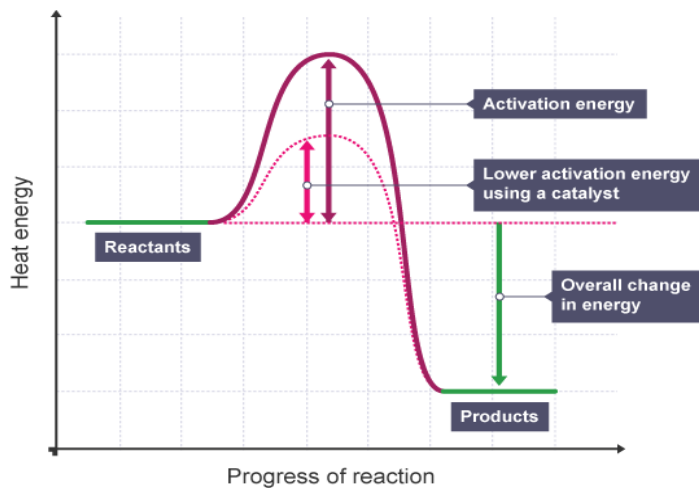
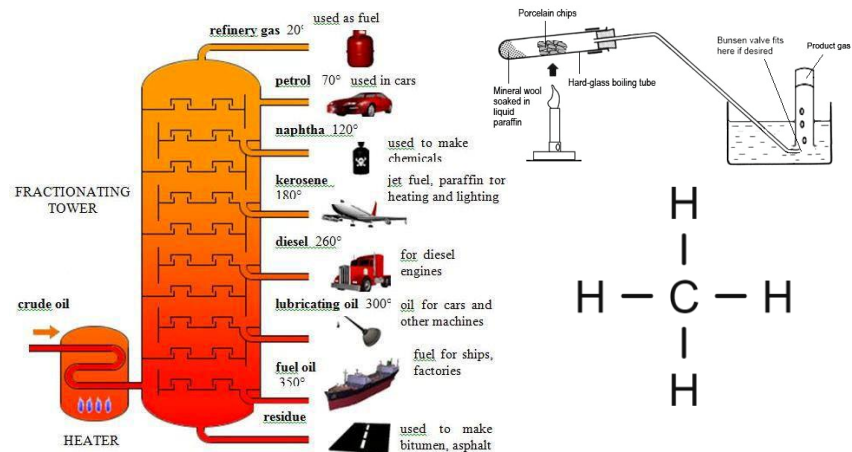


Chemistry C8 - Rates and equilibrium

- The rate of a reaction is a measure of how quickly a **reactant** is used up, or a **product** is formed.
- For a chemical reaction to happen:
 - **reactant particles** must collide with each other
 - the particles must have enough energy for them to react
- A collision that produces a reaction is called a **successful collision**. The **activation energy** is the minimum amount of **energy** needed for a collision to be successful. It is different for different reactions.
- **Factors** which affect the rates of chemical reactions:
 - Concentration, pressure, surface area, temperature and catalysts



Chemistry C9 - Crude oil and fuels



Alkanes are hydrocarbons and can be identified from their formulae, and for GCSE the displayed formula of the first four alkanes should be learnt. Reactions of hydrocarbons, include combustion (both complete and incomplete) and cracking. Balanced symbol equations can be derived and the conditions of cracking known. There is standard test for alkenes (a product of cracking).

Crude oil is a source of hydrocarbons and the fractional distillation of crude oil is how it is separated into molecules with similar boiling points. The size of the hydrocarbon molecule affects its properties, including viscosity, boiling point, and flammability.

Vocabulary:

Rate of reaction: The quantity of reactant used in a time or quantity of product formed in a time.

Collision theory: An explanation of chemical reactions in terms of reacting particles colliding with sufficient energy for a reaction to take place.

Activation Energy: The minimum energy needed for a reaction to take place.

Frequency: The rate at which something occurs over a period of time.

Concentration: The amount of substance dissolved in a volume of liquid.

Catalyst: A substance that speeds up a chemical reaction by providing a different pathway for the reaction that has a lower activation energy. It is chemically unchanged at end of reaction.

Reversible reaction: A reaction in which the products can re-form the reactants.

Dynamic equilibrium: At equilibrium, the rate of the forward reaction equals the rate of the reverse reaction.

Hydrocarbon: A compound containing only hydrogen and carbon.

Fractional distillation: A way to separate liquids from a mixture of liquids by boiling off the substances at different temperatures and then condensing and collecting the liquids.

Incomplete combustion: When a hydrocarbon burns in insufficient oxygen producing carbon monoxide as a toxic product.

Complete combustion: When a hydrocarbon is burnt producing carbon dioxide and water only.

Cracking: The reaction to break down large hydrocarbon molecules into smaller, more useful ones.

Videos



Quizzes

