

Definitions and Concepts for CAIE Chemistry IGCSE

Topic 6 - Chemical Energetics

Definitions in **bold** are for extended supplement only

Definitions have been taken, or modified from the [CAIE Specification for GCSE Chemistry, 0971, Version 1 September 2020](#)

Endothermic reaction: A reaction that takes in energy from the surroundings so the temperature of the surroundings decreases. **In an endothermic reaction, the energy needed to break existing bonds is greater than the energy released from forming new bonds.**

Exothermic reaction: A reaction that transfers energy to the surroundings so the temperature of the surroundings increases. **In an exothermic reaction, the energy released from forming new bonds is greater than the energy needed to break existing bonds.**

Fuel cell: An electrochemical cell which continuously produces a voltage when supplied with a fuel and oxygen. The fuel donates electrons at one electrode and oxygen gains electrons at the other electrode.

Hydrogen-oxygen fuel cell: A fuel cell in which hydrogen and oxygen are the reactants used to produce a voltage. Water is the only product. The overall reaction for the hydrogen-oxygen fuel cell is: $2\text{H}_2 + \text{O}_2 \rightarrow 2\text{H}_2\text{O}$

Isotope: Atoms of the same element with the same number of protons but a different number of neutrons. Radioactive isotopes are used as a source of energy.

Overall energy change of the reaction: The difference between the sum of the energy needed to break bonds in the reactants and the sum of the energy released when bonds in the products are formed.

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