

## 20. Polymerisation

Starter Quiz · 课前小测

A-Level Chemistry

Name: \_\_\_\_\_ Score: \_\_\_\_\_

- In addition polymerisation, the monomers must have:
  - ☐ a C=C double bond
  - ☐ an –OH group
  - ☐ a –COOH group
  - ☐ a triple bond only
- To draw the repeat unit from a monomer, you:
  - ☐ change the C=C to a single C–C and draw bonds out at each end
  - ☐ add an extra carbon
  - ☐ remove a hydrogen
  - ☐ add a water molecule
- To find the monomer from a polymer's repeat unit, you:
  - ☐ put the C=C double bond back
  - ☐ add an –OH group
  - ☐ remove a carbon
  - ☐ join two repeat units
- Why are poly(alkene)s hard to dispose of?
  - ☐ they are non-biodegradable, and burning some (like PVC) releases toxic gases
  - ☐ they dissolve in water
  - ☐ they react with air quickly
  - ☐ they evaporate
- Addition polymers are made from monomers containing a C=C \_\_\_\_\_ bond.  
\_\_\_\_\_
- The repeat unit –CH<sub>2</sub>–CH(CH<sub>3</sub>)– comes from the monomer \_\_\_\_\_.  
\_\_\_\_\_
- Making poly(ethene) by addition polymerisation also produces water.
  - ☐ True
  - ☐ False
- The repeat unit –CH<sub>2</sub>–CH(CH<sub>3</sub>)– contains how many carbon atoms?
  - ☐ Two
  - ☐ Three
  - ☐ Four

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Answers · 答案

A-Level Chemistry

- a C=C double bond**  
  
The C=C double bond opens up to let the monomers link into a long chain, with no other product.
- change the C=C to a single C–C and draw bonds out at each end**  
  
Open the double bond (C=C → C–C) and put a bond out at each end to show the chain continues.
- put the C=C double bond back**  
  
Reversing the process, restore the C=C double bond in one repeat unit to get the monomer.
- they are non-biodegradable, and burning some (like PVC) releases toxic gases**  
  
Microbes cannot break them down (non-biodegradable); burning PVC releases toxic hydrogen chloride.
- double**  
  
The double bond opens to join the units.
- propene**  
  
Restore the C=C between the two backbone carbons: CH<sub>2</sub>=CHCH<sub>3</sub>, which is propene.
- False**  
  
The monomer atoms all enter the polymer. Addition polymerisation has no small-molecule by-product.
- Three**  
  
Two carbons form the backbone and one is in the methyl side group: three in total.