

## Definitions and Concepts for WJEC (Eduqas) Chemistry GCSE

### Topic 11 - Production, Use and Disposal of Important Chemicals and Materials

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

Definitions have been taken, or modified from the [WJEC \(Eduqas\) Specification for GCSE Chemistry, C410, Version 3 January 2019](#)

**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.

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

**By-product:** A secondary product made in the reaction of something else. The usefulness of a by-product influences whether a particular reaction pathway is chosen.

**Clay ceramics:** Ceramics made from firing moulded wet clay in a furnace until it hardens. Used for pottery and bricks.

**Composites:** Generally made up of two materials - a matrix/binder material which surrounds the reinforcement material. They have a very broad range of uses as the combination of several materials gives the composite a range of properties.

**Corrosion:** The destruction of materials by chemical reactions with substances in the environment, e.g. rusting.

**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.

**Glass:** A type of ceramic. Glass has a high melting point which allows the ceramic to be moulded when hot. Soda-lime glass and borosilicate glass are both types of glass ceramics. This work by [PMT Education](#) is licensed under [CC BY-NC-ND 4.0](#)



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

**Life-cycle assessment:** The analysis of the impact a product has on the environment. It considers the raw materials, manufacturing, packaging, transportation, product use and disposal.

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

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

**Polymer:** Large long-chain molecule made up of lots of small monomers joined together by covalent bonds.

**Sacrificial protection:** The protection of iron or steel against corrosion by using a more reactive metal. Zinc is often used as a sacrificial metal. Sacrificial protection creates a physical barrier to oxygen and water, preventing corrosion of the metal.

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

