

4 (a) Define enthalpy change of atomisation, ΔH_{at} .

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..... [1]

(b) Define first electron affinity, EA.

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..... [1]

(c) Explain why the first electron affinity of chlorine is more exothermic than the first electron affinity of iodine.

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..... [2]

(d) The enthalpy change for the reaction $\text{Cl}_2(\text{g}) + 2\text{e}^- \rightarrow 2\text{Cl}^-(\text{g})$ is -486 kJ mol^{-1} .

The first electron affinity of chlorine is -364 kJ mol^{-1} .

Calculate the enthalpy change of atomisation of chlorine.

ΔH_{at} of chlorine = kJ mol^{-1} [2]

[Total: 6]