35. Polymerisation

Starter Quiz · 课前小测

A-Level Chemistry Name: _____ Score: _____

1. In condensation polymerisation:
   - ☐ monomers join and a small molecule (e.g. water) is lost each time
   - ☐ a C=C opens and nothing is lost
   - ☐ no bonds form
   - ☐ only one monomer is used
2. A monomer with a C=C double bond, where nothing else is lost, undergoes:
   - ☐ addition polymerisation
   - ☐ condensation polymerisation
   - ☐ no polymerisation
   - ☐ hydrolysis
3. Poly(alkene)s are hard to biodegrade because they have:
   - ☐ only strong, non-polar C–C and C–H bonds
   - ☐ ester links
   - ☐ amide links
   - ☐ ionic bonds
4. A polyester can be made from:
   - ☐ a diol and a dicarboxylic acid
   - ☐ two alkenes
   - ☐ an alkane and a halogen
   - ☐ a single C=C monomer
5. Monomers with two functional groups that lose a small molecule give:
   - ☐ condensation polymerisation (with ester or amide links)
   - ☐ addition polymerisation
   - ☐ free-radical substitution
   - ☐ no polymer
6. Some polymers are made photodegradable so that light can break them down.

   ☐ True ☐ False

7. Polymers that can be broken down by microbes or hydrolysis are described as _____.

   _____

8. Polymers made by joining monomers with loss of a small molecule (e.g. water) form by _____ polymerisation.

   _____

9. Addition polymers form from monomers containing C=C double bonds.

   ☐ True ☐ False

10. Condensation polymers such as polyesters can be hydrolysed and so are more easily degraded than addition polymers.

    ☐ True ☐ False

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Answers · 答案

A-Level Chemistry

1. **monomers join and a small molecule (e.g. water) is lost each time**

   Each new link releases a small molecule; the monomers need two reactive groups.

2. **addition polymerisation**

   Addition polymerisation opens the C=C and joins monomers with no other product.

3. **only strong, non-polar C–C and C–H bonds**

   With no polar links to attack, microbes cannot easily break poly(alkene)s down.

4. **a diol and a dicarboxylic acid**

   A diol (two –OH) and a dicarboxylic acid (two –COOH) form ester links along the chain.

5. **condensation polymerisation (with ester or amide links)**

   Two-group monomers join with loss of a small molecule, forming ester/amide links — condensation.

6. **True**

   Photodegradable polymers are designed to be broken down by light.

7. **degradable**

   They reduce plastic waste.

8. **condensation**

   Polyesters and polyamides form this way.

9. **True**

   No small molecule is lost.

10. **True**

    The ester/amide links can be broken.