

11.8 Polymers

Name: _____ Class: _____ Date: _____

Total: 8 marks

KEY WORDS polymer 聚合物 • polyamides 聚酰胺 • polyesters 聚酯 • monomers 单体
• repeat unit 重复单元

Objective

Build the skills to answer exam questions on **polymers** 聚合物 — **addition** 加聚 and **condensation** 缩聚 polymerisation, the **repeat unit** 重复单元, and plastics in the environment.

You must be able to:

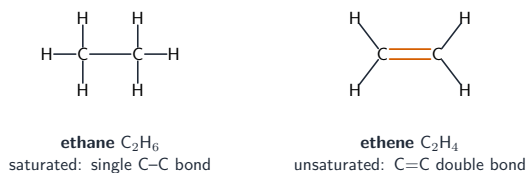
- describe addition polymerisation and draw a repeat unit
- compare addition with condensation polymerisation (polyamides, polyesters)
- discuss the disposal problems of plastics

1 Worked examples

■ Addition polymerisation



In addition polymerisation the C=C bonds open and monomers join — no other product



Addition polymers form from unsaturated monomers

- monomer:** small unit; **polymer:** the long chain; **repeat unit:** the part that repeats.
- condensation:** monomers join and a small molecule (water) is lost — polyamides (nylon), polyesters (PET).

2 Practice

2.1 Define a polymer. [1]

2.2 Name the monomer used to make poly(ethene). [1]

3 Exam-style questions

3.1 In addition polymerisation, the number of products formed is: [1]

- | | |
|---|---|
| A | B |
| C | D |
- A** one (the polymer only)
B two
C three
D none

3.2 Poly(ethene) is made from ethene.

(a) State what happens to the C=C double bonds during polymerisation. [1]

(b) Draw the repeat unit of poly(ethene). [2]

3.3 Many plastics are not biodegradable. State two problems this causes for the environment. [2]
