

### Enthalpy changes

change in formation	1 mole of compound formed from its elements in its std. state, under std. condition (applies to all)
change of combustion	1 mole of compound in its std. state fully burnt in excess oxygen
ionization energy	energy required to remove one electron from one mole of gaseous atoms (to form ion with charge +1...etc)
electron affinity	energy required for 1 mole gaseous atom to gain one electron (to form ion with charge -1...etc)
bond energy	energy to break 1 mole of bond in 1 mol gaseous atoms
change of atomisation	1 mol of gaseous atoms formed from its element
change of lattice	1 mol of solid crystal formed from its gaseous atoms
change of hydration	1 mole of gaseous atoms fully dissolved in water to become infinitely diluted
change of solution	1 mole of ionic compound fully dissolve in water

### Factors affecting EA (to be more exo)

- 1) charge - higher
  - 2) distance/radii - smaller
  - 3) shielding - less
- \*stronger attractive force = more exo
- Eg. Across period- charge increase, shielding and radii same, so more exo
- Eg. Down period- shielding increases, so less exo
- \*except fluorine- electron density is high so more repulsion thus lower EA than chlorine

### Entropy

- Increases when there is change of state/ increase in number of molecules of product/ more disorderliness
- \*complex substance > simple
- \*mixtures > pure substance
- High entropy means that the reaction is spontaneous and feasible
- \*change of entropy/formation = product - reactant
- \*change of combustion/B.E = reactant - product

### Gibbs Free

- change of gibbs free = change of enthalpy - temperature in K(entropy change)
- \*entropy divide by 1000 , J to kJ
- For reaction to be feasible gibbs free must be negative( G=0 for temp feasible)

### Enthalpy change of solution

- exothermic = soluble (change of hyd is big)
- change of solution = -lattice E. + change of hydration



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Not published yet.

Last updated 8th April, 2022.

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