

Electron affinities in the periodic table																		
Group →	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
↓ Period																		
1	H 73																	He -1894
2	Li 60	Be -231											B 27	C 122	N -134	O 141	F 328	Ne ·
3	Na 53	Mg ·											Al 42	Si 134	P 72	S 200	Cl 349	Ar -1106
4	K 48	Ca 2	Sc 18	Ti 8	V 51	Cr 65	Mn (-96)	Fe 15	Co 64	Ni 112	Cu 119	Zn ·	Ga 41	Ge 119	As 79	Se 195	Br 324	Kr ·
5	Rb 47	Sr 5	Y 30	Zr 41	Nb 88	Mo 72	Tc ·	Ru 101	Rh 110	Pd 54	Ag 126	Cd ·	In 39	Sn 107	Sb 101	Te 190	I 295	Xe (-5)
6	Cs 46	Ba 14	*	Hf (11)	Ta 31	W 79	Re 14	Os 104	Ir 150	Pt 205	Au 223	Hg ·	Tl 36	Pb 35	Bi 91	Po (127)	At (269)	Rn ·
7	Fr (47)	Ra	**	Rf	Db	Sg	Bh	Hs	Mt	Ds	Rg	Cn	Uut	Fl	Uup	Lv	Uus (173)	Uuo (5)
			*	La 45	Ce 55	Pr 93	Nd (16)	Pm (12)	Sm (16)	Eu 11	Gd (13)	Tb (42)	Dy (34)	Ho (33)	Er (30)	Tm 99	Yb 0	Lu 33
			**	Ac	Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr

Legend