Energetics – Table of Definitions

Standard Enthalpies	Symbol	Definition
reaction	ΔH^o_{rxn}	enthalpy change when 1 mole of matter is transformed in a chemical reaction under standard conditions
average bond	ΔH^o_D ΔD	average of enthalpy changes when 1 molecular bond in similar gaseous compounds is broken under standard conditions
formation	ΔH^o_f	enthalpy change when 1 mole of a compound is formed from its constituent elements under standard conditions
combustion	ΔH^o_c	enthalpy change when 1 mole of a substance is completely combusted in the presence of O_2 under standard conditions
fusion	ΔH^o_{fsn}	enthalpy change resulting from the change of state of 1 mole of a substance from solid to liquid or liquid to solid
vapourization	ΔH^o_{vap}	enthalpy change resulting from the change of state of 1 mole of a substance from liquid to gas or gas to liquid
atomization	ΔH^o_{atm}	enthalpy change resulting from the change of state of 1 mole of a substance from solid to gas or gas to solid (sublimation)
solution	ΔH^o_{sol}	enthalpy change resulting from the dissociation of 1 mole of solute into its ions in a given solvent (dissociation + solvation) $\Delta H^o_{sol} = -LE + \Delta H^o_{solv}$
solvation/hydration	ΔH^o_{solv} ΔH^o_{hyd}	enthalpy change when 1 mole of ions is solvated/hydrated (surrounded by ligands of solvent) under standard conditions
neutralization	ΔH^o_n	enthalpy change when 1 mole of water is produced by the neutralization of an acid and a base (not necessarily 1 mole)
lattice	ΔH^o_L LE	enthalpy change when 1 mole of ionic compound is formed from its gaseous ions under standard conditions

Other Energies		
ionization energy	ΔH^o_I IE	the minimum energy required to remove 1 electron from an atom in its gaseous grounded electric state; always negative $X_{(g)} + IE \longrightarrow X^+_{(g)} + e^-$
electron affinity	ΔH^o_E EA	the energy change when 1 electron is added to a neutral atom in gaseous state to form a negative ion $X_{(g)} + e^- \longrightarrow X^-_{(g)} + EA$