Definitions and Concepts for WJEC (Eduqas) Chemistry GCSE

Topic 10 - Carbon Compounds

*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

Addition polymerisation: The reaction in which many small molecule monomers bond together to form a long chain polymer.

Addition reaction: A reaction in which at least two molecules combine together to form a larger molecule.

Alcohols: Organic compounds containing the functional group –OH. The first four members of a homologous series of alcohols are methanol, ethanol, propanol and butanol. Alcohols can be oxidised to carboxylic acids.

Alkanes: The most common hydrocarbon found in crude oil. The first four members of a homologous series of alkanes are methane, ethane, propane and butane. Alkanes have the general formula C_nH_{2n+2}.

Alkenes: Hydrocarbons with a double bond between two of the carbon atoms in their chain, causing them to be unsaturated. The first four members of a homologous series of alkenes are ethene, propene, butene and pentene. Alkenes have the general formula C_nH_{2n}.

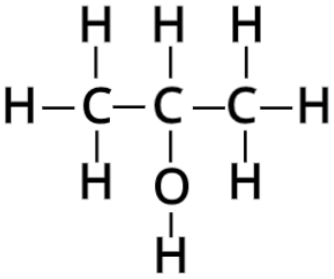
Carboxylic acids: Organic compounds containing the functional group –COOH. The first four members of a homologous series of carboxylic acids are methanoic acid, ethanoic acid, propanoic acid and butanoic acid. Carboxylic acids have typical acidic properties.

Condensation polymerisation: **Reactions in which monomers join together and lose small molecules, such as water. These reactions involve monomers with two functional groups.**

Cracking: A process that involves breaking down larger hydrocarbons to produce smaller more useful molecules. Cracking can be done by catalytic cracking or steam cracking.

Crude oil: A finite resource found in rocks. It is the remains of an ancient biomass consisting mainly of plankton that was buried in mud. Most of the compounds in crude oil are hydrocarbons which can be separated by fractional distillation.

Displayed formula: A type of formula that shows all the bonds between every atom in the compound. E.g.



DNA: Molecule which encodes genetic instructions for the development and functioning of living organisms and viruses. Most DNA molecules are two polymer chains, made from four different nucleotides, in the form of a double helix.

Finite resource: A resource which will one day run out.

Fractional distillation: A process used to separate a mixture of liquids. The liquids have different boiling points so can be separated into different fractions within a fractionating column.

Functional group: The group of atoms responsible for how a particular compound reacts. All compounds in the same homologous series have the same functional group.

General formula: A chemical formula which applies to a class of compounds, representing the composition of the atoms present in the compound. For example, alkanes have the general formula C_nH_{2n+2} where n is the number of carbon atoms in the molecule.

Homologous series: A series of compounds with the same functional group and similar chemical properties.

Hydrocarbons: Molecules that are made up of hydrogen and carbon atoms only.

Monomer: Small short chain molecules which can join together to form a long chain polymer.

Nucleotides: The monomers which make up DNA.

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

Repeating unit: The part of a polymer whose repetition would produce the complete polymer chain.

Structural formula: A formula which shows the arrangement of atoms in the molecule of a compound but does not show all the bonds between them. E.g. $CH_3CH_2COCH_3$.