Definitions and Concepts for Edexcel Chemistry GCSE

Topic 4 - Extracting Metals and Equilibria

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*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

Bacterial extraction: A method of metal extraction which uses bacteria to extract metals from their ores. The bacteria breaks down low-grade ores to produce an acidic solution containing metal ions.

Cation: A positively charged ion. Metals tend to form cations. Formed when an atom loses at least one electron.

Displacement: A chemical reaction in which a more reactive element displaces a less reactive element from its compound.

Dynamic equilibrium: A reversible reaction will reach dynamic equilibrium 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.

Electrolysis: The splitting up of an ionic compound using electricity. The electric current is passed through a substance causing chemical reactions at the electrodes which leads to the decomposition of the materials. Electrolysis is used for metal extraction if the metal is more reactive than carbon.

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.

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.

Ore: A type of rock which contains metal compounds. The metals or metal compounds are present in sufficient amounts to make it worth extracting them.

Oxidation: A reaction involving the gain of oxygen. **Oxidation is the loss of electrons.**

Phytoextraction: A method of metal extraction which uses plants to absorb the metal compounds through their roots. The plants are then burned so that the metal compound can be removed from the ash.

Reactivity series: A series in which metals are arranged in order of their reactivity. This can be used to predict products from reactions.

Redox reaction: A reaction in which both oxidation and reduction occur simultaneously.

Reduction: A reaction involving the loss of oxygen. **Reduction is the gain of electrons.**

Reduction with carbon: Process used to extract metals from their oxides when the metal is less reactive than carbon. The metal oxide is heated with carbon so that carbon reduces the metal oxide to the metallic element.

Reversible reaction: A reaction in which the products can react together to reform the reactants. Reversible reactions are denoted by the symbol ⇌.