

ENTHALPY CHANGE DEFINITIONS

Name Form



Enthalpy change	Definition	Exo/endothermic	Example
Enthalpy of formation (ΔH_f^\ominus):	Enthalpy change when one mole of a substance is formed from its constituent elements with all substances in their standard states		e.g. $\text{Na}_2\text{O}(\text{s})$
Enthalpy of combustion (ΔH_c^\ominus)	Enthalpy change when one mole of a substance undergoes complete combustion in oxygen.		e.g. hydrogen
Ionisation enthalpy (ΔH_i^\ominus)	The first ionisation energy is the enthalpy change when one mole of gaseous atoms loses one electron per atom to produce gaseous 1+ ions.		e.g. magnesium
	The second ionisation energy is when one mole of gaseous 2+ ions is produced from one mole of 1+ ions.		e.g. magnesium
Electron affinity (ΔH_{ea}^\ominus)	The first electron affinity is the enthalpy change when one mole of gaseous atoms gains one electron per atom to produce gaseous 1- ions.		e.g. oxygen
	The second electron affinity is the enthalpy change when one mole of gaseous 1- ions gains one electron per ion to produce gaseous 2- ions.		e.g. oxygen
Enthalpy of atomisation (ΔH_a^\ominus)	Enthalpy change when one mole of gaseous atoms is produced from an element in its normal state.		e.g. iodine
Hydration enthalpy (ΔH_{hyd}^\ominus)	Enthalpy change when one mole of gaseous ions become hydrated (dissolved in water).		e.g. magnesium ions
Enthalpy of solution (ΔH_{sol}^\ominus)	Enthalpy change when one mole of an ionic solid dissolves in an amount of water large enough so that the dissolved ions are well separated and do not interact with each other.		e.g. magnesium chloride
Bond dissociation enthalpy (ΔH_{dis}^\ominus)	Enthalpy change when one mole of covalent bonds is broken in the gaseous state .		e.g. I-I bond
Lattice enthalpy of formation (ΔH_l^\ominus)	Enthalpy change when one mole of a solid ionic compound is formed from into its constituent ions in the gas phase		e.g. magnesium chloride
Lattice enthalpy of dissociation (ΔH_l^\ominus)	Enthalpy change when one mole of a solid ionic compound is broken up into its constituent ions in the gas phase		e.g. magnesium chloride

Questions

- ΔH_f^\ominus of $\text{C}_6\text{H}_6(\text{l})$
- ΔH_f^\ominus of $\text{CH}_3\text{COOH}(\text{l})$
- ΔH_c^\ominus of $\text{H}_2(\text{g})$
- ΔH_c^\ominus of $\text{CH}_3\text{COOH}(\text{l})$
- 1st ionisation energy of aluminium
- 2nd ionisation energy of aluminium
- 3rd ionisation energy of aluminium
- 1st electron affinity of chlorine
- lattice enthalpy of formation of sodium oxide
- lattice enthalpy of dissociation of aluminium oxide
- ΔH_{hyd}^\ominus of sodium ions
- ΔH_{hyd}^\ominus of oxide ions
- ΔH_{sol}^\ominus of sodium oxide
- ΔH_{sol}^\ominus of magnesium carbonate
- Bond dissociation enthalpy of water
- Bond dissociation enthalpy of hydrogen
- ΔH_a^\ominus of bromine