

Cracking Alkenes

GCSE Chemistry · Written to the shared content for AQA, Edexcel and OCR

Name _____ Class _____ Date _____

1. Worked example

Explain why oil refineries crack long-chain hydrocarbons. (2 marks)

Step 1 · Supply and demand

Fractional distillation gives more long-chain hydrocarbons than are needed, and not enough short-chain ones such

Step 2 · Products

Cracking turns them into smaller, more useful alkanes for fuel and alkenes for making polymers.

Answer: To meet demand for fuels and to make alkenes

Check: Two reasons: fuels and feedstock.

2. Now try one with the steps

Describe a test to show that a hydrocarbon is an alkene. (2 marks)

Step 1 · Test

Step 2 · Result

Answer:

3. Practice

Show your working. The marks tell you how much is expected.

1. Define the term cracking. [1]

2. Name the two methods of cracking and give a condition for each. [2]

3. Give two reasons why cracking is carried out. [2]

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

5. Write the formula of propene. [1]
- _____
- _____
6. Describe the test for an alkene and its result. [2]
- _____
- _____
7. Complete the cracking equation: $C_{10}H_{22} \rightarrow C_8H_{18} + \text{_____}$ [1]
- _____
- _____
8. Complete the cracking equation: $C_{14}H_{30} \rightarrow C_8H_{18} + 3 \text{_____}$ [2]
- _____
- _____
9. Calculate the relative formula mass of propene, C_3H_6 . (C = 12, H = 1) [1]
- _____
- _____
10. Explain why alkenes are described [1]
- _____
- _____
11. (Chemistry only) Name the product formed when ethene reacts with hydrogen in the presence of a nickel catalyst. [1]
- _____
- _____
12. (Chemistry only) Name the product formed when ethene reacts with steam in the presence of a catalyst. [1]
- _____
- _____
13. (Chemistry only) Name the product formed when ethene reacts with bromine. [1]
- _____
- _____
14. (Chemistry only) Explain why alkenes often burn with a smoky flame in air. [1]
- _____
- _____

4. Before you hand it in

"Bromine water turns clear with alkenes."

Say orange $\rightarrow$ colourless.

Writing ethene, H_6

Alkenes are C_nH_{2n} : ethene C_2H_4 , propene C_3H_6 .

Cracking equations that do not balance

Check carbons and hydrogens add up on both sides.