

Definitions and Concepts for Edexcel Chemistry GCSE

Topic 5 - Separate Chemistry 1

Definitions in **bold** are for higher tier only

Definitions marked by '*' are for separate sciences only

Definitions have been taken, or modified from the [Edexcel Specification for GCSE Chemistry. 1CH0. Issue 3. February 2018](#)

***Actual yield:** The mass of product obtained from a reaction. It is normally less than the theoretical yield due to incomplete reactions, side reactions and loss of product in transfer.

***Alloys:** A metal compound made by combining two or more metals together. This process is carried out to give the material greater strength or resistance to corrosion.

***Atom economy:** The measure of the amount of starting materials that end up as useful products.

$$\text{Percentage atom economy} = \frac{\text{Molecular mass of desired product}}{\text{Sum of molecular masses of all reactants}} \times 100$$

***Avogadro's Law:** Equal volumes of different gases will contain the same number of molecules.

***By-product:** A secondary product made in the reaction of something else.

***Chemical cell:** A cell which converts chemical energy to electrical energy. They are made up of two metal electrodes connected by an electrolyte. The cell produces a voltage until one of the reactants is used up.

***Corrosion:** The destruction of materials by chemical reactions with substances in the environment. For example, iron rusts when exposed to water and oxygen.

***Dynamic equilibrium:** Reached by a reversible reaction when the rate of the forward reaction is equal to the rate of the backward reaction. At dynamic equilibrium, the concentration of reactants and products remains constant.

***Electroplating:** The process of coating a metal with a thin layer of another metal by electrolysis to improve the metal's corrosion resistance or to improve the metal's

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appearance.

***Fertiliser:** A chemical added to soil to increase the fertility, allowing crops to grow more effectively. They generally contain compounds of nitrogen, potassium and phosphorus.

***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.

***Haber process:** An industrial process which produces ammonia from the reaction between nitrogen and hydrogen. The reaction conditions are 450°C and 200 atm and it requires an iron catalyst.

***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: $2\text{H}_2 + \text{O}_2 \rightarrow 2\text{H}_2\text{O}$

***Molar volume:** The volume occupied by one mole of gaseous molecules.

***Molar volume at RTP:** The volume occupied by one mole of molecules of any gas at room temperature and pressure. The molar volume at RTP is 24 dm³.

***Percentage yield:** The percentage ratio of the actual yield of product from a reaction compared with the theoretical yield.

$$\text{Percentage yield} = \frac{\text{Actual yield}}{\text{Theoretical Yield}} \times 100$$

***Sacrificial protection:** The protection of iron or steel against corrosion by using a more reactive metal. Zinc is often used as a sacrificial metal.

***Theoretical yield:** The maximum possible mass of product that can be obtained from a reaction.

***Titration:** A technique used where a solution of known concentration is used to determine the concentration of an unknown solution.

***Transition metal:** A metal found between Group 2 and 3 of the periodic table. Typical properties include high melting points, high densities, form coloured compounds and catalytic activity.

