Standard Enthalpy Change for A Levels

S/N	Terms	'Amt of substance' used in calculation	Sample Equation	Signs of ΔH	Remarks
1	$\Delta H_r^\ominus$	Overall based on thermochemical eqn	$\underline{2H_2\,(g)} + \underline{O_2\,(g)} \rightarrow \underline{2H_2O\,(l)}$	+/–ve	ΔH_r = $\sum\Delta H_f$ of product – $\sum\Delta H_f$ of reactant
2	$\Delta H_n^\ominus$	Water formed after neutralisation	$NaOH(aq) + HCl(aq) \rightarrow NaCl(aq) + \underline{H_2O(l)}$	Always –ve	Formation of water
3	$\Delta H_c^\ominus$	Compound before burning	$\underline{C_3H_6\,(g)} + 4\frac{1}{2}O_2\,(g) \rightarrow 3CO_2\,(g) + 3H_2O\,(l)$	Usually –ve	Energy is usually released during burning
4	$\Delta H_{atom}^\ominus$	**Gaseous** atoms formed after atomisation	$\frac{1}{2}Cl_2\,(g) \rightarrow \underline{Cl\,(g)}$	Always +ve	Breaking the bonds between atoms
		Gaseous compound before atomisation	$\underline{C_2H_6\,(g)} \rightarrow 2C\,(g) + 6H\,(g)$	Always +ve	Breaking bonds in the compound
5	$\Delta H_{disso}^\ominus$	Covalent bonds broken during dissociation	$CH_4\,(g) \rightarrow CH_3\,(g) + H\,(g)$ **Number of C-H bonds broken**	Always +ve	Breaking the bond between atoms
6	**I.E.**	Electrons removed from **gaseous** atoms	$\underline{Cl\,(g)} \rightarrow \underline{Cl^+\,(g)} + \underline{e^-}$	Always +ve	Overcome the attraction of valence e^- and nucleus
7	**E.A.**	Electrons added to **gaseous** atoms	$\underline{O\,(g)} + \underline{e^-} \rightarrow \underline{O^-\,(g)}$	1st: Always –ve Usually +ve	e^- forms bond with atom; overcome e^- repulsion
8	$\Delta H_{latt}^\ominus$	Ionic compound formed from **gaseous** ions	$Mg^{2+}\,(g) + 2Cl^-\,(g) \rightarrow \underline{MgCl_2\,(s)}$	Always –ve	Formation of bond between ions
9	$\Delta H_{hyd}^\ominus$	**Gaseous** ions before hydration	$\underline{Na^+\,(g)} + aq \rightarrow Na^+\,(aq)$	Always –ve	Formation of bond between ion and water
10	$\Delta H_{sol}^\ominus$	Substance before dissolving	$\underline{MgCl_2\,(s)} + aq \rightarrow Mg^{2+}\,(aq) + 2Cl^-\,(aq)$	+/–ve	–ve → soluble +ve → insoluble
11	$\Delta H_f^\ominus$	Compound formed from constituent elements	$K\,(s) + \frac{1}{2}Cl_2\,(g) + \frac{3}{2}O_2\,(g) \rightarrow \underline{KClO_3\,(s)}$	+/–ve	$\Delta H_f^\ominus$ of element = 0

PS: Unless the definition states that the particles are in its gaseous state, it will always be in its standard state.