

Exercise walk-through

11.2

Naming organic compounds

IGCSE Chemistry

What we will cover

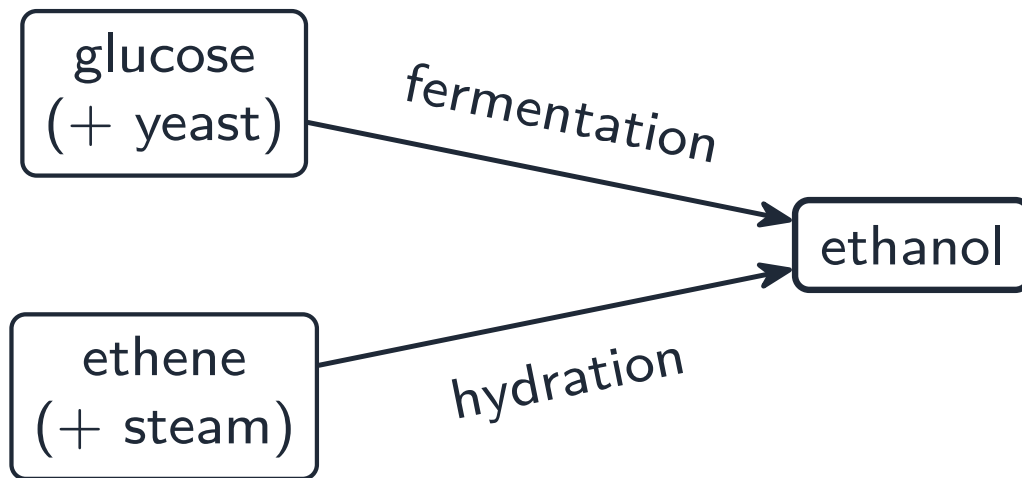
- 1 Homologous series & naming
- 2 Fuels & fractional distillation
- 3 Alkanes & cracking
- 4 Alkenes
- 5 Alcohols & acids
- 6 Polymers

Alcohols and ethanol

Ethanol (–OH) two ways:

- **fermentation** of glucose (yeast; renewable, slow)
- **hydration** of ethene (steam + catalyst; fast, pure)

Used as a fuel & **solvent** .



Two routes to ethanol, and what it becomes

Fermentation

Sugar with yeast at about 30 °C, no air – renewable, slow, and it gives a dilute product.

Hydration

Ethene plus steam over a catalyst – fast and pure, but it starts from crude oil.

Oxidation

Ethanol oxidises to **ethanoic acid** – which is what turns wine into **vinegar** .

Elsewhere in the topic

A **substitution reaction** swaps one atom for another – methane and chlorine under **ultraviolet light** – and **nickel** is the catalyst that adds hydrogen to an alkene.

Compare the two routes on the same three axes: raw material, energy, and purity of product.

Exercises 2.1·2.2

2.1 State the family of a compound whose name ends in -ol. [1]

2.2 State how many carbon atoms 'prop-' means. [1]

Exercises 2.1·2.2

2.1 State the family of a compound whose name ends in -ol.

[1]

2.1

- names ending in -ol are **alcohols**

2.2 State how many carbon atoms 'prop-' means.

[1]

2.2

- **prop-** means **three** carbon atoms

Exercise 3.1

3.1 Which compound is an alkene?

[1]

☐

A ethane

B ethene

C ethanol

D ethanoic acid

Exercise 3.1

3.1 Which compound is an alkene?

[1]

☐

A ethane

B ethene

C ethanol

D ethanoic acid

3.1 B

- the ending **-ene** shows **ethene** is an alkene
- A is an alkane; C an alcohol; D a carboxylic acid

Exercise 3.2 (a)

3.2 Name each compound from its description:

[3]

(a) a 2-carbon alcohol

Exercise 3.2 (a)

3.2 Name each compound from its description:

[3]

(a) a 2-carbon alcohol

(a)

- a 2-carbon alcohol is **ethanol**

Exercise 3.2 (b)

3.2 Name each compound from its description:

[3]

(b) a 1-carbon alkane

Exercise 3.2 (b)

3.2 Name each compound from its description:

[3]

(b) a 1-carbon alkane

(b)

- a 1-carbon alkane is **methane**

Exercise 3.2 (c)

3.2 Name each compound from its description:

[3]

(c) a 2-carbon carboxylic acid

Exercise 3.2 (c)

3.2 Name each compound from its description:

[3]

(c) a 2-carbon carboxylic acid

(c)

- a 2-carbon carboxylic acid is **ethanoic acid**

Exercise 3.3

3.3 Explain why both but-1-ene and but-2-ene need a number in the name. [2]

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3.3

- the number shows the **position of the C=C**
- the double bond can be in **different places**, giving different compounds