

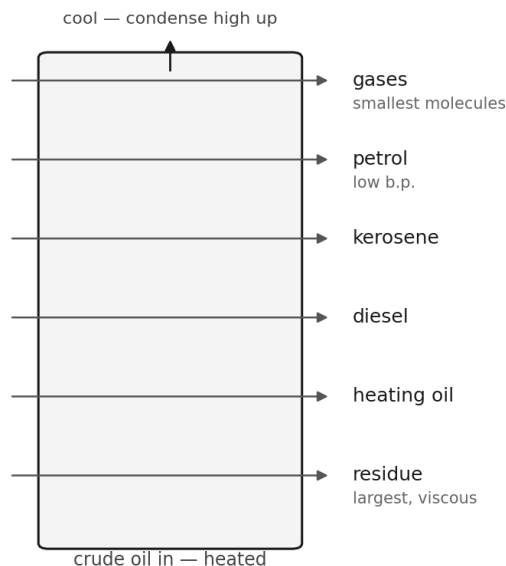
Exercise walk-through

7.2

Reactions of alkenes and alcohols – chemistry only (4.7.2.1–4.7.2.3)

AQA · GCSE · Chemistry

Crude oil and fractions



- Alkanes C_nH_{2n+2} — methane, ethane, propane, butane.
- Distillation — evaporate, condense by boiling point; small high, large low.
- Bigger molecules — hotter boiling, thicker, less flammable.

Polymers

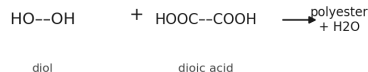
addition — monomer to repeating unit



n of them join — no other product

condensation — two monomers, water out

(2 functional groups)



- Addition — monomers join, nothing lost, unit equals monomer.
- (HT) condensation — two functional groups each, water lost, polyester.
- Natural — DNA nucleotides; proteins, starch, cellulose.

Exercises 2.1·2.3

2.1 Give the general formula of the alkenes. [1]

2.2 Name the alcohol made by fermenting sugar solution. [1]

2.3 (*HT*) Why is ethanoic acid a weak acid? [2]

Exercises 2.1·2.3

2.1 Give the general formula of the alkenes. [1]

2.1 C_nH_{2n} .

2.2 Name the alcohol made by fermenting sugar solution. [1]

2.2 Ethanol.

2.3 (*HT*) Why is ethanoic acid a weak acid? [2]

2.3 It is only partially ionised in water; so few H^+ ions form relative to a strong acid of

Exercises 3.1·3.3

3.1 Ethene reacts to form three different products. Name the other reactant and the product for each reaction. [6]

3.2 Describe the conditions for fermentation and the process by which ethanol solution forms. [4]

3.3 (*HT*) Ethanoic acid reacts with ethanol. Name the products and the type of reaction, and write the functional groups present in the reactants. [4]

Exercises 3.1·3.3

3.1 Ethene reacts to form three different products. Name the other reactant and the product for each reaction. [6]

3.1 + hydrogen (nickel catalyst) → ethane; + water/steam (phosphoric acid catalyst) → ethanol; + bromine → dibromoethane, decolourising bromine water.

3.2 Describe the conditions for fermentation and the process by which ethanol solution forms. [4]

3.2 Mix sugar solution with yeast; keep warm – around body temperature; exclude oxygen – anaerobic conditions; the yeast's enzymes convert the sugar to ethanol and carbon dioxide, giving a dilute ethanol solution.

3.3 (*HT*) Ethanoic acid reacts with ethanol. Name the products and the type of reaction, and write the functional groups present in the reactants. [4]

3.3 Ester – ethyl ethanoate + water; condensation/esterification reaction; ethanol carries –OH and ethanoic acid carries –COOH.